

SUMMARY OF DISCUSSIONS

ICAO EUR PERFORMANCE BASED NAVIGATION TASK FORCE

(EUR PBN TF)

SEVENTH MEETING

(Paris, 2 –3 July 2012)

1. Introduction

1.1 The Seventh Meeting of the ICAO EUR PBN TF was convened on 2-3 July 2012 in the EUR/NAT Office of ICAO in Paris, France.

1.2 The Meeting was chaired by Mr Thomas Buchanan (Switzerland) and Mr Elkhan Nahmadov from the European and North Atlantic (EUR/NAT) Office of ICAO was the Secretary, assisted by Ms Catherine Daly from the same Office. Lists of participants and contacts are provided at **Appendix A** and **Appendix B**. A list of documentation submitted to the Meeting is provided at **Appendix C**. The meeting agenda is provided at **Appendix D**.

2. Review of the latest developments

ICAO update

2.1 The PBN TF was provided with an update on the latest amendments and proposals for amendment to ICAO provisions, particularly those related to PBN.

2.2 The PBN TF was provided with an overview of the new edition of the ICAO PBN manual which was expected to be published during the summer 2012. It was noted that the following activities were recommended following the publication of the new PBN manual:

- a) Shortcomings with filing of PBN in the 2012 ATC FPL identified, which will need to be addressed pre-FF ICE;
- b) Consequential changes [for routes with FRT] are required to ICAO documentation including Annex 11.
- c) It is recommended that ICAO develop supporting guidance/information for the new navigation specifications, especially Advanced RNP.
- d) The timeline for implementation will need to reflect development of supporting guidance material and implementation processes by States.
- e) It is anticipated that future actions will be necessary post-PBNSG to support implementation.

2.3 The PBN TF was informed that the following material was in preparation in the area of ATM / Airspace Planning and Design Support

- a) Continuous Climb Operations (CCO) Manual - Advance copy by July 2012;

- b) PBN Airspace Concepts Manual - Advance copy by July 2012;
- c) ilearn information/workshop package on PBN airspace design - August 2012.

2.4 In the area of Flight Operations support, the following was expected:

- a) PBN Operations Approval Manual - Under review by PBN Operations Approval Tiger Team Advance copy by September 2012

2.5 The PBN TF noted that the following on-line training packages were being prepared:

- a) ilearn information/workshop package on PBN Operations Approval - September 2012;
- b) ilearn information/workshop package on PBN overview - September 2012;
- c) PBN Implementation toolkit addressing: executives, regulators, ANSPs, Aircraft operators, Manufacturers - September 2012.

2.6 The PBN TF noted a state letter addressing Instrument Flight Procedures was expected by the end of 2012 addressing:

- a) Criteria to support new edition of PBN Manual;
- b) Improved Baro-VNAV criteria;
- c) Helicopter criteria;
- d) Sample charts.

2.7 Work was ongoing on the development of a Collision Risk Model for PBN obstacle clearance and air-to-air separation, PBN Procedure Design Safety Assessment Manual and Advanced RNP support document.

ICAO PBN Symposium

2.8 The PBN TF was informed that the ICAO PBN Symposium will take place on 16-19 October 2012 in Montreal; the main objectives of which are:

- a) The unveiling of future PBN provisions/directions;
- b) Achievements and roadblocks;
- c) Action to be taken;
- d) PBN in the ASBU context, and
- e) Commitment and resources.

2.9 In this respect, the PBN TF agreed that a contribution for the Symposium would be prepared on behalf of the EUR PBN TF. The presentation would report the status of implementation and discuss existing issues impeding implementation. Among them flight planning requirements in support of new PBN specifications, GNSS approvals, definition of IFR runway ends and 100% implementation requirement of the Assembly Resolution 37-11, ATC phraseology in support of PBN operations. It was agreed that the Chairman in coordination with the secretary and other members of the task force who volunteered to support, would develop a draft presentation aiming to make it ready for submission by the beginning of September 2012.

2.10 The PBN TF noted that the EUR SUPPs was amended to include specific provisions on flight planning for those current PRNAV approved aircraft that would not be considered equivalent to RNAV-1. The PBN TF noted that for these few remaining aircraft it would be required to indicate their equipage and capabilities by including Z in item 10 followed by NAV/EURPRNAV in item 18.

Regional workshops and Go Teams

2.11 The PBN TF noted that a PBN Airspace concept implementation workshop will be held on 9-12 in Georgia. In parallel, a regional Go- Team project will be done for States in the Southern Caucasus area. A global Go-Team project was scheduled on 4-7 September 2012 in the Russian Federation. The PBN TF noted that the outcome of these events will be reported at the next meeting. The PBN TF was informed that the final report of the GO Team project in Germany was completed and the German PBN implementation plan was updated taking the outcomes of the project into account.

Update by CANSO and IATA

2.12 The PBN TF was provided with information on the CANSO and IATA strategies to promote PBN implementation and noted the importance of continuous cooperation between international organisations to foster PBN from all angles, e.g. ANSPs, airspace users, airports, regulators etc. IATA provided an update on the IATA/airlines project with the Hellenic CAA on PBN implementation at Greek Island airports of which Heraklion and Corfu were selected as priority airports to gain experience with RNP APCH implementation. In the presentation IATA showed the outcome of the 2010 avionics survey encompassing about 2500 airframes of IATA member airlines. IATA also informed about a similar survey for 2012 which is expected to be published at the end of 2012. IATA reiterated that a business case for SBAS equipage is negative and airlines request priority from States and ANSPs to deploy RNP APCH APV BaroVNAV procedures. The PBN TF invited both organisations to continue providing updates at the next meetings.

EASA update

2.13 The PBN TF was provided with the status and foreseen evolution of the EASA regulatory and support material for PBN.

2.14 The following was noted:

- a) EASA is still working, supported by EUROCONTROL, on the NPA for the certification specifications for airborne CNS –CS-ACNS); it will include transposition of former JAA TGL 10 on Precision RNAV); the NPA is however not yet published.
- b) AMC 20-27 (APV/Baro-VNAV) is applicable and more stringent than corresponding FAA AC 20-129. AEA/IATA visited EASA on the subject on last 22 June:
- c) IATA and AEA once more expressed concerns over the criteria for APV/Baro-VNAV approaches contained in AMC 20-27 and proposed Certification Memorandum CM-AS-002, which provides further guidance and clarifications on application of AMC 20-27 requirements;
- d) The discussion with IATA and AEA initially focused on the airworthiness requirements in the AMC and the clarifications and guidance provided in the CM, although it soon became apparent that the main concerns voiced by IATA and AEA were in the domain of operational approvals, where EASA has no direct jurisdiction;

- e) EASA provided a recommendation to the NAAs to limit APV/Baro-VNAV approaches to airfields at elevations not higher than 5000 ft. for operations with aircraft approved to the criteria of FAA AC 20-129. This recommendation was drafted in cooperation with the leading NAAs and is based on recognition of a discrepancy between the airworthiness criteria in the ICAO PBN manual (and FAA AC 20-129) and the procedure design criteria in ICAO PANS-OPS Vol. II. (i.e. not to airfields whose Final Approach Fix is at 5000 ft or above);
- f) Although EASA appears to have been conservative in the assumption of the buffers applied for obstacle clearance in ICAO PANS-OPS Vol. II, the existing criteria of AMC 20-27 do not seem to be overly stringent; these represent the current state of technology, versus the PBN manual criteria which are believed to have been developed in the 1980's. The FAA recently proposed even more stringent requirements in their new AC 20-138C;
- g) With regards to the recommendation for operational approvals, EASA agreed that a more balanced recommendation may be justified. IATA, AEA and EASA agreed to form a Task Force to develop an improved recommendation to the NAAs. The Task Force should include airline operational experts, experts from the leading NAAs and EASA experts. IATA will draft the ToR for the Task Force and submit these to EASA for concurrence. The Task Force is anticipated to start soon after the summer holidays;
- h) The CM to AMC 20-27 may be published by the end of 2012
- i) There are currently no plans to update AMC 20-27.
- j) AMC 20-28 (ref. NPA and CRD 2009-04 on LPV/SBAS) is in progress. Publication still planned in 2012. Presently Agency can already certify implementation of SBAS receivers on aircraft, based on a generic Certification Review Item (CRI), in fact based on said NPA and CRD.
- k) 6 Rulemaking tasks related to PBN are contained in the draft EASA Rulemaking Programme (RMP) 2013-16:
- l) The draft RMP is open to comments by EASA Member States (MS) and industry stakeholders (SSCC) until 05 July 2012; its adoption is expected in September 2012;
- m) The ToR for RMT.0256 and RMT.257 (revision of operational criteria for current PBN operations, as listed in 'Part SPA') are finalized after consultation with MS and SSCC; publication is expected in July 2012; the tasks will be progressed through a Group for which nominations have been received; the Group will in particular include experts from general aviation and for pilot training; current thinking is in fact that the administrative process for SPA could in certain cases be avoided, when proper syllabi for pilot training would be in place. The NPA could be issued beginning of 2014.
- n) RMT.0445 and RMT.0446 aim at developing rules for airspace design, including procedure design, respectively at the level of legally binding Implementing Rules (IR) and AMC/GM or CS; both are scheduled to be initiated in 2013;
- o) RMT.0519 and RMT.0520 (again respectively for IRs and for AMC/GM and CS) have been newly introduced, to parallel the 'mandate' to EUROCONTROL. These tasks concern new PBN types and are based on the idea that EUROCONTROL would propose a SES IR rule specifying the 'what' (PBN types), 'where' (which airspace volumes), 'when' and by 'who' (e.g. States for airspace design and operators for aircraft equipment). In parallel EASA has to develop updates to the safety regulatory material (i.e. the 'how'), like for instance

deciding whether or not some of these new PBN types require SPA or whether specific airworthiness criteria are necessary.

EC PBN IR

2.15 The PBN TF was presented with an update on the development of the PBN Implementing Rule by Eurocontrol as mandated by the EC. It was noted that a consultation was expected for circulation in the coming 2-3 weeks followed by a workshop in October 2012. The PBN TF members were invited to take active participation in the review of the package.

EGNOS status update

2.16 An update was provided by the EGNOS service provider on the EGNOS system and services status, EGNOS SoL Service issues, EGNOS Services Roadmap and EGNOS SoL Service introduction Status. The current status of LPV implementation in Europe was also provided. Further information could be found <http://egnos-user-support.essp-sas.eu> and www.essp-sas.eu.

3. Status of PBN implementation in the EUR region

Status of PBN in the EUR Region

3.1 The PBN TF was presented with statistics on the progress of PBN implementation in the EUR based on the data available to ICAO through updates of the CNS4b Table of the EUR Air Navigation Plan and the PBN implementation status. It was noted that although the tables indicated a very good progress, it was still far below the agreed 30% implementation by 2011 for all IFR RWY ends serving aircraft with MTOW 5700 kg (Assembly Resolution 37-11 refers). In this regard, the PBN TF discussed uncertainty about definitions of what is the IFR runway end and therefore what constitutes 100% implementation requirement.

3.2 The PBN TF was also provided with PBN implementation status by Eurocontrol based information available through the LSSIP process and the on-line implementation status map tool. The PBN TF requested Eurocontrol to investigate whether this map tool could be made available for all States in the ICAO EUR Region.

Presentations by States

3.3 The PBN TF was presented with the status of the national PBN planning and implementation in France, Italy, Ukraine and the United Kingdom. Another presentation was provided on the experiences from RNP APCH AR implementation in Sweden.

3.4 In particular the PBN TF noted information provided by France on the alignment of the ATC phraseology in support of PBN with the charting requirements. It was agreed that this subject could be one of the issues for contribution by the EUR PBN TF for the upcoming ICAO PBN Symposium.

3.5 The PBN TF noted information provided by Romania about the lack of EGNOS coverage over Romania. It was also noted that there was a regulatory requirement for certification of all ANS providers within the SES framework, potentially implying that the GPS provider should be subject to such certification as well. Taking into account the practicalities of implementing such approach in the GPS case, the PBN TF noted that a regulatory approach to grant exemptions in such cases should be developed by the appropriate bodies.

3.6 The PBN TF encouraged States to continue providing reports on the PBN status and plans at future meetings.

4. ICAO fuel saving estimate tool IFSET

4.1 The PBN TF recalled that EANPG (Conclusion 53/34 refers) supported the request on the estimation and reporting of fuel savings resulting from national or regional operational improvements and took note of the ICAO Fuel Savings Estimation Tool (IFSET) which was specifically designed for this purpose. It was noted that IFSET had been designed to assist States to estimate and report fuel savings consistently with the models approved by ICAO's Committee on Aviation Environmental Protection (CAEP) and aligned with the Global Air Navigation Plan. It was noted that IFSET can help States measure the benefits from shortening/eliminating level segments on departure and arrival routes, shorter ATS-Routes (either in time or distance), cruising at different altitudes, and reducing taxi times.

4.2 The PBN TF members were encouraged to use the IFSET for estimating the benefits in terms of fuel savings/CO² emission reduction should be part of any PBN related implementations.

4.3 In conjunction with this subject, a presentation was provided on the study of potential tradeoffs between fuel efficiency, CO² emission and noise considerations when implementing CCOs.

5. ICAO EUR PBN approach guidance material

5.1 The PBN TF was provided with the final version of the EUR PBN approaches implementation guidance material and agreed to recommend to the EANPG COG to endorse this document as an ICAO EUR regional guidance in support of PBN approaches implementation

5.2 The PBN TF also agreed to recommend that the EANPG COG should task the EUR PBN TF with further maintenance of the document taking experiences accrued, new PBN specifications and emerging operational needs into account.

6. AOB

Follow-up actions list

6.1 The PBN TF reviewed the follow-up actions list from the previous meeting. It was agreed that all actions have been completed, reported and documented in this report. Consequently and taking the outcome of the discussions of the current meeting into account, the actions list was updated and provided at **Appendix E**.

Next meeting

6.2 The next meeting of the PBN TF will take place on 22-24 January 2013 in Paris with the main objective to discuss the outcomes of the ICAO PBN Symposium and AN-Conf/12 and their impact on the work of the task force.



European and North
Atlantic Office

A-1

Appendix A to
PBN TF/7-SoD

APPENDIX A List of Participants

AUSTRIA

Florian BUCHMANN

FRANCE

Cedric TEDESCO
Bertrand FOUCHER
François GREMY

GEORGIA

Vladimir JERENASHVILI

GERMANY

Roland KALUZA

ITALY

Stefano FELICI
Carmelo LOPIS
Leonardo NICOLO

LATVIA

Andrejs DUDAREVS
Érika NEIMANE

MONTENEGRO

Aleksandar DJORDJEVIC

MOROCCO

Abdellah SAKHI

NORWAY

Arne LINDBERG
Arne HEGGE

POLAND

Andrzej KROL
Karol KAZMIERCZAK

ROMANIA

Viorel SALISTEAN
Valentin STOIAN

RUSSIAN FEDERATION

Elmar ALEKSANDROV
Vitaliy AMRAMTSOV
Mikhail DANILIN
Alexander LOSEV

SPAIN

Francisco-Javier DE BLAS
Juan David Nieto SEPULVEDA

SWITZERLAND

Peter IMHOF
Thomas BUCHANAN
Laurent DELETRAZ
Marc TROLLER Dr

UKRAINE

Pavlo KUD

UNITED KINGDOM

Geoffrey BURTENSHAW

CANSO

Akos VAN DER PLAAT
Henrik EKSTRAND

EASA

Bryan JOLLY
Filippo TOMASELLO

EUROCONTROL

Rodolphe SOLOMON
Richard FARNWORTH
Sasho NESHEVSKI
Aline TROADEC

IAC

Sergey KONOGIN

IATA

Anthony VAN DER VELDT

JEPPESEN

Thomas HESS

LUFTHANSA

Martin ZILLIG
Pieter-Bas OORTMAN

LUFTHANSA SYSTEMS FLIGHTNAV INC

Jordan MEEK

ICAO

Elkhan NAHMADOV
Sven HALLE
Catherine DALY

APPENDIX C
Contact ListICAO EUR PBN TF/7
(Paris, 2 to 3 July 2012)STATUS OF DOCUMENTATION
List of working papers

WP	Title	Presented by
1	Agenda	Secretariat
2	Guidance material for the implementation of RNP APCH Operations (Updated after PBN TF 06)	Eurocontrol
3	ESSIP report for 2011	Eurocontrol

List of information papers

IP	Title	Presented by
1	PFA Reg Supplementary Procedures EUR Region Doc 7030/5 EUR/NAT-S 11/06-EUR	Secretariat
2	ICAO Update	Secretariat
3	Invitation PBN Symposium, Montreal, Canada, 16-19 October 2012	Secretariat
4	Invitation 12 th Air Navigation Conference, Montreal, Canada, 19-30 November 2012	Secretariat
5	SL on IFSET	Secretariat
6	12 th Air Navigation Conference, Montreal, Canada, 19-30 November 2012	Secretariat
7	Guidance for the provision of NAV/COM/SUR information in the New ICAO 2012 Flight Plan	Eurocontrol
8	PBN Tasks in draft RMP 2013-2016	EASA
9	PBN Implementation Plan	Italy
PPT	Title	Presented by
01	ATC Key enablers for PBN implementation	France
2	Status of PBN Implementation on EAU	Secretariat
3	PBN Study Group – Final meeting PBN Manual Status	United Kingdom
4	PBN ICAO HQ Activities Overview	Secretariat
5	UK Performance-based Navigation (PBN) Implementation Status	United Kingdom
6	CANSO Vision & Strategy on PBN Implementation	CANSO
7	ICAO Fuel Estimation Savings Tool (IFSET)	CANSO
8 Rev	PBN Implementation plan inside Italian Airspace	Italy

APPENDIX C
Contact List

9	France PBN Implementation Status	France
10	A CO ₂ versus noise trade-off study for the evaluation of ATM speed constraints in the departure phase of flight - A case study at Gothenburg Landvetter Airport	Canso
11	RNP AR Operation in Sweden	Canso
12	PBN Planning and Implementation	Ukraine
13	EGNOS Service Provision Status	Spain
14	PBN Implementation project at Greek (Island) airports	IATA



APPENDIX D

Agenda

**ICAO EUR PBN TF/7
(Paris, France, 2-3 July 2012)**

02/07/2012		
13:30	Registration	
14:00	Introduction	
14:15	Latest developments	- ICAO – E.Nahmadov IP01 IP02, IP03, Ip04, IP05, IP06 ICAO global update ppt -Geoff - EC - Sasho –PBN IR - EASA – Filippo Aline IP07
	IFSET	CANSO/ICAO Akos/Sven
15:15	Coffee	
15:45	Status of PBN implementation. ICAO ANP Tables and LSSIP updates	ICAO/Eurocontrol Ppt02 - Elkhan WP03 Rick
16:15	National PBN Plan Italy	Leonardo
16:30	EUR inputs for the ICAO PBN Symposium	Aline/Rick
17:00	End of the day	
03/07/2012		
09:30	New revision of the PBN Manual - A-RNP - RNP2 - RNP0.3	Geoff
10:30	Coffee	
11:00	CANSO approach to PBN	CANSO Akos
12:00	Lunch	
13:00	A CO ₂ versus noise trade-off study for the evaluation of air traffic management speed constraints in the departure phase of flight"	CANSO Henrik
13:30	RNP APCH guidance material WP02	Rick
14:00	EGNOS	ESSP SAS -Spain
14:30	RNP AR APCH	Henrik
15:00	IATA– project in Greece.	A.Van der Veldt
15:15	Coffee	
15:45	National PBN planning & implementation status	Ukraine Pavel Kud France – Bernard ppt01 United Kingdom - Geoff etc
	AOB	
17:00	Closure	

APPENDIX E – FOLLOW UP ACTION LIST

ID #	TASK ID	WHO	WHEN
7-1	Continue monitoring the status of PBN information from the responses to Table CNS4b and Eurocontrol LSSIP.	Secretary Eurocontrol	PBN TF/8
7-2	Provide updates on equipage plans collected by IATA and Eurocontrol	IATA/Eurocontrol	PBN TF/8
7-3	Submit the EUR PBN approaches guidance material for the endorsement of the EANPG	ICAO	PBN TF/8
7-4	Provide comments on the EU PBN IR consultation package	PBN TF	PBN TF/8
7-5	Provide updates on the regulatory issues in the framework of EASA	EASA	PBN TF/8
7-6	Provide information on the outcomes of the ICAO PBN Go Team projects in the Russian Federation and the Southern Caucasus States	ICAO	PBN TF/8
7-8	Provide reports using IFSET on fuel savings and CO2 reduction resulting from PBN implementations	PBN TF	PBN TF/8
7-10	Coordinate an EUR PBN TF presentation for the ICAO PBN Symposium	Chairman	PBN TF/8

-END-