INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA AND PACIFIC OFFICE

REPORT OF
THE FIRST MEETING OF THE PERFORMANCE BASED NAVIGATION
IMPLEMENTATION COORDINATION GROUP (PBNICG/1)

Beijing, China

(10-12 March 2015)

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PART I – HISTORY OF THE MEETING

1.   Introduction

1.1   The First Meeting of Performance Based Navigation Implementation Coordination Group (PBNICG/1) was held at the ICAO Asia-Pacific Regional Sub-Office, Beijing, China, 10-12 March 2015.

2.   Attendance

2.1   The PBNICG/1 was attended by 30 participants from 10 States and administrations.

2.2   The participants were PBN experts from States. The relevant presentations and documents are available at http://www.icao.int/APAC/Meetings/Pages/2015-PBNICG1.aspx. The list of participants is contained in Attachment 1.

3.   Opening of the Meeting

3.1   On behalf of Regional Director Mr. Arun Mishra, Mr. Noppadol Pringvanich, Chief of ICAO APAC RSO welcomed the participants to the meeting. In his opening remarks, he highlighted the high priority of PBN implementation at the global and regional levels and stressed the necessity and importance on the establishment of PBNICG.

4   Officers and Secretariat

4.1   Mr. Noppadol Pringvanich, Chief of ICAO APAC RSO and Mr. Frederic Lecat, Regional Officer CNS acted as secretaries and were assisted by Mr. Ha Huho, Regional Officer ATM (AOM-PBN) and Mr. Liu Song, Regional Officer ATM (AOM-FUA).

5.   Working Arrangements, Language and Documentation

5.1   The working language of the meeting and all documentation was English. There were 11 Working Papers (WP), 12 Information Papers (IP), 3 Presentations and 2 Flimsies considered by the meeting. A list of papers is included at Attachment 2 to this report.

5.2   On the first day, Mr. Erwin Lassooij, PBN Programme Manager, Air Navigation Bureau, ICAO HQ, presented PBN Global updates and provided ICAO HQ's views on PBN implementation through teleconference. On the second day, breakout sessions were set up in the afternoon to initiate actions based on agreed action items, including starting to develop enhanced reporting form, reviewing safety assessment checklist and PBN-in-a-page.

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PART II - REPORT OF AGENDA ITEMS

Agenda Item 1 – Adoption of agenda

1.1   The provisional agenda (WP03) was adopted by the meeting. The Agenda for the meeting can be found in Attachment 3 to this report.

Agenda Item 2 – Review of the Terms of Reference and election of PBNICG Chairperson

2.1   Following a proposal by Maldives supported by Fiji and Thailand, Mr. Ian Mallett from Australia was elected as the Chairman of PBNICG. Mr. Joe LAM Chi-ching from Hong Kong China and Mr. Ilaitia Matanimeke Tabakaucoro from Fiji were appointed as rapporteurs to assist Chairman in PBN Terminal related issues and PBN En-route issues, respectively. The Chairman and both Rapporteurs thanked the meeting participants for their trust and expressed their commitments to work with States and willing to share their experience with other participants.

WP02: TERMS OF REFERENCE OF PBNICG AND REMAINING ACTION ITEMS FROM PBN/TF (SECRETARIAT)

2.2   The Secretariat presented WP02 detailing the Terms of Reference (TOR) of PBN ICG provided in Appendix B and APANPIRG/25 considerations on the inclusion of PBN implementation in military aerodromes where international civil operations are taking place to the PBNICG and introduced the task list of APAC PBN/TF which was dissolved in 2013.

2.3   Singapore suggested that the meeting should consider referring to the Regional ANP when determining to include military aerodrome in their PBN plan. The Secretariat from Regional Office informed the PBNICG that the current version of RANP was planned to be replaced by the new e-ANP by the end of 2015 and informed that States/Administrations willing to include new aerodromes into the RANP, if any, should send a proposal for amendment (PfA) to the Regional Office. The meeting also agreed that the scope of PBNICG activity will be within the aerodromes listed in RANP.

2.4   The PBNICG agreed to the following action item:

Action 1/1   States are encouraged to consider including military aerodromes where international civil operations are taking place into the Regional Air Navigation Plan (RANP) and State PBN Implementation Plan.

2.5   Reviewing the remaining action items from PBN/TF, the meeting agreed that only Action 10/3 *The six States which had attended the PBN Workshop should submit a PBN Plan and PBN POCs as soon as practicable, and if possible by 1 April 2013, in order to report to the CNS Sub-Group* would be carried over to the PBNICG. However this action was closed and action 1/5 (see below) open.

2.6   The Secretariat also indicated that the APANPIRG structure review Task Force would review the structure and TOR of all APANPIRG bodies in 2015, which may influence the PBNICG TOR

Agenda Item 3 – Global and Regional PBN Updates and States' PBN Implementation Progress

PBN UPDATE (PRESENTATION 1) (ICAO HQ)

3.1   The PBN Program Manager of ICAO presented the Asia and Pacific PBN implementation Status comparing with Global trends in the area of PBN approaches, SIDs/STARs, ATS routes and PBN Implementation Plan. He also introduced the activities of the PBN Program Office. He explained that the PBN Study Group (PBN SG) was ensuring liaison and consistency regarding PBN policies and provisions with relevant bodies: IFPP, FLTOPSP, NSP, ATMOPSP and SASP.

WP01: PBN IMPLEMENTATION IN SINGAPORE (SINGAPORE)

3.2   Singapore presented updates on the status of PBN Implementation, including the progress made for PBN implementations at the terminal area in Singapore as well as in en-route airspace. The paper also proposed the continuation of the PBN Implementation Progress Report process which was previously undertaken by the PBN/TF which was agreed by the meeting as this would ensure that progress can be monitored closely. This topic on the reporting form was further discussed in detail during WP09.

WP04: PBN IMPLEMENTATION SUPPORT ACTIVITIES BY ICAO RSO (SECRETARIAT)

3.3   The Secretariat introduced ICAO Asia and Pacific Regional Sub Office (RSO) including Strategic Framework, organizational structure and a summary of PBN implementation support activities being provided by APAC RSO and encouraged APAC States and Administrations to seek the support of RSO during their implementation of PBN and related areas such as Airspace Organization and Management (AOM) and ATFM/CDM.

3.4   Fiji complimented the APAC RSO's support for the PBN implementation support and stressed the challenges Fiji encountered regarding the quality management of flight procedures. Fiji also indicated that a major update of the civil aviation regulatory framework was ongoing, and would seek alignment with the draft amendment of Annex 11 regarding flight procedures regulatory framework. The PBNICG also complemented Fiji's achievement in PBN implementation and asked Fiji, in cooperation with the RSO, to assist Pacific Island States' PBN implantation as a group.

Action 1/2   To provide Fiji with the draft amendment to Annex 11 regarding the flight procedures regulatory framework.

3.5   Maldives expressed the need for the development of procedures for helicopter operations. The Chairperson of the meeting explained the PBN Study Group's efforts in developing RNP 0.3 flight procedure criteria which would be used for helicopter operations and current application thereof to offshore operations in Australia. The Secretariat proposed to coordinate with APAC Flight Procedure Programme (FPP) on the need for the provision of flight procedure design course for helicopters.

Action 1/3   To coordinate with APAC FPP Steering committee about the need for procedure design course for helicopters.

WP09: REVIEW AND UPDATE STATE'S PBN IMPLEMENTATION (SECRETARIAT)

3.6   The Secretariat presented PBN implementation status as shown in the integrated Safety Trend Analysis and Reporting System (iSTARS) 2.0 SPACE of ICAO and requested PBNICG to review the status of State's PBN Implementation and advise PBNICG Secretariat of any discrepancy found in the current database. The paper also requested PBNICG to review and enhance the PBN Implementation Progress Report which was used by the previous APAC PBN Task Force.

3.7   Singapore asked the reason why Jeppesen data was used for the update of PBN implementation status. The Secretariat explained that the use of Jeppesen data to update the iSTARS was a more effective way to get the dashboard up and running given that information may not readily available from other regions, unlike in the APAC. This is where PBNICG can add value to enhance the reporting system to fulfil both global and regional reporting requirement.

3.8   Regarding the use of PBN Implementation Progress Report, the Secretariat proposed to form a group comprising of China, Fiji, Singapore, Secretariat of Regional Office and RSO and draft an enhanced form of the PBN Implementation Progress Report to harmonize the current PBN implementation data collection framework in iSTARS of ICAO HQ.

Action 1/4   To review and enhance the PBN Implementation Progress Report form, such that it can fulfill global and regional PBN reporting requirements.

WP10: PBN IMPLEMENTATION PROGRESS OF THE ASIA AND PACIFIC REGIONS (SECRETARIAT)

3.9   The Secretariat introduced the PBN implementation status in APAC Region. The PBNICG noted the positive trend in PBN implementation. But one concern remained that a significant number of APAC States/Administrations, 8 in total (Bangladesh, Bhutan, Brunei Darussalam, Mongolia, Myanmar, Nauru, Sri Lanka and Vietnam), were still to publish PBN approach procedures into their AIPs. This lack of implementation needed to be discussed urgently and a proper mechanism developed. However, based on information available to the ICAO APAC RSO, the meeting noted the recent developments on PBN implementation in Bangladesh, Mongolia, Myanmar and Sri Lanka.

3.10   To address this concern, the meeting agreed to the following actions:

Action 1/5   APAC Regional Office to issue a State letter to request APAC States and Administrations not having submitted yet a PBN plan to do so, provide a PBN POC, and consider forming sub-regional groups as necessary.

Action 1/6   With regard to action 1/5, Fiji in cooperation with RSO to assist Pacific Islands States who have not developed or submitted their PBN Implementation Plan.

Action 1/7   With regard to action 1/5, to coordinate with Brunei Darussalam for the PBN implementation including the submission of State PBN Implementation Plan.

IP02: PBN IMPLEMENTATION IN PAKISTAN (PAKISTAN)

3.11   Pakistan presented the current status and future plans of PBN implementation in their FIR. The introduction of PBN has led to significant benefits which met the emerging requirements of the entire aviation community. Pakistan had also availed benefits by transforming seventeen major ATS routes by implementing PBN. This had allowed multiple parallel flows passing through Pakistan

airspace connecting Europe and Asia. At the moment, 5 parallel routes with 50nm lateral spacing using RNP10 connect Indian and Afghan airspace through Pakistan. Longitudinal separation of 50NM was implemented on 2 routes earlier. Reduced Horizontal separation of 50NM will be implemented on all routes enhancing airspace capacity and optimizing flight profiles. This contributed to enhanced capacity and increased safety.

3.12   Pakistan had implemented RNP APCH on 3 airports and was working for PBN implementation in other airports. RNP APCH with LNAV/VNAV minima had also been implemented at AIIAP Lahore. Similar approaches at BKIAP Peshawar and Faisalabad airport were under implementation. Pakistan was also working on PBN terminal procedures for JIAP Karachi and AIIAP Lahore with the objective of segregation of arrival and departure trajectories. This would also enhance safety and efficiency and allowed implementation of CCO/CDO at these airports.

IP03: PBN IMPLEMENTATION IN THE MALDIVES AND IP04 PBN (RNP 1) DOMESTIC ROUTES (MALDIVES)

3.13   In line with the ICAO Asia Pacific Regional PBN Implementation Plan, Maldives adopted a 3 phased approach in the implementation of PBN: Short Term (2008-2012), Medium Term (2013-2016) and Long Term (Beyond 2016). In 2009 SIDs and STARs and associated approach procedures were published for Male International Airport: SIDs and STARs based on RNAV1 (GNSS) and approach procedures were RNP APCH, LNAV (NPA/GPS) and LNAV/VNAV (APV Baro). In 2010, 5 previously published conventional (oceanic) routes were redefined RNP 10 (RNAV 10). In 2012 Maldives PBN Implementation Plan was officially approved by ICAO and recognized among "robust" nations in terms of PBN implementation. By 2013, RNP APCH approach procedures were implemented at 5 domestic airports. On 13 November 2014, Maldives implemented PBN (RNP1) Domestic parallel routes.

Action 1/8   Maldives to share with Myanmar the benefits/experience of implementation of PBN (RNP 1) Domestic routes.

3.14   By the end of 2015, Maldives informed that RNP APCH procedures would be published for the remaining domestic airports, and all the NDBs would be decommissioned.

IP08: UPDATE ON HONG KONG, CHINA PBN IMPLEMENTATION (HONG KONG, CHINA)

3.15   Hong Kong RNP1 SIDs and STARs procedures had been implemented since January 2013. Two more RNP AR APCH procedures to HKIA for the Runway 07 (RWY07L and RWY07R) for designated operator were implemented in February 2015. As of March 2015, all HKIA RWYs had 2 RNP AR APCH.

3.16   For en-route application, the mandate requirement for all aircraft operating at or above FL290 on PBN route L642 and M771 within Hong Kong FIR to be approved for RNP 4 was effective on 11 December 2014.

3.17   This paper also informed the meeting that Hong Kong was studying the application of ARNP in Hong Kong airspace and by applying RNP 0.3NM with the latest PANSOPS design criteria for ARNP, it should be able to replace some of the RNP AR APCH implemented in Hong Kong so as to eliminate stringent requirements for RNP AR APCH.

Action 1/9   **To remind PBN Study Group through APAC RO about the need for the requirement for ARNP Charting Criteria to support the application of ARNP to be available by as soon as possible, preferably by the end of 2015.**

IP09: PBN IMPLEMENTATION IN CHINA (CHINA)

3.18   CAAC issued the "PBN Implementation Roadmap" in 2009, which pinpointed the mid-term goal of fully adopting PBN operation by the end of 2016, the long-term goal of system integration between PBN and CNS/ATM by 2025, and their specific courses of action. For the medium term of the PBN implementation plan, the CAAC plans to selectively apply RNP 10 and RNP 4 navigation specifications for oceanic and remote en-route operation. For busy airspace, RNAV 2 or RNAV 5 navigation specifications are selectively applied for en-route operation. The CAAC plans to implement RNAV 1 and RNP 1 for all airport terminal area operations within China by 2016, and to expand implementation of RNP APCH with Baro-VNAV in approach operations. By 2016, RNP approach capability will be available to all instrument runway ends. RNP AR approach procedures will be implemented at airports with operational requirements.

3.19   By far, among 202 airports in China, 143 airports have finished PBN procedure design (included RNP APCH/RNP AR procedures accounts for over 88% of the total number of airports), and 83 airports had implemented PBN procedures by the end of 2014. China informed that the application of PBN technology in terminal area had basically achieved the medium term goal of the roadmap regarding terminal and approach application. For en-route application, there are 20 RNAV routes with the mileage of almost 20500km, accounting for 21% of the total mileage of air route in China by the end of 2014. According to statistics, the current PBN routes contain 3 RNAV 2, 3 RNAV 5, 1 RNP 1, 10 RNP 4 and 3 RNP 10 routes, which is approaching the medium term target of PBN en-route implementation. On February 5th 2015, CAAC had deployed PBN for en-route operations all over Xinjiang Province.

IP10: THAILAND PBN IMPLEMENTATION (THAILAND)

3.20   Thailand presented the progress of PBN implementation in Thailand. The meeting noted the recent revision of Thailand PBN Implementation Plan to be in line with the Asia-Pacific Seamless ATM Plan. The revised Plan outlined the PBN navigation specifications which include RNP 2 as the targeted PBN navigation specification for en-route operations and RNP 1 for terminal airspaces in 2018. The Plan also includes the implementation of RNP AR APCH starting from 2015 and GBAS starting from 2018 at selected airports where appropriate.

3.21   The meeting noted Thailand's PBN implementation progress in terminal areas. Currently, PBN procedures are in operation for terminal areas at 15 airports, including the recent addition of Khon Kaen and Ubon Ratchathani in 2014. The meeting also noted that, by the end of 2015, Thailand would have PBN procedures implemented at 28 out of 36 civilian airports in Thailand.

3.22   For en-route airspace, the meeting noted the implementation of three unidirectional RNAV-5 routes connecting from Phuket to Bangkok (Y5) and between Bangkok and Chiang Mai (Y6,Y7) in 2013, and five additional unidirectional RNAV-5 routes connecting Bangkok with southern destinations (Y8,Y9,Y10,Y11,Y12) in June 2014. By mid-2015, two domestic RNAV-5 Routes (Y9,Y10) would be upgraded from domestic to international routes between Bangkok FIR and Kuala Lumpur FIR. Thailand informed the meeting that similar new RNAV-5 unidirectional route structure between Bangkok-Yangon FIRs and Bangkok-Phnom Penh FIRs were coordinated and expected to be implemented by the end of 2015.

3.23   Singapore congratulates Thailand on the progress made in PBN en-route implementation and look forward to continue collaborating with Thailand in PBN en-route implementation between Singapore and Bangkok FIR.

IP11: PBN IMPLEMENTATION IN VIETNAM (VIETNAM)

3.24   Recognizing the benefits of PBN, Vietnam had established a national PBN Task Force to develop policy, implementation plan and standards for the deployment of PBN procedures and operations in Vietnam. Vietnam also established a regional cooperation mechanism with Cambodia and Lao PDR to use a newly established team of flight inspection services of VATM (ATTECH).

3.25   Viet Nam informed the meeting that WGS-84 coordinates would be surveyed by surveyors assigned by CAAV or provided by ACV, VATM at Phu Bai, Phu Quoc, Cam Ranh, Da Nang and Tan Son Nhat Airports, and published in the AIP in accordance with the provisions of Annex 15. Viet Nam reported that there would be 17 qualified PBN flight procedure designers in total in Vietnam C/P.

3.26   Data contained in this paper showed that 65 PBN flight procedures are being designed and would be in place in terminal airspace in accordance with Vietnam PBN Roadmap.

3.27   Vietnam informed the meeting that it has already developed some PBN procedures being used by Vietnamese airlines and that, following flight validation, these PBN procedures would be published by July 2015 in its AIP.

IP12: FIJI PBN IMPLEMENTATION AND PROGRESS (FIJI)

3.28   Fiji had embarked in 2008 on PBN compliance with A37/11 (which superseded A36/23) with the appointment of the focal person and the development of Fiji PBN Implementation Plan in 2008 and 2010 respectively. Fiji recognized and supports the tasks to be undertaken at PBNICG and expected to participate in collaboration with ICAO APAC RSO, the PBNICG and Member States to enhance PBN implementation in the ICAO APAC Region.

3.29   Fiji participation at PBN T/F had culminated in the Memorandum of Cooperation (MOC) endorsed in 2013 by the Fiji Government involving Fiji's ANSP – Airports Fiji Limited, CAA Fiji and ICAO APAC RSO. The initial portion of the MOC with a PBN Design Review and PBN Operations Approval was successfully hosted by Fiji in October 2014 involving three (3) other Pacific Island States and Regional Airline representatives.

3.30   The consensus and task assignments after completion of the PBN Design Review collated a significant number of PBN short-term design and deployment targets for Nadi International Airport and a busy domestic airport Labasa due for completion in the 3rd quarter of 2015.With the adoption of ICAO LAM AC on Operations Approval Fiji planned to complete approval for Fiji domiciled aircraft by the 3rd quarter in 2015 with emphasis on RNP4 and RNP-AR for its international carrier Fiji Airways.

3.31   An outcome of the PBN Operations Approval where Fiji invited ICAO and IATA to develop/review the guidance material on PBN when using RNP4 with 30/30 separation to support UPR operation and RNP4 does not yet have the requirement for database usage as required by RNP4 approval.

Action 1/10   To invite PBN Study Group to develop/review guidance material on PBN when used to support User Preferred Route (UPR)/Flex Track operations, especially regarding database management.

PBN UPDATES FROM AUSTRALIA (AUSTRALIA)

3.32   Australia reported the ongoing transition to a largely satellite based PBN ATM infrastructure as per the PBN plan. This includes mandates for the carriage of GNSS and ADS-B that will apply to all IFR aircraft in 2016 and 2017 respectively. In mid-2016 the airways structure would be RNP 2/1 based and some 200 ground based aids including NDBs, VORs and DMEs would be withdrawn.

3.33   Some 500+ GNSS based LNAV approaches were already in place along with RNP approaches at 16 major airports. Basic Baro-VNAV approaches are in the process of being designed and are awaiting confirmation of the validation processes. The pilot licensing standards have been revised in the new part 61 regulation that includes 2D and 3D approaches. GLS is now available in Sydney and planned for Melbourne and Brisbane.

3.34   Further details along with various PBN training resources can be found on the CASA web site www.casa.gov.au under the CNS section.

PBN IMPLEMENTATION UPDATE (INDONESIA)

3.35   Indonesia presented its PBN implementation plan and implementation status. PBN implementation plan was divided by three phases : short term, medium term and long term.

3.36   For the short term phase, RNAV5 navigation specification was planned for selected existing route(s) and the feasibility study was planned for RNAV2 navigation specification as for the en-route. RNAV1 SIDs/STARs were proposed on selected international airport(s) for the terminal area. For the approach procedures, RNP APCH was planned but Baro-VNAV was considered at certain instrument runways. Also trial base operations for RNP AR approaches were planned at certain airport(s) and the feasibility study was planned for GBAS operations.

3.37   In terms of PBN implementation, RNP10/RNAV10 navigation specification was applied to L774, M522, M774, M766, M768, N628, N633, P627, P648, P756, L504, M635,P574, N563, M300 and P570 routes and RNAV1 SIDs/STARs were implemented in several airports including Jakarta Soekarna-Hatta International Airport and Ngurah Rai International Airport. Also RNP approaches were implemented in Ngurah Rai International Airport Denpasar and RNP AR approaches were implemented RNP AR in Husein Sastranegara Airport Bandung in 2014. In addition to these, additional RNAV1 SIDs/STARs were developing in in Juanda International Airport, Halim International Airport and Kualanamu International Airport Medan, RNP approaches in Soekarna-Hatta International Airport Jakarta, Sentani Jayapura Airport, Tambolaka Airport, Meulaboh Airport, Pelalawan Airport, Nusawiru Airport and RNP AR approaches in Kualanamu International Airport Medan. Also the DGCA in cooperation with JICA (Japan International Cooperation Agency) was planning to conduct PBN Workshop and Training in Indonesia.

3.38   Beyond 2016, Indonesia was considering mandate better navigation specification in accordance with the ICAO regional roadmap, completing the implementation of PBN procedures for both international and domestic airports and expanding the use of GNSS based precision approaches as a backup of the ILS.

Agenda Item 4 –   Review of related global/regional plans, priorities and targets and relevant meeting outcomes

WP05: STATUS OF DEVELOPMENT OF STATE PBN IMPLEMENTATION PLAN (SECRETARIAT)

4.1   The Secretariat presented the status of State's PBN Implementation Plan development and raises issues of assisting States who have not developed the State plan. 14 out of 42 States had not submitted their State PBN Implementation Plans. The meeting also discussed timeline for updating State's PBN implementation plan which was already published and agreed the following Action Item.

Action 1/11   APAC Regional Office to issue a State letter to request APAC States and Administrations to update their PBN Implementation Plan by the end of 2016.

4.2   Considering that RNP 2 provisions concerning operational approval would be delivered later than expected, The PBNICG recognized the need to review the targets and metrics which are related to PBN in the APAC Seamless ATM Plan and agreed the following action item.

Action 1/12   To review the targets and metrics which are related to PBN in the APAC Seamless ATM Plan and provide inputs, if any to the APAC Regional Office before the next review cycle of the APAC Seamless ATM Plan.

4.3   For PBNICG to be able to report the benefits of PBN implementation within the Region, the meeting agreed that States should report benefits and challenges relating to implementing PBN.

Action 1/13   States to report analysis of benefits and challenges with implementing PBN.

IP06: REVIEW OF RELEVANT MEETINGS OUTCOMES (SECRETARIAT)

4.4   5LNC is the backbone of PBN implementation. With the number of 5LNC increasing exponentially over all these years, similar pronunciation of 5LNC might cause confusion to both ATC and pilots alike. Considering the enormous and urgent requirements of 5LNC during the rapid PBN implementation processes in Asia Pacific Region, ICARD application is expected to provide a good platform in organizing the proliferation of 5LNC , as well the route designators. However, the application was reported to apparently not match the heavy demand in APAC region. After the discussion, the following Action Items were agreed:

Action 1/14   To collect issues regarding the use of ICARD system by the States and deliver them to the relevant section of ICAO HQ through ICAO RO.

Action 1/15   ICAO to clarify relevant criteria of 5LNC and route designation allocation in respect of all the parameters applied e.g. similar pronunciation definition and to provide clear detailed guidelines on using ICARD system. On the other hand to enhance the performance of ICARD application.

Action 1/16   To stipulate clearly the logic, the criteria for ICARD parameters and supplement with clear detail guidelines; and to enhance the service provided by

ICARD regarding the similar pronunciation and ICARD application performance.

Agenda Item 5 – Implementations of PBN in Terminal Area

FLIMSY 01: PBN ON A PAGE (SECRETARIAT)

5.1   In relation to the IP05, the Secretariat provided a draft 'PBN-in-a-page', which summarized relevant PBN-related information from various ICAO documents, including Doc 9613, PANS-OPS, and PANS-ATM and tabularized them into one page to be used as a quick reference material during PBNICG meetings and during PBN airspace and route design sessions.

5.2   The PBNICG reviewed the attachment of the Flimsy01 and was invited to provide inputs to improve the 'PBN-in-a-page' table. Some improvements could be brought such as additional information on database requirements, and COM/SUR/NAV requirements could be presented in separate columns for quick reference.

Action 1/17   To improve and review the draft 'PBN-in-a-page'.

Agenda Item 6 – Implementations of PBN in Domestic En-route Airspace

IP04: PBN (RNP 1) DOMESTIC ROUTES (MALDIVES)
        (INCLUDED IN AGENDA ITEM 3, WITH IP03)

Agenda Item 7 – Regional and Sub-regional Implementations of PBN in En-route Airspace

WP08: RELATED OUTCOMES FROM CMAC/FUA/ATFM PROJECTS AND WORKSHOPS
        (SECRETARIAT)

7.1   The Secretariat presented PBN-related outcomes from PBN Airspace Design Workshop, Asia/Pacific Civil/Military Cooperation Lecture and Seminar, and Air Traffic Flow Management Workshop Asia Pacific.

7.2   The meeting encouraged States to establish CDR routes with appropriate PBN navigation specifications in where obvious benefits could be achieved. The meeting discussed the efficiency and safety value of national development of particular specifications for State aircrafts to meet performance level of PBN specifications. However, the meeting noted that more information and experience in developing PBN requirement for State aircraft were still needed. The meeting also agreed that the notion of Best Equipped Best served could continue to be promoted in States' engagement with their military agencies as this is in line with the output from the 12th Air Navigation Conference (ANConf/12) and the ASBU framework.

Action 1/18   States to send their views as to the necessity and feasibility to have a national
                military PBN operational approval mechanism.

IP01: SCS-MTFRG/1 MEETING OUTCOMES RELATED TO PBN IMPLEMENTATION
        (SECRETARIAT)

7.3   The Secretariat reported on the PBN-related outcomes from SCS-MTFRG/1. Regarding upgrading routes A461 and A583 to RNP10 and making the navigation specifications

along the entire route uniform, meeting noted the progress achieved in SEACG/22, that was, Hong Kong, Philippines and Indonesia agreed to upgrade these two routes in their airspace to RNP10 and SEACG/22 endorsed related Decisions/Conclusions from SCS-MTFRG/1. The PBNICG/1 meeting requested Australia to facilitate and coordinate on the RNP10 upgrade on A461, and ICAO RSO will follow up this issue.

Action 1/19   RSO to coordinate with Australia regarding RNP10 for A461.

Action 1/20   To provide information from SASP to PBNICG about RNP AR and ILS simultaneous operations.

7.4   The meeting also discussed the topic of PBN navigation specifications to be used for South China Sea area, as raised by IATA in SCS-MTFRG/1. The meeting agreed that, as necessary information on RNP2 such as ICAO Operational Approval material is still being developed, RNP4 should be used as an interim step with a transition plan towards RNP2.

7.5   Hong Kong informed the meeting that, when applying RNP4 on M771 in Hong Kong FIR, roughly 88% of the fleet operating in the airspace were capable of RNP4. The meeting also noted that, for an airspace with VHF coverage, CPDLC may not be required.

IP07: PBN IMPLEMENTATION SUPPORT FOR DOMESTIC AND SUB-REGIONAL EN-ROUTE DEVELOPMENT (SECRETARIAT)

7.6   The Secretariat provided a summary of PBN implementation support activities on PBN en-route developments and enhancements being provided by the ICAO Asia and Pacific Regional Sub-Office (RSO). The support included helping State and group of States to review and enhance their domestic and sub-regional ATS route structures.

Action 1/21   APAC RSO to draft a Statement Of Work (SOW) for sub-regional groups to engage in sub-regional review of ATS routes, propose draft material and associated work plan to the relevant informal and formal (ICAO) bodies as needed, in order to ensure extensive review and consistency.

Agenda Item 8 – Issues and challenges regarding PBN implementations

WP07: SAFETY ASSESSMENT REQUIREMENT IN PBN IMPLEMENTATION (SECRETARIAT)

8.1   The Secretariat presented the requirement for a PBN checklist and proposed to develop a safety assessment assistant tool which will be used by States in the Asia and Pacific Region as a transitional method pending ICAO global guidance material under development.

8.2   Pakistan shared their experience on the safety assessment on PBN procedures pointing out the differences of the safety assessment for PBN procedures from conventional procedures. Singapore also highlighted the differences between the qualitative and quantitative aspect of safety assessment where the latter is undertaken by those bodies under RASMAG.

8.3   Regarding the safety assessment checklist proposed in this paper, Singapore commented that the checklist would be useful to identify hazards associated with PBN procedures, but it should not replace the overall safety assessment as directed by the ICAO Safety Management Manual (Doc 9859).

8.4   Recognizing the usefulness of the checklist as an interim material before the ICAO global material to become available, the meeting agreed to develop a draft checklist for PBN en-route. The two groups comprised of TMA and En-route Rapporteur, Maldives, Pakistan, Singapore and APAC RSO were formed. The groups were asked to enhance the checklists as well as an instruction on how to use the checklist. The checklist should be consistent with guidance from the associated ICAO Global and Regional documents, including Doc 9613, Doc 9906, and the Seamless implementation guidance.

Action 1/22   To better scope and enhance the PBN checklist for RNP APCH, SIDs/STARs and develop a draft checklist for PBN en-route.

WP11:   PROPOSED   TRANSITION   PLAN   FOR   ADVANCED   RNP(ARNP) IMPLEMENTATION (HONG KONG, CHINA)

8.5   Considering the low level of current fleet capability for RF, WP11 introduced the proposal to remove the RF requirement for ARNP, or developing a transition plan with less demanding interim implementation criteria without mandating RF during transitional period to facilitate the implementation of ARNP. During the transition period, RF path terminator should be made an optional functionality. This would allow more States/Administrations and operators to enjoy the benefits of ARNP.

8.6   The PBNICG recognized the low level of fleet capability on RF path terminator and agreed to deliver the real operational requirements to the PBN Study Group for its review and drafted following action item.

Action 1/23   Considering the low level of current fleet capability for RF, to request PBN Study Group to consider RF as an optional requirement for ARNP during the transition period.

IP05: LATERAL SEPARATION CRITERIA IN PANS-ATM (SECRETARIAT)

8.7   The Secretariat presented PBN related lateral separation criteria in ICAO PANS-ATM (Doc 4444) which can be used for States and ANSPs when design PBN routes and procedures and should be considered from the conceptual design step of any airspace/route design activities.

8.8   In relation to the lateral separation criteria, Hong Kong, China and Singapore highlighted that there are still references of RNP 12.6NM separation criteria in the Regional Supplementary (Doc. 7030) which may create confusion in application. The Secretariat recalled the meeting that a PfA was ongoing concerning SUPPS.

Action 1/24   To check that any reference to 12.6 NM separation be removed from RANP.

Agenda Item 9 –Working Arrangements for PBN Region-wide implementations

WP06:   MANAGEMENT DOCUMENTS AND SCHEDULE FOR FUTURE PBNICG MEETINGS (SECRETARIAT)

9.1   The Secretariat presented WP06, proposing the PBNICG to consider developing documents for the standing agenda for future PBNICG meetings, a High-level Action Plan for PBNICG covering Year 2015-2016, and a PBNICG Task list with assigned responsibility and timeline. Also the Secretariat announced that the PBNICG/2 Meeting was scheduled on 11-12 June 2015 at ICAO APAC Regional Office, Bangkok, Thailand. This meeting would follow and collocate with the ICAO Regional PBN Seminar being scheduled on 8-10 June 2015.

9.2   PBNICG/3 and PBNICG/4 will be tentatively held in March and June 2016, so that the outcomes of the meeting can be delivered to CNS SG in July 2016. The planned date of the global PBN SG should also be taken into account to optimize the coordination between those bodies.

9.3   The PBNICG reviewed the proposed Standing Agenda and agreed to adopt the Standing Agenda as follows:

Standing Agenda for PBNICG

Agenda Item 1: Adoption of Agenda

Agenda Item 2: Global and Regional PBN Updates

Agenda Item 3: Review of related global/regional plans, priorities and targets

Agenda Item 4: Reports on relevant meetings outcomes

Agenda Item 5: States' PBN Implementation Progress

Agenda Item 6: Report of Progress from PBNICG Tasks

Agenda Item 7: Implementations of PBN in Terminal Area

Agenda Item 8: Implementations of PBN in Domestic En-route Airspace

Agenda Item 9: Regional and Sub-regional Implementations of PBN in En-route Airspace

Agenda Item 10: Issues and challenges regarding PBN implementations

Agenda Item 11: Working Arrangements for PBN Region-wide implementations

Agenda Item 12: Other Business

Agenda Item 13: Review of Report and Action List

9.4   Regarding High-level Action Plan for PBNICG, Singapore proposed to categorize action items and link to the Terms of Reference of PBNICG instead of drafting another binding document pointing out TOR of PBNICG is specific enough to provide guideline of PBNICG's activities. The Secretariat agreed to the proposal and developed the task list of PBNICG provided in **Appendix A**.

Closing of the Meeting

9.4   The Chairman of the meeting thanked the meeting participants for their contributions, and in particular expressed appreciation to the RSO for its hosting of the meeting.

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Action Item	Action	Owner	Contributors	Target date	Status	Result	Comment	Reference to TOR
1/1	States are encouraged to consider including military aerodromes where international civil operations are taking place into the Regional Air Navigation Plan (RANP) and State PBN Implementation Plan.	All		18-Dec-15	Open		ICG1-WP2	1-b
1/2	To provide Fiji with the draft amendment to Annex 11 regarding the flight procedures regulatory framework.	Noppadol Pringvanich	Erwin Lassoij	11-Jun-15	Open		ICG1-WP4	2
1/3	To coordinate with APAC FPP Steering committee about the need for procedure design course for helicopters.	Noppadol Pringvanich		11-Jun-15	Open		Need was raised by Maldives (Ibrahim Hameed)	1-a
1/4	To review and enhance the PBN Implementation Progress Report form, such that it can fulfill global and regional PBN reporting requirements.	IlaitiaTabakaucoro	Hermizan Jumari, Xiang Xiao Jun, Zhang Ying, Frederic Lecat, Huho Ha	11-Jun-15	Open		ICG1WP1/WP9	1-a
1/5	APAC Regional Office to issue a State letter to request APAC States and Administrations not having submitted yet a PBN plan to do so, provide PBN POCs,and consider forming sub-regional groups as necessary.	Frederic Lecat	Noppadol Pringvanich	11-Jun-15	Open		As per 11Mar. 15, States/Adm. not having submitted are: Afghanistan, Bhutan, Brunei Darussalam, China Macao, Cook Islands, Kiribati, Marshall Islands, Micronesia (Federated States of), Nauru, Palau, Samoa, Solomon Islands, Timor-Leste, Vanuatu	1-b
1/6	With regard to action 1/5, Fiji in cooperation with RSO to assist Pacific Islands States who have not developed or submitted their PBN Implementation Plan.	IlaitiaTabakaucoro	Noppadol Pringvanich	18-Dec-15	Open		ICG1-WP10	1-b
1/7	With regard to action 1/5, to coordinate with Brunei Darussalam for the PBN implementation including the submission of State PBN Implementation Plan.	Noppadol Pringvanich		11-Jun-15	Open		ICG1-WP10	1-b
1/8	Maldives to share with Myanmar the benefits/experience of implementation of PBN (RNP 1) Domestic routes.	Ibrahim Hameed	Noppadol Pringvanich	14-Aug-15	Open		ICG1 - IP04	1-c
1/9	To remind PBN Study Group through APAC RO about the need for the requirement for ARNP Charting Criteria to support the application of ARNP to be available by as soon as possible, preferably by the end of 2015.	Frederic Lecat	Joe Lam	11-Jun-15	Open		ICG1 - IP8	2
1/10	To invite PBN Study Group to develop/review guidance material on PBN when used to support User Preferred Route (UPR)/Flex Track operations, especially regarding database management.	Frederic Lecat	IlaitiaTabakaucoro, Noppadol Pringvanich	11-Jun-15	Open		ICG1-IP12	1-c, 2
1/11	APAC Regional Office to issue a State letter to request APAC States and Administrations to update their PBN Implementation Plan by the end of 2016.	Frederic Lecat	Noppadol Pringvanich	11-Jun-15	Open		ICG1-WP5	1-a, b
1/12	To review the targets and metrics which are related to PBN in the APAC Seamless ATM Plan and provide inputs, if any to the APAC Regional Office before the next review cycle of the APAC Seamless ATM Plan.	Noppadol Pringvanich	Frederic Lecat	The next review cycle of the APAC Seamless ATM Plan.	Open		ICG1-IP6	3
1/13	States to report analysis of benefits and challenges with implementing PBN.	All	Noppadol Pringvanich	30-Sep-15	Open			1-d
1/14	To collect issues regarding the use of ICARD system by the States and deliver them to the relevant section of ICAO HQ through ICAO RO.	Joe Lam	Zhang Ying	11-Jun-15	Open		ICG1-IP6	1-a, 2
1/15	ICAO to clarify relevant criteria of 5LNC and route designation allocation in respect of all the parameters applied e.g. similar pronunciation definition and to provide clear detailed guidelines on using ICARD system. On the other hand to enhance the performance of ICARD application.	ICAO		11-Jun-15			ICG1-IP6	1-a, 2
1/16	To stipulate clearly the logic, the criteria for ICARD parameters and supplement with clear detail guidelines; and to enhance the service provided by ICARD regarding the similar pronunciation and ICARD application performance.	ICAO		11-Jun-15			ICG1-IP6	1-a, 2
1/17	To improve and review the draft 'PBN-in-a-page' (see comment part).	Joe Lam, IlaitiaTabakaucoro	Hu Ho Ha, all participants for inputs	11-Jun-15	Open		ICG1- Flimsy01 - Add a column on database requirements, and isolate COM/SUR/NAV as columns	1-a, 2
1/18	States to send their views as to the necessity and feasibility to have a national military PBN operational approval mechanism.	All	Noppadol Pringvanich	18-Dec-15	Open		ICG1-WP8	2
1/19	RSO to coordinate with Australia regarding RNP10 for A461.	Noppadol Pringvanich	Ian Mallett	11-Jun-15	Open		ICG1-IP01	1-c
1/20	To provide information from SASP to PBNICG about RNP AR and ILS simultaneous operations.	Ian Mallett		11-Jun-15	Open		ICG1-IP01	1-a

Action Item	Action	Owner	Contributors	Target date	Status	Result	Comment	Reference to TOR
1/21	APAC RSO to draft a Statement Of Work (SOW) for sub-regional groups to engage in sub-regional review of ATS routes, propose draft material and associated work plan to the relevant informal and formal (ICAO) bodies as needed, in order to ensure extensive review and consistency.	Noppadol Pringvanich	IlaitiaTabakaucoro, Frederic Lecat	11-Jun-15	Open		ICG1-IP07	1-c
1/22	To better scope and enhance the PBN checklist for RNP APCH, SIDs/STARs and develop a draft checklist for PBN en-route.	Joe Lam, IlaitiaTabakaucoro	Ibrahim Hameed, M.S.Athar, Hermizan Jumari, Noppadol Pringvanich, Frederic Lecat, Huho Ha	11-Jun-15	Open		ICG1-WP7	1-a, 2
1/23	Considering the low level of current fleet capability for RF, to request PBN Study Group to consider RF as an optional requirement for ARNP during the transition period.	Frederic Lecat	Joe Lam	11-Jun-15	Open		ICG1-WP11	2
1/24	To check that any reference to 12.6 NM separation be removed from RANP.	Frederic Lecat		11-Jun-15	Open		ICG1-IP5	3

Terms of Reference
APAC PBN Implementation Coordination Group (PBNICG)

1) Serve as the primary APAC Regional Body to support PBN implementation, harmonization and prioritization with a goal to enhance safety and efficiency of aircraft trajectories and operations. The forum also takes into account activities related to the implementation of relevant ASBU elements, with initial focus on B0-CDO, B0-FRTO, B0-CCO, and B0-APTA. The following are the main activities envisaged:

   a) Monitor PBN implementation of APAC States/Administrations and make recommendations as necessary in areas where ICAO and international organizations can provide assistance.

   b) Through ICAO, provide guidance to States to update their PBN implementation plans. Identify challenges within State PBN Implementation Plans and PBN implementation activities and advise States in addressing these challenges in a harmonized manner.

   c) Taking a multi-disciplinary approach, promote more efficient flight operations and trajectories and, as necessary, address related topics including Air Traffic Services (ATS) route network.

   d) Analyze and report operational benefits of PBN implementation and provide regular PBN implementation updated information to ICAO for inclusion in the air navigation reports and regional performance dashboard.

2) Identify issues/action items which are related to the regional implementation of PBN and related ASBU elements, and where appropriate, communicate with related regional groups.

3) Review regional priorities/targets and relevant regional plans as related to PBN implementation.

4) PBNICG will report to CNS/SG. CNS/SG will coordinate with ATM/SG.

Composition

The PBNICG will compose of multi-disciplinary experts with knowledge and/or responsibility for PBN implementation nominated by ICAO member States/Administrations in the Asia and Pacific Regions and International Organizations. Secretariat support for the PBNICG will be provided by the ICAO APAC RSO with assistance from the APAC RO and ANB. Representatives of ICAO programmes such as COSCAPs and FPP will be invited to participate as applicable.

Note: The PBNICG, while undertaking the tasks, should take into account of the work being undertaken by relevant ICAO Panels and other study/working groups.

LIST OF PARTICIPANTS

STATE/ORGANIZATION/ NAME	DESIGNATION/ADDRESS	TEL/FAX/E-MAIL	
AUSTRALIA(1)			
Mr. Ian Mallett	Section head CNS Civil Aviation Safety Authority Head of CNS/ATM Section Civil Aviation Safety Authority P.O. Box 2005 Canberra ACT 2607 **AUSTRALIA**	Tel: MB: Fax: E-mail:	+61 (2) 621 71736 +61 4182 59626 +61 (2) 621 71500 Ian.mallett@casa.gov.au
CHINA (5)			
Mr. Jia Jianqing	Flight Standards Department Civil Aviation Administration of China (CAAC)	Tel: MB: Fax: E-mail:	+86 (10) 6409 1458 +86 (10) 6409 1458
Mr. Xiang Xiaojun	Professor, Flight Technology College Civil Aviation Flight University of China	Tel: MB: Fax: E-mail:	+(86) 838 518 2595 xj.xiang@126.com
Mr. Chen Ning	Flight Operation Division North China Regional Administration Bureau Civil Aviation Administration of China (CAAC)	Tel: MB: Fax: E-mail:	+86 (10) 6459 5804 +86 (10) 6459 2309 Chenning-hb@126.com
Ms. Zhang Ying	Senior Engineer Flight Procedure Design Department of AMC Air Traffic Management Bureau of CAAC	Tel: MB: Fax: E-mail:	+86 (10) 8778 6837 +86 (10) 877 86830 zhangying@atmb.net.cn
Mr. Wang Ran	Assistant of Airspace Management Department of AMC Air Traffic Management Bureau of CAAC	Tel: MB: Fax : E-mail:	+86 (10) 8778 6813 +86 (10) 8778 6328 wangran@atmb.net.cn
FIJI (1)			
Mr. Ratu Ilaitia Matanimeke Tabakaucoro	ATM inspector (AIS/PANS-OPS)	Tel: MB: Fax: E-mail : ilaitia.tabakaucoro@caaf.org.fj	+679 672 1500 3400 +679 672 0261
HONG KONG, CHINA (3)			

STATE/ORGANIZATION/ NAME	DESIGNATION/ADDRESS	TEL/FAX/E-MAIL	
Mr. Lam Chi-ching, Joe	Evaluation Officer Air Traffic Management Division 1 Tung Fai Road Hong Kong International Airport, Lantau **HONG KONG, CHINA**	Tel: MB: Fax: E-mail:	+852 2910 6513 +852 2910 60186 jcclam@cad.gov.hk
Mr. Fok Chi Ming	Senior Airworthiness Officer Flight Standards and Airworthiness Division 1 Tung Fai Road Hong Kong International Airport, Lantau Hong Kong	Tel: MB: Fax: E-mail:	+852 2910 6193 +852 2362 4250 cmfok@cad.gov.hk
Mr. Wong King Fai, Lawrence	Senior Operation Inspector Flight Standards and Airworthiness Division 1 Tung Fai Road Hong Kong International Airport, Lantau Hong Kong	Tel: MB: Fax: E-mail :	+852 2910 6126 +852 2362 4250 Lkfwong@cad.gov.hk
INDONESIA(2)			
Mr. Nyoman Wirana	Senior specialist flight Procedure design	Tel: MB: Fax: E-mail :	+62 8158 846249 okawirana68@yahoo.com
Mr. Sutarto Hermawan	Senior specialist Area Control Centre AIRNAV Indonesia Jalan Ir. H. Juanda Tangerang Banten **INDONESIA** 15121	Tel: MB: Fax: E-mail :	+62 (21) 5591 5000 +62 812 8417 3391 +62 (21) 5591 5100 hermawan.novitriyanto@gmail.com
MALDIVES (2)			
Mr. Hameed Ibrahim	Senior Air Traffic Control Officer Maldives Airports Company Limited Ibrahim Nasir International Airport Hulhule' 2200 **MALDIVES (REPUBLIC OF)**	Tel: MB: Fax: E-mail:	+960 333 7114 +960 333 1515 i.hameed@macl.aero
Mr. Didi Mohamed Hussain	Air traffic Control Supervisor Maldives Airports Company Limited Ibrahim Nasir International Airport Hulhule' 2200 **MALDIVES (REPUBLIC OF)**	Tel: MB: Fax : E-mail :	+960 332 2071 +960 777 7929 +960 333 1515 hussain.didi@gmail.com
PAKISTAN(1)			
Mr. M.S. Athar	GM ANS (OPS)	Tel: MB: Fax: E-mail:	+92 (51) 927 8611 +92 300 8509786 +92 (51) 9278625 GMHR.T&D@caapakistan.com.pk
SINGAPORE (3)			
Mr. Hermizan Jumari	Head, Air Traffic Management Operations Planning Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1 **SINGAPORE** 918141	Tel: MB: Fax: E-mail:	+65 6595 6040 +65 6441 0221 Hermizan_Jumari@caas.gov.sg

STATE/ORGANIZATION/ NAME	DESIGNATION/ADDRESS	TEL/FAX/E-MAIL	
Mr. SNG Wei Xiong, Roy	Technical Officer (Air Traffic Management Operations Planning) Civil Aviation Authority of Singapore Singapore Changi Airport P.O Box 1 **SINGAPORE** 918141	Tel: MB: Fax: E-mail:	+65 6422 7038 +65 6441 0221 roy_sng@caas.gov.sg
Mr. Joe Chua	Air Traffic Control Manager (Air Traffic Management Operations System) Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1 **SINGAPORE** 918141	Tel: MB: Fax: E-mail:	+65 6595 6762 +65 6441 0221 joe_chua@caas.gov.sg
THAILAND (3)			
Mr. Chai Kaewkitinarong	Transport Technical Officer Airport Standards Bureau 71 Ngamdupli, Rama IV Road Tungmahamek, Satorn Bangkok 10120 **THAILAND**	Tel: MB: Fax: E-mail:	+66 (2) 286 8159 +66 (2) 286 8159 psybuster@hotmail.com
Mr. Pongabha Abhakara	Airspace Design Manager Procedure Design and Airspace Devolopment Department Aeronautical Radio of Thailand Ltd. 102 Ngamduplee, Rama IV Road Bangkok 10120 **THAILAND**	Tel: MB: Fax: E-mail:	+66 (2) 287 8693 +66 97 889 717 +66 (2) 287 8639 pabhakara@gmail.com
Mr. Kom Promuttikul	Strategic Planning Assistant Manager Engineering Department Aeronautical Radio of Thailand Ltd. 102 Ngamduplee, Rama IV Road Bangkok 10120 **THAILAND**	Tel: MB: Fax: E-mail:	+66 (2) 287 8490 +66 (2) 285 9538 kom.pr@aerothai.co.th
VIET NAM(2)			
Mr. Bui Van Vo	Director of Air Navigation Department Civil Aviation Authority of Viet Nam (CAAV)	Tel: MB: Fax: E-mail:	+84 (4) 382 74191 +84 913 202 227 +84 (4) 3827 4194 buivanvo@caa.gov.vn
Mr. Nguyen Dinh Duong	Deputy G.D. Airports Corporation Civil Aviation Authority of Viet Nam (CAAV)	Tel: MB: Fax: E-mail:	+84 (8) 3848 5383
ICAO (4)			
Mr. Noppadol Prinvanich	Chief, Regional Sub-Office International Civil Aviation Organization Asia and Pacific Office 1st Floor, C Section, China Service Mansion No. 9, Erwei Road, Shunyi District Beijing 100621 **PEOPLE'S REPUBLIC OF CHINA**	Tel: MB: Fax: E-mail:	+86 (10) 6455 7179 +86 (10) 6455 7164 NPrinvanich@icao.int

STATE/ORGANIZATION/ NAME	DESIGNATION/ADDRESS	TEL/FAX/E-MAIL	
Mr. Lecat Frederic	Regional Officer, CNS International Civil Aviation Organization Asia and Pacific Office 252/1, Vibhavadi Rangsit Road Ladyao, Chatuchak Bangkok 10900 **THAILAND**	Tel: MB: Fax: E-mail:	+66 (2) 537 8189 Ext. 155 +66 (2) 537 8199 FLecat@icao.int
Mr. Liu Song	ATM Officer Regional Sub-Office International Civil Aviation Organization Asia and Pacific Office 1st Floor, C Section, China Service Mansion No. 9, Erwei Road, Shunyi District Beijing 100621 **PEOPLE'S REPUBLIC OF CHINA**	Tel: MB: Fax: E-mail:	+86 (10) 6455 7175 +86 (10) 6455 7164 SLiu@icao.int
Mr. Ha Huho	ATM Officer Regional Sub-Office International Civil Aviation Organization Asia and Pacific Office 1st Floor, C Section, China Service Mansion No. 9, Erwei Road, Shunyi District Beijing 100621 **PEOPLE'S REPUBLIC OF CHINA**	Tel: MB: Fax: E-mail:	+86 (10) 6455 7174 +86 (10) 6455 7164 HHa@icao.int

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Attachment 2 to the Report

List of Working Papers (WPs) and Information Papers (IPs)

No	Title	Presented by
	List of Working Papers	
WP/01	PBN Implementation in Singapore	Singapore
WP/02	Terms of Reference of PBNICG and Remaining Action Items from PBN/TF	Secretariat
WP/03	Provisional Agenda	Secretariat
WP/04	PBN Implementation Support Activities by ICAO RSO	Secretariat
WP/05	Status of Development of State PBN Implementation Plan	Secretariat
WP/06	Management Documents and Schedule for Future PBNICG Meetings	Secretariat
WP/07	Safety Assessment Requirement in PBN implementation	Secretariat
WP/08	Related Outcomes from CMAC/FUA/ATFM Projects and Workshops	Secretariat
WP/09	Review and Update State's PBN Implementation	Secretariat
WP/10	PBN Implementation Progress of the Asia and Pacific Regions	Secretariat
WP/11	Proposed Transition Plan for Advanced RNP(ARNP) Implementation	Hong Kong, China
	List of Information Papers	
IP/01	SCS-MTFRG/1 Meeting Outcomes related to PBN Implementation	Secretariat
IP/02	PBN Implementation in Pakistan	Pakistan
IP/03	PBN Implementation in the Maldives	Maldives (Republic of)
IP/04	PBN (RNP 1) Domestic Routes	Maldives (Republic of)
IP/05	Lateral Separation Criteria in PANS-ATM	Secretariat

No	Title	Presented by
IP/06	Review of Relevant Meetings Outcomes	Secretariat
IP/07	PBN Implementation Support for Domestic and Sub-Regional En-Route Development	Secretariat
IP/08	Update on Hong Kong, China PBN Implementation	Hong Kong, China
IP/09	PBN Implementation in China	China
IP/10	Thailand PBN Implementation	Thailand
IP/11	PBN Implementation in Viet Nam	Viet Nam
IP/12	Fiji PBN Implementation and Progress	Fiji
PPT:		
PPT/01	PBN Update	Secretariat
PPT/02	ATN Implementation Support by ICAO APAC RSO	Secretariat
PPT/03	PBN Update in Indonesia	Indonesia
Flimsy:		
Flimsy/01	PBN in a Page	Secretariat
Flimsy/02	Order of Business	Secretariat

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MEETING AGENDA

Agenda Item 1:   Adoption of Agenda

Agenda Item 2:   Review of the Terms of Reference and election of PBNICG Chairperson

Agenda Item 3:   Global and Regional PBN Updates and States' PBN Implementation Progress

Agenda Item 4:   Review of related global/regional plans, priorities and targets and relevant meetings outcomes

Agenda Item 5:   Implementations of PBN in Terminal Area

Agenda Item 6:   Implementations of PBN in Domestic En-route Airspace

Agenda Item 7:   Regional and Sub-regional Implementations of PBN in En-route Airspace

Agenda Item 8:   Issues and challenges regarding PBN implementations

Agenda Item 9:   Working Arrangements for PBN Region-wide implementations

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