

PBN Implementation in Hong Kong, China

ICAO PBN Implementation Seminar
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Content

- ◆ Hong Kong PBN Implementation Plan
- ◆ Update on PBN Implementation Status in Hong Kong
- ◆ Problems Encountered
- ◆ Initiatives to support PBN implementation



HK PBN Implementation Plan

- ◆ The Hong Kong PBN Implementation Plan (the Plan) adopts a **3 phased** approach:
 - **Short Term** (now-2012)
 - **Medium Term** (2013-2016)
 - **Long Term** (beyond 2016)

- ◆ The HK Plan was submitted to ICAO Regional Office in 2009



HK PBN Implementation Plan

◆ Short Term (2009-2012)

- Implement RNP AR APCH procedures
- Issue notification (AIC) for RNP 1 (TMA) and RNP 4 (En-route) implementation
- Conduct feasibility study of GBAS

◆ Medium Term (2013-2016)

- Implement RNP 4 routes in En-route
- Implement RNP 1 STARs in TMA
- Not mandatory, route specific



HK PBN Implementation Plan

- ◆ CAD will implement PBN in line with ICAO's Global Plan in a proactive and pragmatic manner



HK PBN Implementation Plan

- ◆ CAD has established a PBN Planning and Implementation Team (PIT) since November 2007
 - Comprises representatives from air navigation service providers, flight procedure designers, airspace planners, flight operations and airworthiness experts, airlines operators, airlines association and pilot association, etc.
 - To facilitates and harmonizes the requirements of various stakeholders in the course of PBN implementation in Hong Kong



Approach Airspace RNP AR APCH

- ◆ In 2009, conducted trial operations for one year
- ◆ Positive feedback were received
- ◆ Concluded high accuracy of tracking, both vertical and lateral profiles



Approach Airspace RNP AR APCH

- ◆ Implemented RNP AR APCH in June 2010
 - ❖ Two Runway Ends (Runway 25R / 07L)
- ◆ 50% implementation



Approach Airspace RNP AR APCH

- ◆ With experience gained, Hong Kong is now proceeding to implement the RNP AR procedure to the other runway (the south runway)
- ◆ Collaborated with local operators to develop the RNP AR APCH into HKIA
- ◆ Hong Kong is now working on the procedure design and plans to implement in 2012, i.e. 100% implementation



Terminal Airspace RNP 1 SIDs and STARs

- ◆ Hong Kong has implemented RNP 1 SIDs in 2005, i.e. 50% implementation
- ◆ Hong Kong plans to implement RNP 1 STARs in 2013, i.e. 100% implementation
- ◆ Plans to issue notification in 2011



En-route Airspace RNP 10/ RNP 4

- ◆ Hong Kong has implemented RNP 10 air routes
- ◆ Hong Kong plans to implement RNP 4 air routes in 2014
- ◆ Plans to issue mandate requirements in 2011



Difficulties Encountered

- ◆ To meet the RNP AR Approach requirements, it would pose a huge and significant cost to the industry in terms of equipage changes, more onerous airworthiness approval, crew training, database, and crew recency requirements.
- ◆ States are urged to give detailed considerations to the operational need, safety and efficiency cost benefits prior to deciding on RNP AR Approach implementation.

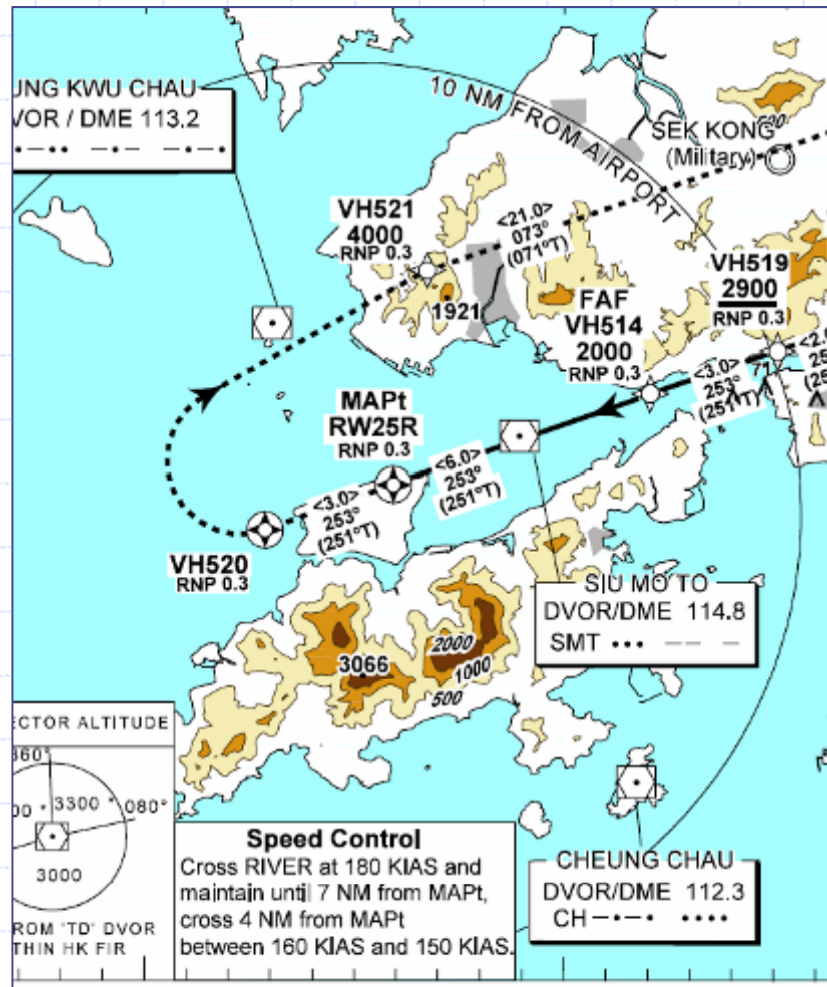


Difficulties Encountered

- ◆ Due to airspace limitation and obstacle protection requirements, **RNP 0.3** containment is required in the **Intermediate** and **MAP** segments, i.e. RNP AR APCH procedures.
- ◆ There are limitations on flying the RNP AR APCH, e.g. additional requirements of pilot training, modification of FMS display.



RNP AR APCH



Difficulties Encountered

- ◆ FMS naming convention – not enough space for aircraft to store the 2nd PBN procedures
- ◆ Safety Assessment – need more guidance and training from ICAO



Way Forward

- ◆ New Nav Spec is being developed – **Advanced RNP APCH**.
- ◆ It is anticipated that Advanced RNP APCH would provide **new guidance** on RNP containment, certification and approval.



Way Forward

- ◆ As soon as the **new guidance** on procedure design, certification and approval are available, Hong Kong will convert the existing RNP AR APCH to the new Nav Spec so that **more aircraft** would be able to fly the procedure.
- ◆ The new Nav Spec would **facilitate** the PBN implementation process.



Way Forward

- ◆ CAD is also concurrently developing more RNP APCH procedures with a view to improving the overall operational efficiency.



Initiatives to support PBN Implementation

- ◆ In support of the establishment of the Asia-Pacific PBN Flight Procedure Programme Office in Beijing, Hong Kong has participated as an Active Participating Administration
- ◆ Posted two experienced flight procedure designers to the FPP Office
 - assist in providing training courses, initial PD, PBN procedure design



Initiatives to support PBN Implementation

- ◆ Developed Hong Kong PBN website
- ◆ Relevant PBN information available
- ◆ Hong Kong PBN Implementation Plan is also available
- ◆ www.pbninfo.gov.hk





Thank You!

