International Civil Aviation Organization

The Seventh Meeting of the Asia/Pacific Aeronautical Information Services – Aeronautical Information Management Implementation Task Force (AAITF/7)

Ha Noi, Viet Nam, 13 – 16 March 2012

Agenda Item 4: AIS-AIM Updates

Introduction of AIS Automation System of Viet Nam

(Presented by Viet Nam)

SUMMARY

This information paper presents AIS automation system in Viet Nam in term of structure, workflow and technology.

This paper relates to –

Strategic Objectives:

A: Safety *– Enhance global civil aviation safety*

Global Plan Initiatives:

GPI-12 Functional integration of ground systems with airborne systems
GPI-18 Aeronautical information

1. INTRODUCTION

1.1 Since 2008, Viet Nam has started to establish the Integrated AIS System to improve the overall capacity in Aeronautical Information Service and manage aeronautical data chain processes involved in designing to publication stages of Aeronautical Information Publication products.

1.2 The new CNS/ATM master plan in Viet Nam that has been approved by Ministry of Transport indicates the AIS-AIM transition and implementation to be in place in the period of 2015- 2020. ICAO Annex 15 also impresses on high priority needs of QMS (Quality Management System) for the AIS. Therefore the AIS automation process in Viet Nam is one of necessary steps to archive those goals.

2. AIS STRUCTURE IN VIET NAM

2.1 Former AIS organization in Viet Nam

- Before 2009, the AIS is mainly performed by different functional units in Viet Nam Air Traffic Management Corporation (VATM) wherein AIP/MAP-CHARTING is under combined ATS-AIS Division, international NOTAM Office (NOF) is under Air Traffic Command and Coordination Center (ATCC).

- 3 main Briefing offices are located at international airports (Noi Bai, Da Nang, Tan Son Nhat).
- Civil Aviation Authority of Viet Nam (CAAV) is the Regulatory body who approves and promulgates the AIS products.
- There was no AIS automation system in Viet Nam to integrate the services and share consistent AIS database. NOTAM, AIP/MAP-CHARTING functions were performed by individual tool and software.

2.2 Current AIS organization in Viet Nam: ***See the slideshow.***

* *Introduction of the establishment of Viet Nam Aeronautical Information Center (VNAIC):*

- Viet Nam Aeronautical Information Center (VNAIC) is a subordinate member of VATM and was established in 2009, aiming at combining individual AIS units and upgrading to professional organization in Viet Nam.
- VNAIC is united from different related AIS units in Viet Nam such as ATS-AIS Department of VATM, NOF of ATCC, AIS Briefing Office of Tan Son Nhat and AIS Project Management Board. VNAIC has following divisions:
  - International NOTAM Office
  - AIP Division
  - MAP/CHARTING Division
  - Tan Son Nhat AIS Division
  - Technical Maintenance Division
  - Supporting Divisions including Administrative, Finance, Planning & Personnel Division
- VNAIC is responsible in the following areas:
  - Providing and exchanging AIS publications including AIP Viet Nam and its Amendment/Supplement, Aeronautical Information Circulars (AIC)
  - Generating and distributing Viet Nam's NOTAM
  - Providing Pre-Flight and Post-Flight Information Service in Tan Son Nhat International Airport.
  - Producing various type of Aeronautical Map/Charts products

3. AIS AUTOMATION SYSTEM IN VIET NAM

- This is the first and only one automation AIS system established in Viet Nam to publish and distribute the AIS products through integrated software tools and computer system provided by COMSOFT GmbH Company (Germany).
- The AIS database can only be created/modified and updated at VNAIC (main-center), 3 sub-center databases are located at Noi Bai, Da Nang and Tan Son Nhat, replicated/synchronized with main-center to ensure data accuracy and consistency.
- State-of-the-art hardware technology such as server-cluster, RAID, Oracle ensure the system can run 24h operating condition.
- Totally 65 workstations installed at 20 international/domestic airports in Viet Nam provide AIS operational functions for the users, including eAIP, FPL, NOTAM, PIB, MET and SAR.
- The workstation is connected to respective database center depending on its location

(Gia Lam, Northern/Middle/Southern Region). For cost-effectiveness, the VPN network is used in the system, currently the 64kbps speed links up workstation to center, 2Mbps speed links up center to sub-center.

- All TWR, APP, ACC, AIS, ARO, MET positions at international airports and TWR, ARO positions at domestic airports of Viet Nam are equipped with AIS workstation.
- The AIS system connects to 4 AFTN switch at Gia Lam, Noi Bai, Da Nang and Tan Son Nhat, WAFS and GPS timing system at Gia Lam.
- The eAIP production tool is based on XML technology, capable of producing PDF or HTML output for AIP, AIP Amend, AIP Sup, AIC products through pre-defined rules and templates. This software is developed by Synclude Company.
- MAP/CHARTING production tool enables the user to create, edit the aviation maps and charts related to flight procedure. This application is used GIS technology and developed by ESRI Company.
- NOTAM, PIB and Aeronautical Data Management are integrated in Information Management System (IMS) to provide an unique database for Viet Nam. This overcomes the inconsistent data previously provided by different systems.
- The MET information is obtained from external sources (AFTN, WAFS) in the form of graphic (GRIB, BUFF, etc) and text (METAR, SPECI, SIGMET, etc).
- The system provides Documentation Service for user who can upload/download documents related to aviation standards, procedures and view useful AIS information such as eAIP, MET, SAR etc.
- FPL, MET and ATS related messages are operated via ATS application. This provides the capacity of sending/receiving messages through interactive forms with error-notified capability to the user.

4. AIS WORKFLOW

- The information exchange and publication in AIS supply-chain has been improved significantly by assigning working-role with certain assisted software tool. The electronic storage is widely used in the system instead of hardcopy paper. The electronic signature embed is ready to support approval process of AIS products.
- In the new AIS structure, it only grants the privileges to the users at AIS main-center in which they can update and modify AIS database, they are also in charge of correcting and publishing the AIS data. Therefore the workload for AIS units like NOF, CAAV, AIP/MAP-CHART office to approve the data can be reduced by data flow-control technique in AIS system.
- The users who involve in the AIS data supply-chain now can simplify the work with interactive forms in each of AIS application. They can submit information from any AIS workstation to the AIS main-center but limit to only sending and viewing data.
- NOTAM processing: Users can submit NOTAM proposal (project NOTAM) in the standard form through ATS application. NOF is responsible to review and correct NOTAM received then input to the database and notify related recipient units. The IMS form allows NOF, an unique organization, to create a NOTAM for Viet Nam and distribute to different addressees by using one collective address.
- MAP/CHARTING production: The high-end GIS technology integrated in modern

architecture of AIXM 4.5 aims to secure and manage static data like waypoint, NAVAID, airport, FIR, etc. This type of data is shared among other applications including ATS, IMS and AIP providing import/export capability to mitigate different data format. Only cartography users is able to manipulate AIXM data on map/charting background and publish their product to eAIP final publication stage.

- AIP production: This has to be controlled via the most sophisticated and advance XML technology and strict quality management process. There are 6 consequence steps associated with 4 different roles including Coordinator, Editor, Quality Controller and Publisher. Each of them can involve in either one certain publication process or several steps.
- PIB creation: Any PIB is stored in the system database as long as the pre-defined storage-time is expired. Aerodrome offices create the PIB per flight for the pilot in responsible service area. However they can also help other ARO to produce PIB which the system automatically synchronize this PIB in a shared database.
- FPL processing: This provides 2 different possibilities for a user to submit FPL, with or without AIS workstation. A simple web-interface is suitable for mobile users with their own computer accessing to internet and send FPL. However the ATS tool is more frequently used in taking advance of speed, reliability and friendly-interactive form. In both case, the FPL message will be processed by the main-center then redistribute/synchronize to FPL database at sub-center. This mechanism benefits a user from viewing the whole FPL database regardless to his/her position.

5. ACTION BY THE MEETING

5.1 The meeting is invited to take note of the effort and progress made by Viet Nam to improve AIS in view of both organizational and technological aspects.

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