



ICAO

*International Civil Aviation Organization***Fifth Meeting of the Asia/Pacific Air Traffic
Management Automation System Task Force (APAC
ATMAS TF/5)***Chengdu, China, 5 – 7 June 2024*

Agenda Item 3: Global and Regional ATM Automation System Updates**GLOBAL AND REGIONAL UPDATES ON RELATED ISSUES**

(Presented by the Secretariat)

SUMMARY

This paper presents some background information at global and regional level which are deemed relevant to Air Traffic Management Automation System for review and action by the meeting.

1. INTRODUCTION

1.1 Air Traffic Management (ATM) Automation System (AS) is the most important HMI to support controller's decision making, which constitute a critical component of global air traffic management, ensuring the safety, regularity, and efficiency of air operations. As the main forum and expert group to deal with ATM automation related provisions by ICAO and industry in the region, ATMAS TF has coordinated the implementation of ATM AS and encouraged/facilitated experience sharing in the Asia and Pacific Regions to satisfy performance requirements and address relevant implementation issues since its establishment in 2020.

1.2 The ATMAS TF also promoted and monitored the AIDC implementation, established and maintained the AIDC Repository and ATMAS Repository for the region, developed and published ATMAS Implementation and Operations Guidance Document.

1.3 ATMAS TF was established through joint effort of ATC operations specialist and automation system engineers with close connection to various industry partners. The task force exercised a good practice for years to host an ATM automation system seminar in conjunction with the meeting. ICAO Secretariat also presented global CNS updates with the support by ANB CNSS.

1.4 To support the evolving operational requirements with the rapid change of ATM concept and technology, it is deemed necessary to keep ATMAS TF informed on latest progress in relevant domains to prepare for the emerging new requirements.

2. DISCUSSION

2.1 To promote a better understanding of the challenges and future development tendency in relevant provisions, the Meeting is invited to discuss how to share individual implementation experiences, latest updates at global and regional level, and deliberate on concerned topics/issues among the Asia/Pacific Member States against the Terms of Reference (ToR) of ATMAS TF. Some

background information is provided in the following paragraphs for consideration during the planning process of the ATMAS projects and services.

AN-Conf. 14

2.2 The Fourteenth Air Navigation Conference has been scheduled from 26 August to 6 September 2024 in Montreal with the theme “*Performance Improvement Driving Sustainability*”. The Conference will discuss Air navigation system performance improvement under Agenda Item 3, including Phasing out legacy systems and the Eighth Edition of the Global Air Navigation Plan (GANP). Under Agenda Item 4: Hyper-connectivity of air navigation system, the Conference will discuss Connected aircraft concept and associated challenges and Cybersecurity and information system resilience. The Conference provides a forum to describe the work that is already prioritized and underway in the ICAO 2023-2025 Business Plan; understand new priorities for ICAO’s future work; and offer timely direction to the Organization as it prepares to present a Business Plan to the 42nd Session of the Assembly (A42) in 2025 that sets out a reprioritized work programme and the related resources required.

Outcome of ANW-ATM

2.3 The *Air Navigation World - ATM procedures for Today* was held from 23 to 27 October 2023 in Singapore. The objective of this ICAO event was to facilitate global ATM implementation through focused knowledge sharing of mature, tried and tested ATM procedures in a practical how-to manner. The sessions considered current technologies and procedures to support the evolution of ATM to meet the expectations of the aviation community, with an eye on the future, and in line with the long-term global aspirational goal for international aviation of net-zero carbon emissions by 2050. From the discussion on ATS Data Link during Session 3.4, it was noted that *AIDC will be instrumental in the ATC coordination, until FF-ICE covers all phases of flight*. In closing the event, C/ATM of ANB highlighted some points, for ATS data link, it is *Without A-G data link, there is no TBO; AIDC will still be required even when FF-ICE/R1 is implemented*; for Transition from FPL 2012 to FF-ICE, it is *Without FF-ICE, there is no TBO; Longer duration of mixed mode will delay realization of benefits*. D/ANB reiterated that ATM performance offers better safety measures, aircraft operating cost saving, passenger travel time saving and fuel saving in her closing remarks.

Future Connectivity for Aviation White Paper

2.4 The European Union Aviation Safety Agency, the Federal Aviation Administration, Airbus and Boeing have launched a joint cooperation initiative to rethink aviation connectivity, defining a blueprint for the modernisation and harmonisation of the aviation data communication landscape by 2035. The White Paper by EU/US task force was published in November 2022, which can be accessed at : <https://www.easa.europa.eu/en/document-library/general-publications/future-connectivity-aviation> The present white paper offers a jointly proposed vision for the future aviation connectivity landscape which is based on the combination of aviation specific solutions (VHF datalink and higher performance L-band SATCOM) - that will offer guaranteed safety and performance - with commercial, non-aviation specific solutions - that are expected to provide for high capacity and economic efficiency.

User Requirements for Air Traffic Services by IATA

2.5 In December 2023, International Air Transport Association (IATA) published its *User Requirements for Air Traffic Services (URATS) Volume 2 Edition 4.0*, which can be accessed at https://www.iata.org/contentassets/badbfd2d36a74f12b021c9dd899ecbad/iata_urats_v2_e4_dec_2023.pdf . This document provides international airline perspectives on Communications, Navigation, and Surveillance (CNS) technologies. In general, the positions reflected in this document seek to maximise

existing aircraft capabilities and support implementation of new technologies when and where operationally justified.

- 2.6 In the “C” domain airlines seek to benefit from:
- ☐ Broadband communications including some non-traditional options.
 - ☐ Technological resilience.
 - ☐ Seamless operations.
 - o For example, automated and transparent switching between networks, antennas, technologies and protocols.
- 2.7 In the “N” domain airlines seek:
- ☐ The enhanced safety and efficiency associated with 4D trajectories.
 - ☐ Interoperability between regional implementations of core technologies.
- 2.8 In the “S” domain airlines wish to:
- ☐ Derive benefits from more efficient, automated, and precise surveillance, e.g., free route airspace.
 - ☐ Gain enhanced operational predictability e.g., by avoidance of procedural control.
 - ☐ See ATS cost reductions due to rationalization of overlapping, redundant surveillance systems (e.g., RADARs and ADS-B covering the same airspace).

Job Cards of SP

2.9 The Surveillance Panel (SP) undertakes specific studies and develops technical and operational ICAO provisions for aeronautical surveillance systems, collision avoidance systems and their applications as outlined in the Global Air Navigation Plan (GANP). Rapid technological advances and different rates of adoption have resulted in diverse surveillance capabilities across the globe. The SP continuously works to attract diverse State participation to ensure that ICAO provisions address the wide range of surveillance capabilities. The working programme of Panels for a given time are mainly defined by Job Cards once they are approved by the ANC. The active Job Cards for SP covered the following global topics: **SP.008.03** *Ensure performance of aeronautical surveillance systems*; **SP.009.03** *Develop provisions on ACAS-X*; **SP.010.03** *Interval Management*; **SP.012.03** *ADS-B based pilot alerting on or near airport runways*.

Job Cards of CP-DCIWG

2.10 The Communications Panel (CP) - Data Communications Infrastructure Working Group (DCIWG) is known as "specific" working groups within the CP which is tasked to maintain the current ICAO communication provisions and advise the Air Navigation Commission (ANC) and provide the recommendations for future aeronautical communications. As the infrastructure to support aeronautical communications is complex, the DCIWG is supported by a number of Working Groups and Project Teams, which are in turn supported by a number of sub-groups. The active Job Cards for DCIWG covered the following global topics: **CP.001.01** *Global Data Link Implementation Strategy*; **CP-DCIWG.006.04** *Provisions on the exchange of information using the aeronautical telecommunication network over the internet protocol suite*; **CP-DCIWG.007.05** *SARPS and guidance on Air Navigation (Cyber) Resilience*; **CP-DCIWG.009.03** *Satellite Communication Systems in support of ASBU Blocks 1 and 2*; **CP-DCIWG.010.02** *Future L-Band Terrestrial Data Link System*; **CP-DCIWG.011.01** *Aeronautical satellite communication technologies and systems operating in VHF frequency band*.

Job Cards of ATMRPP

2.11 The Air Traffic Management Requirements and Performance Panel (ATMRPP) undertakes specific studies and develop and/or review technical provisions to support the integration of the Global Air Navigation Plan (GANP) and develop concepts and provisions aimed at the realization of the vision established by the Global ATM Operational Concept. The current areas of work are as follows: Flight and Flow Information for a Collaborative Environment (FF-ICE); Connected Aircraft (Aircraft Access to SWIM); and Trajectory-based Operations (TBO). The active Job Cards for ATMRPP covered the following global topics: **ATMRPP.001.04** Implementation of Flight and Flow Information for a Collaborative Environment (FF-ICE); **ATMRPP.007.03** Connected Aircraft Concept; **ATMRPP.011.02** Accommodation of additional flight plan information in the ICAO flight plan (2012 FPL) while transitioning to FF-ICE; **ATMRPP.012.01** Guidance on transitioning to a globally interoperable TBO environment; **ATMRPP.013.01** Update to the Global ATM Operational Concept (Doc 9854).

Job Cards of IMP

2.12 The Information Management Panel (IMP) was established in 2014 to develop a globally harmonized and interoperable approach and elaborate on necessary concepts to ensure effective management of information, including identifying the need for new information exchange formats, on a system-wide basis within the air navigation system. The active Job Cards for IMP covered the following global topics: **IMP.011.01** Information Services for Air/Ground SWIM; **IMP.012.01** SWIM Service Registry Interoperability; **IMP.013.01** Information Service Definition; **IMP.014.01** SWIM Governance enhancements; **IMP.015.01** Information Management Vocabulary; **IMP.002.03** Information Architecture & Management; **IMP.004.03** Information Services under SWIM; **IMP.005.03** SWIM Governance; **IMP.006.02** AIM Global Implementation Support; **IMP.007.02** NOTAM; **IMP.008.02** Aeronautical Charts; **IMP.009.02** Digital Data Sets; **IMP.010.02** WGS-84.

ICNSS project

2.13 The Integrated Communications, Navigation, Surveillance and Spectrum (ICNSS) project focusses on identifying a new and streamlined framework for CNSS standardization and better decision-making processes to achieve consensus and accelerate the development and rollout of state-of-the-art aeronautical CNS services. The goal is to support the medium and long-term evolution of CNS systems by providing an overall systems improvement thus continuing to serve aviation with the high uptime and resilience necessary to maintain aviation's stringent safety record while remaining a responsible user of the spectrum resource. The Technical Commission of the 41st Session of the Assembly (A41) reviewed A41-WP/58, presented by the Council, which contained information on progress achieved by the project. The ICNSS project is to propose a set of recommendations for endorsement by A42. For further information, an initial draft report of the integrated CNS and spectrum global concept can be found at the [ICNSS project website](#).

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) nominate/recommend experts, engage industry for required expertise, to share experiences to ATMAS TF; and
- c) discuss any relevant matter as appropriate.
