INTERNATIONAL CIVIL AVIATION ORGANIZATION

REPORT OF THE METEOROLOGY/AIR TRAFFIC MANAGEMENT (MET/ATM) SEMINAR AND FIFTEENTH MEETING OF THE ASIA/PACIFIC AIR TRAFFIC FLOW MANAGEMENT STEERING GROUP (ATFM/SG/15)

Bangkok, Thailand, 28 April – 2 May 2025

The views expressed in this Report should be taken as those of the Meeting and not the Organization

Approved by the Meeting
and published by the ICAO Asia and Pacific Office, Bangkok

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APPENDIXES

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INTRODUCTION

Meeting

1.1 The Meteorology/Air Traffic Management (MET/ATM) Seminar and Fifteenth Meeting of Air Traffic Flow Management Steering Group (ATFM/SG/15) were held in Bangkok, Thailand, from 28 April to 2 May 2025. The meeting included a joint plenary session with the Fourteenth Meeting of Meteorological Requirements Working Group (MET/R WG/14).

Attendance

2.1 The ATFM/SG/15 meeting was attended by 118 participants from 18 Administrations, and four International Organizations including Australia, Cambodia, China, Hong Kong China, India, Indonesia, Japan, Lao PDR, Malaysia, Mongolia, Pakistan, Papua New Guinea, Philippines, Republic of Korea, Singapore, Thailand, USA, Viet Nam, CANSO, IATA, ICCAIA, IFATCA and ICAO. A list of registered participants is at **Appendix A** to this report.

2.2 The MET/ATM Seminar were attended by 162 in-person participants and 73 online participants from 20 Administrations and five International Organizations, including Australia, Bhutan, Brunei Darussalam, Cambodia, China, Hong Kong China, India, Indonesia, Japan, Lao PDR, Malaysia, Mongolia, Pakistan, Papua New Guinea, Philippines, Republic of Korea, Singapore, Solomon Islands, Thailand, USA, Viet Nam, CANSO, IATA, ICCAIA, IFATCA and ICAO.

Officers and Regional Office

3.1 Mr. Piyawut Tantimekabut, ATM Expert (Director Level), AEROTHAI, Thailand, chaired the ATFM/SG/15 meeting.

3.2 Mr. Piyawut Tantimekabut and Mr. Ashwin Naidu, Aviation Customer Lead, Australian Bureau of Meteorology, co-Chaired the joint plenary session of ATFM/SG/15 & MET R/WG/14. Mr. Peter Dunda, Regional Officer Aviation Meteorology, ICAO Asia/Pacific Regional Office, and Mr. Manjunath Krishna Nelli, Regional Officer ATM, ICAO Asia/Pacific Regional Sub-Office, were Secretaries of the joint plenary session.

3.3 Mr. Manjunath Krishna Nelli, Regional Officer ATM was Secretary for the ATFM/SG/15 meeting. He was assisted by, Mr. Hiroyuki Takata, Regional Officer ATM, Mr. Mior Adli bin Mior Sallehhudin, Regional Officer ATM, Mr. Ying Weng Kit, ATM Officer, Mr. Tak Chuen Chui, AIM/ATM Officer and Dr. Prakayphet Chalayonnawin, Programme Analysis Associate (ATM), ICAO Asia/Pacific Regional Office.

Opening of the Meeting

4.1 On behalf of Mr. Tao Ma, Regional Director of the ICAO Asia/Pacific Regional Office, Mr. Manjunath Krishna Nelli welcomed all the participants to the Meeting.

4.2 Mr. Piyawut Tantimekabut welcomed participants to the Meeting.

Documentation and Working Language

5.1 The working language of the Meeting and all documentation was English. There were 27 working papers, seven information papers, and three flimsies considered by the meeting. A list of papers is included at **Appendix B** to this report.

Draft Conclusions, Conclusions, Draft Decisions and Decisions of ATFM/SG – Definition

6.1 ATFM/SG recorded its actions in the form of Draft Conclusions, Draft Decisions and Decisions within the following definitions:

Draft Conclusions dealt with matters that, according to APANPIRG terms of reference, require the attention of States, or action by the ICAO in accordance with established procedures;

Conclusions dealt with matters of a technical nature relating to regional guidance material for publication on the ICAO Asia/Pacific Regional Office website;

Draft Decisions dealt with the matters of concern only to APANPIRG and its contributory bodies; and

Decisions of ATFM/SG that related solely to matters dealing with the internal working arrangements of ATFM/SG.

List of Conclusions, Draft Conclusions, Decisions and Draft Decisions

7.1 List of Conclusions

NIL

7.2 List of Draft Conclusions

<table>
<tr><td colspan="3"><u>Draft Conclusion ATFM/SG/15-1</u>: Addition Appendix to the Asia/Pacific Regional Framework for Collaborative ATFM</td></tr>
<tr><td colspan="2">What: The Operational Capacity Guidelines from Republic of Korea to be added as an appendix to the next update Asia/Pacific Regional Framework for Collaborative ATFM.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: To provide sample guidance for regional States/Administration to develop tailored guidance materials in response to specific MET event resulting in capacity disruption.</td><td colspan="2">Follow-up: ☐Required from States</td></tr>
<tr><td>When: 29-Aug-25</td><td colspan="2">Status: Draft to be adopted by Subgroup</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other</td></tr>
</table>

<table>
<tr><td colspan="2"><u>Draft Conclusion ATFM/SG/15-2</u>: Adoption of AFTN/AMHS-based Interface Control Document (ICD) to the Asia/Pacific Regional Framework for Collaborative ATFM</td></tr>
<tr><td>What: That, the revised AFTN/AMHS-based Interface Control Document at Appendix D to the Meeting Report be uploaded to the Asia/Pacific Regional Office website, to replace the existing version, for use by Asia/Pacific States/Administrations in implementing cross-border ATFM communications in accordance with the</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental</td></tr>
</table>

provision of the Regional Framework for Collaborative ATFM.	☒ Ops/Technical
Why: To enhance ATFM post-operations analysis and to improve regional interoperability by broadening the technical applicability of the ICD to conform with system requirements of all Asia/Pacific States/Administrations	Follow-up: ☐Required from States
When: 29-Aug-25	Status: Draft to be adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☐ICAO APAC RO ☐ICAO HQ ☒Other: CNS SG/29	

<u>Draft Conclusion ATFM/SG/15-3</u>: Change Process of the FIXM Version Used for Asia/Pacific Cross-Border Operational ATFM System-to-System Information Exchange in SWIM

What: That, the change process for the Cross-Border FIXM Operating Version be

a) Submit the proposed change to the FIXM version, in the form of Working Paper, to ATFM SG for review and assessment of its operational impacts and suitability in supporting regional operational requirements;
b) Upon adoption by ATFM SG, submit the proposal to SWIM TF for review and assessment of its technical implications; and
c) Following agreement by SWIM TF, submit a summary of the change proposal to ATM SG for approval, and subsequently to APANPIRG for endorsement.

and content of change proposal be

a) Name of State(s) or collaboration group, including the specific names of organizations, proposing the change;
b) Proposed FIXM version;
c) Reason(s) for the proposed change(s);
d) Testing result of the proposed version; and
e) Proposed timeframe for the change to take effect (a minimum lead time of 2 years is required)

To be adopted as a regional process for revision of FIXM version for cross-border ATFM information exchange.

Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical

Why: To ensure effective communication, interoperability, reduced risk of incompatibility among ATFM systems within the Asia/Pacific region, as well as aligned implementations of all stakeholders.	Follow-up: ☐Required from States
When: 29-Aug-25	Status: Draft to be adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☐ICAO APAC RO ☐ICAO HQ ☐Other: SWIM TF/10	

<u>Draft Conclusion ATFM/SG/15-4</u>: The Use of Digital Form to Collect Annual Regional ATFM plan Monitoring and Reporting Form and Regional A-CDM Monitoring and Reporting Scheme

What: Adopt the use of digital form (Microsoft Forms) as	Expected impact:

the primary means to collect annual Regional ATFM Monitoring and Reporting Form and Regional A-CDM Monitoring and Reporting Scheme.	☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To streamline and enhance efficiency in processing the Regional Plans' Implementation Status Monitoring.	Follow-up: ☒Required from States
When: 29-Aug-25	Status: Draft to be adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:	

7.3 List of Draft Decisions

Draft Decision ATFM/SG/15-5: Normalisation of Asia/Pacific Regional A-CDM Monitoring and Reporting Scheme	
What: The trial Asia/Pacific Regional A-CDM Monitoring and Reporting Scheme to be normalized as part of the annual reporting framework.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To gather A-CDM implementation and operational status within the Asia/Pacific region for enhancement of common understanding of operational capability and enhancement to ATFM measures.	Follow-up: ☒Required from States
When: 29-Aug-25	Status: Draft to be adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:	

7.4 List of Decisions

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REPORT ON AGENDA ITEMS

Agenda Item 1: Adoption of Agenda

1.1 The provisional agenda (WP/01) was adopted by the Meeting.

Agenda Item 2: Review Outcomes of Related Meetings

Related Meeting Outcome (WP/2)

2.1 The Meeting was presented with the Air Traffic Flow Management (ATFM) related outcomes of meetings conducted by the relevant contributory bodies of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) and the Fourteenth Air Navigation Conference (AN-Conf/14).

2.2 The AN-Conf/14 supported transitioning to modern CNS/ATM systems particularly the shift from the flight planning mechanism to Flight and Flow – Information for a Collaborative Environment (FF-ICE) with a global transition target set for 2034.

AN-Conf/14 Recommendation 3.2/2: Transition to flight and flow – information for a collaborative environment services and cessation of ICAO 2012 flight plan by 2034

2.3 The Draft Conclusions ATM/SG/12-1 and ATM/SG/12-3 were adopted by APANPIRG/35 as Conclusion:

- ***Conclusion APANPIRG/35-1: Asia/Pacific Seamless ANS Plan***
- ***Conclusion APANPIRG/35/4: Agree on the Adoption of FIXM Ver. 4.3.0 in Asia/Pacific Region as the Standard Format***

2.4 The Ninth Meeting of the System Wide Information Management Task Force (SWIM TF/9) requested the ATFM/SG develop a detailed process for revising a mutually agreed FIXM version for cross-border ATFM-related information exchange during ATFM/SG/15 meeting and share with the SWIM TF/10 meeting for further discussion.

2.5 The Twenty-eighth Meeting of the Meteorology Sub-group (MET SG/28) of the APANPIRG supported the Decision to update and publish APAC Use Cases and User Requirements for SWIM-based MET Information Services Supporting ATFM, developed by the Meteorological Requirements Working Group (MET/R WG) Ad-hoc Group.

Decision MET SG/28-08: Publishing the Document on APAC Use Cases and User Requirements for SWIM-based Meteorological Information Services Supporting ATFM

2.6 The Fourth Meeting of the South Asia, Indian Ocean and Southeast Asia ATM Coordination Group (SAIOSEACG/4) discussed several initiatives for enhancement of the surge in westbound traffic operating through Kabul Flight Information region (FIR) and its impact on Pakistan's air traffic services requiring resumption of Cooperative ATFM measures to mitigate the effects of constraints within this airspace.

2.7 The outcomes of the ICAO APAC/MID ATFM and FF-ICE Seminar 2025 was shared with the Meeting.

MET/ATM Seminar Report (Flimsy 03)

2.8 A recap of the MET/ATM Seminar conducted on 28 April 2025 was presented and the summary of the seminar was filed as Flimsy 03 for ATFM/SG/15.

MET/ATM Joint Plenary Session

2.9 The MET/ATM Joint Plenary Session was organised on the afternoon of 30 April 2025.

2.10 A total of ten papers were presented during the plenary session:

- **ATFM/SG/15 Flimsy/03 -** MET/ATM SEMINAR REPORT (ICAO Secretariat)
- **MET/R WG/14 WP/06** – MET INFORMATION NEEDED TO SUPPORT THE ELEMENTS OF THE APAC SEAMLESS ANS PLAN (MET/R WG Ad-hoc Group)
- **MET/R WG/14 WP/11** – FOLLOW-UP ON THE SURVEY OF STATE MET INFORMATION SUPPORTING ATM AND DEVELOPMENT OF FUTURE ACTIVITIES (MET/R WG ad hoc group)
- **ATFM/SG/15 WP/10** – CASE STUDY ON THE OPERATIONAL CAPACITY GUIDELINES LINKED TO WEATHER FORECASTS (Republic of Korea)
- **MET/R WG/14 WP/07** – UPDATING THE IMPLEMENTATION EXAMPLE FROM THE REPUBLIC OF KOREA IN THE REGIONAL GUIDANCE FOR TAILORED METEOROLOGICAL INFORMATION AND SERVICES TO SUPPORT ATM OPERATION (Republic of Korea)
- **MET/R WG/14 WP/10** – USE CASE OF MET INFORMATION SERVICES FOR ATFM IN SWIM DEMONSTRATION (Hong Kong, China)
- **MET/R WG/14 WP/12** – APAC USE CASES AND USER REQUIREMENTS FOR SWIM-BASED MET INFORMATION SERVICES SUPPORTING ATFM (MET/R WG Ad-hoc Group)
- **ATFM/SG/15 IP/04** – INTEGRATION OF A-CDM INTO ATFM IN AUSTRALIA (Presented by AUSTRALIA/ AIRSERVICES AUSTRALIA)
- **MET/R WG/14 IP/02** – MET AND ATS STAKEHOLDERS' COLLABORATION IN SOLOMON ISLANDS (Solomon Islands)
- **MET/R WG/14 IP/08** – TRIAL OF PROBABILISTIC FORECAST (PROBnn) IN TAF (Hong Kong, China)

Agenda Item 3: ATFM Global Update

Presentation on ATFM Global Development (SP/01)

3.1 Mr. Elie El Khoury, Regional Coordinator from Air Navigation Bureau, ICAO HQ presented on the topic of "ATFM Global Development" to provide details on upcoming ATFM provisions and ICAO provisions in global manner.

3.2 This presentation discussed ATFM provisions, highlighting the long-term objective of achieving a global "network of networks" for ATFM, emphasizing cross-border, intra-regional, regional, and inter-regional ATFM cooperation.

3.3 The Meeting was informed on the proposed amendments to ICAO Annex 11 *Air Traffic Services* regarding the new provisions for States to establish and provide ATFM service for all controlled airspace and designated aerodromes, including the establishment of ATFM units, coordination between them, and the designation of Flow Management Positions (FMPs).

3.4 Furthermore, the presentation detailed the evolution of ATFM services through strategic planning, pre-tactical, tactical, and post-operations phases, along with the types of information to be provided and exchanged between ATFM units, Air Traffic Services (ATS) units, FF-ICE service units, operators, and aerodromes. It mentioned the inclusion of ATFM messages in ICAO Doc 9971 *Manual on Collaborative Air Traffic Flow Management (ATFM)* and the updates to ATFM guidance, emphasizing the requirements for ATFM Civil Aviation Regulations and the elements of an ATFM Implementation Plan.

3.5 Chair of ATFM/SG thanked Mr. Elie Khoury on his presentation and informed the Meeting that the present Regional ATFM Monitoring and Reporting Form would be reviewed in 2026 to include the new ATFM provisions in the reporting form.

Agenda Item 4: Review of Current ATFM Operations and Problem Areas

Addressing of Flight Plans and Missing DEP Messages (WP/03)

4.1 The Meeting was briefed on the issue of missing departure (DEP) messages and flight plan (FPL) addressing. It highlighted that incorrect flight plan addressing requirements published by States in their Aeronautical Information Publication (AIP) contributed to the non-receipt of FPL, DEP, and other ATS messages.

4.2 The Meeting reminded States/Administrations the importance of adhering to ICAO Doc 4444 *Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM)* for the correct addressing and distribution of ATS messages.

4.3 The APAC regional missing DEP messages analysis was conducted in February 2025 based on the ATFM/SG/14 action item. India, and Thailand, provided data to ICAO on the number of FPLs received and number of missing DEP messages for flights originating from Maldives. Based on the analysis, it was concluded that more data is needed for review of existing ANS Deficiency of missing DEP messages against Maldives.

4.4 During discussion, the Meeting was informed about the following provisions in the PANS-ATM:

a) Paragraph 11.4.2.2.2.3 (b) stipulates that "… *If so required, an FPL message shall also be sent to flow management centres responsible for ATS units along the route*."

b) Paragraph 11.3.6 stipulates that "*movement messages shall be addressed simultaneously to the first en-route control centre, to all other ATS units along the route of flight which are unable to obtain or process current flight plan data, and to air traffic flow management units.*"

4.5 While addressing the query, Secretariat clarified that the ATS messages shall be addressed as per the provisions contained in PANS-ATM and that the ATS messages in addition should also be addressed to ATFM unit concerned as provided in PANS-ATM. States may publish such requirement in the section ENR 1.9 of the respective AIPs with reference to the globally standardised three-letter designator for an Air Traffic Flow Control Unit: ZDZ as per ICAO Doc 8585.

Regional ATFM Implementation Status (WP/04)

4.6 ICAO provided a summary of the ATFM implementation status of APAC Administrations, reported against the performance objectives of the Regional Framework for Collaborative ATFM. Annual implementation status reports for 2025 were received from 21 APAC Administrations:

Bangladesh, Bhutan, Cambodia, China, Hong Kong China, Macao China, Fiji, India, Indonesia, Japan, Malaysia, Nepal, New Zealand, Pakistan, Philippines, Republic of Korea, Singapore, Sri Lanka, Thailand, United States and Viet Nam

4.7 Mongolia submitted their implementation status after the preparation of this working paper and its implementation status was included in this report.

4.8 Based on reports received States were assessed as having *Robust* (90-100%), *Marginal* (70-89%) or *Incomplete* (0-69%) implementation.

4.9 Australia, Cambodia, China, Hong Kong China, Japan, Republic of Korea, Singapore, Thailand and USA were assessed as having Robust implementation.

4.10 The following APAC States had never provided an implementation status report:

Afghanistan, Brunei Darussalam, Cook Islands, DPR Korea, Kiribati, Lao PDR, Marshall Islands, Micronesia, Nauru, Palau, Samoa, Solomon Islands, Timor Leste, Tonga, Tuvalu and Vanuatu.

4.11 **Table 1** summarised current implementation status.

Table 1: Updated Asia/Pacific Region ATFM Implementation Status

Administration (Tier)	**% age of Implementation**				**Implementation Status**
	2022	**2023**	**2024**	**2025**	
Afghanistan (B)	*no report*	*no report*	*no report*	*no report*	Did Not Report
Australia (A)	*no report*	*no report*	*98*	*no report*	Robust
Bangladesh (B)	13	*no report*	*6*	15	Incomplete
Bhutan (B)	*no report*	21	21	21	Incomplete
Brunei Darussalam (B)	*no report*	*no report*	*no report*	*no report*	Did Not Report
Cambodia (A)	82	95	89	91	Robust
China (A)	*no report*	97	99	94	Robust
Hong Kong, China (A)	89	95	95	95	Robust
Macao, China (B)	*no report*	39	47	47	Incomplete

Administration (Tier)	% age of Implementation				Implementation Status
	2022	2023	2024	2025	
Cook Islands (B)	*no report*	*no report*	*no report*	*no report*	Did Not Report
Fiji (B)	*no report*	0	16	24	Incomplete
France (French Polynesia) (B)	*no report*	40	40	*no report*	Incomplete
DPR Korea (B)	*no report*	*no report*	*no report*	*no report*	Did Not Report
India (A)	84	85	88	88	Marginal
Indonesia (A)	63	54	57	57	Incomplete
Japan (A)	*no report*	91	93	93	Robust
Kiribati (B)	*no report*	*no report*	*no report*	*no report*	Did Not Report
Lao PDR (A)	*no report*	*no report*	*no report*	*no report*	Did Not Report
Malaysia (A)	*no report*	36	37	84	Marginal
Maldives (B)	*no report*	*no report*	*20*	*no report*	Incomplete
Marshall Islands (B)	*no report*	*no report*	*no report*	*no report*	Did Not Report
Micronesia (B)	*no report*	*no report*	*no report*	*no report*	Did Not Report
Mongolia (A)	40	28	28	*31*	Incomplete
Myanmar (B)	*no report*	*no report*	*30*	*no report*	Incomplete
Nauru (B)	*no report*	*no report*	*no report*	*no report*	Did Not Report
Nepal (B)	*no report*	*no report*	*39*	39	Incomplete
New Caledonia (B)	*no report*	*no report*	*43*	*no report*	Incomplete
New Zealand (A)	67	78	78	73	Marginal
Pakistan (B)	80	59	65	65	Incomplete
Palau (B)	*no report*	*no report*	*no report*	*no report*	Did Not Report
Papua New Guinea (A)	*no report*	*no report*	*21*	*no report*	Incomplete

Administration (Tier)	% age of Implementation				Implementation Status
	2022	2023	2024	2025	
Philippines (A)	*no report*	59	64	65	Incomplete
Republic of Korea (A)	87	93	97	97	Robust
Samoa (B)	*no report*	*no report*	*no report*	*no report*	Did Not Report
Singapore (A)	97	99	99	100	Robust
Solomon Islands (B)	*no report*	*no report*	*no report*	*no report*	Did Not Report
Sri Lanka (B)	*no report*	*no report*	*25*	25	Incomplete
Timor Leste (B)	*no report*	*no report*	*no report*	*no report*	Did Not Report
Tonga (B)	*no report*	*no report*	*no report*	*no report*	Did Not Report
Thailand (A)	90	91	91	93	Robust
Tuvalu (B)	*no report*	*no report*	*no report*	*no report*	Did Not Report
United States (A)	*no report*	96	96	96	Robust
Vanuatu (B)	*no report*	*no report*	*no report*	*no report*	Did Not Report
Viet Nam (A)	34	71	71	85	Marginal

4.12 Regional ATFM Capability Phase III had been divided into sub-phases A and B, with expected implementation of 03 November 2022 and November 2025. **Table 2** and **Table 3** summarised the current implementation status for Phase IIIA and Phase IIIB for information only.

Table 2: Asia/Pacific Region ATFM Implementation Status of Phase IIIA

Administration (Tier)	% Implementation		
	2023	2024	2025
Australia (A)	75	*75*	*no report*
Cambodia (A)	50	50	25
China (A)	100	100	100
Hong Kong, China (A)	92	92	92
India (A)	100	100	100
Indonesia (A)	42	42	42

Administration (Tier)	% Implementation		
	2023	2024	2025
Japan (A)	92	92	92
Malaysia (A)	67	67	92
Mongolia (A)	0	0	33
New Zealand (A)	17	17	17
Philippines (A)	0	0	0
Republic of Korea (A)	83	83	67
Singapore (A)	92	92	100
Thailand (A)	92	92	100
United States (A)	100	100	100
Viet Nam (A)	75	75	75

Table 3: Asia/Pacific Region ATFM Implementation Status of Phase IIIB

Administration (Tier)	% Implementation		
	2023	2024	2025
Australia (A)	55	55	*no report*
Cambodia (A)	13	13	13
China (A)	85	85	100
Hong Kong, China (A)	65	65	65
India (A)	25	25	25
Indonesia (A)	35	35	35
Japan (A)	40	40	40
Malaysia (A)	19	19	40
Mongolia (A)	13	13	13
New Zealand (A)	20	20	20
Philippines (A)	0	0	0
Republic of Korea (A)	*no report*	*no report*	15
Singapore (A)	50	50	70

Administration (Tier)	% Implementation		
	2023	2024	2025
Thailand (A)	50	50	50
United States (A)	100	100	80
Viet Nam (A)	25	25	40

4.13 The *Regional ATFM Monitoring and Reporting Form* was available on the ICAO Asia/Pacific Regional Office eDocuments (ATM) webpage at:

https://www.icao.int/APAC/Pages/eDocs.aspx

4.14 The Meeting was informed that implementation status of Phase IIIB regional ATFM capabilities will also be included in the overall assessment of implementation status from 2026 onwards.

4.15 The Secretariat proposed to transform the modality of reporting from excel format to digital form. Details of the proposal are included in WP/18 for this Meeting.

Progress Update from Asia/Pacific Cross-Border Multi-Nodal ATFM Collaboration (AMNAC) (WP/05, SP/02)

4.16 The Meeting was provided with the progress update of the Asia-Pacific Cross-Border Multi-Nodal ATFM Collaboration (AMNAC), a collaborative effort by Air Navigation Service Providers (ANSPs) from States/Administrations in the Asia/Pacific region to implement cross-border ATFM.

4.17 The Meeting was updated on Viet Nam's progression to as a Level-3 ATFM Node from October 2024 and established procedures for AMNAC members to progress to Level-3 ATFM node.

4.18 The AMNAC Core Team reviewed the existing ATFM Daily Plan (ADP) template, harmonised the data elements and incorporated the revised template into AMNAC COP. The new template would form the basis for efforts to develop an information exchange model to support SWIM-based digital ADP exchange. AMNAC remarked the new template was slightly different from the ICAO Asia/Pacific ATFM Daily Plan (ADP) Exchange Procedure (Working Draft) developed in May 2020.

4.19 AMNAC introduced the web-based dashboard for network Post-Operations Analysis, which has been updated on a quarterly basis based on data submitted by Level-3 members. Based on the data submitted between April 2024 and March 2025, AMNAC Core Team shared the impact assessment of Ground Delay Programs (GDPs) implemented, the Calculated Take-Off Time (CTOT) compliance performance and the investigation towards the CTOT compliance problems. From April 2025 onward, the process for Level-3 member to submit data was revised to enable the dashboard to be updated monthly, giving a timelier view of the network performance. The dashboard could be accessed at https://bit.ly/amnac-poa.

4.20 The Meeting was informed on the operational trial on the One CTOT Solution (OCS) Concept to address the issue of conflicting ATFM measures. Under the OCS concept, China acted as the ATFM Harmony Unit (AHU) between Hong Kong China and Republic of Korea to consolidate all ATFM measures along the same flow of traffic into a single CTOT. Lack of transparency in identifying the sources of ATFM delays was identified as one of the issues, resulting in confusion of the facilitating ATFM Nodes and airspace users.

4.21 AMNAC recognised the issues associated with the perceived high cost required for ATFM implementation hindering the implementation progress, as well as issues associated with the Distributed Multi-Nodal (DMN) ATFM Network Concept being focused on local optimisation of air traffic flow rather than cross-border reconciliation/optimisation. The AMNAC Core Team acknowledged the gaps in current ATFM/DMN concept and recognised the need to rethink of the future ATFM concept aimed at optimising traffic at the regional level and to better integrate with the future implementation of FF-ICE and Trajectory-Based Operations (TBO).

4.22 AMNAC reported that an FF-ICE workshop was conducted for the AMNAC members during AMNAC/22, where members were introduced to the concept of FF-ICE and key enablers such as SWIM, Collaborative Decision Making (CDM), Globally Unique Flight Identifier (GUFI) and Flight Information Exchange Model (FIXM) required for the implementation of FF-ICE. AMNAC members were apprised of how FF-ICE was intended to replace the current ICAO FPL2012 and were provided with an overview of the six FF-ICE/Release 1 (FF-ICE/R1) services, which focused on pre-departure negotiation of flight trajectory between ATM Service Providers (ASP) and Airspace Users (AU).

4.23 The Meeting was informed of the works from AMNAC Technical Subgroup (TSG) to establish a change process for the revision of the agreed FIXM version to support cross-border ATFM-to-ATFM system in APAC. The TSG was also working on mapping of required data fields to FIXM version 4.3, including creation of APAC extension as necessary, for cross-border ATFM operations. While these works are still in development phase, CTOT information is still primarily distributed via AFTN/AMHS using Slot Allocation Message (SAM), Slot Revision Message (SRM), and Slot Cancellation Message (SLC) messages.

4.24 Thailand advised the Meeting that AMNAC would discuss and coordinate with ICAO and ATFM/SG Chair for the suitable timing during the reviewing cycle to update the ICAO ADP template to harmonise the regional ADP template.

4.25 The Chair queried on the actions that AMNAC would work on for the cases of low CTOT compliance. It was suggested to look for potential gaps in CTOT facilitation procedures or other relevant procedures. Thailand advised that AMNAC would be in contact with all Level-3 ATFM nodes to review the procedure and share best practice. In addition, Singapore shared the feedback from some AMNAC members in accessing CTOTs from the ATFM web portal and the plans on SAM trials for more timely and automated CTOT dissemination.

NARAHG Update (WP/9)

4.26 The paper presented by China, Japan, and Republic of Korea, provided updates regarding the collaboration process of North Asia Regional ATFM Harmonization Group (NARAHG).

4.27 The Meeting was informed about key outcomes achieved from the 10th NARAHG meeting in June 2024 in Qingdao, China which include ATFM Data Exchange and Post-Operational Analysis (POA) to enhance cross-border efficiency. NARAHG endorsed the joint optimization of the Typhoon Detour Procedure (TDP) to mitigate impacts on regular flights, following China's trial that demonstrated reduced delays through pre-tactical coordination.

4.28 China and Japan agreed to form an expert group for trials on Calculated Time Over (CTO) to address delays at Shanghai Pudong Airport (ZSPD), and there were discussions on CRV-Based Data Integration between Fukuoka and Shanghai FIRs, with a proposal to expand to Republic of Korea.

4.29 The Meeting was briefed on the TDP operation notice, detailing the mechanism to regulate typhoon detoured flight via the application of Chinese overflight permit to minimise the impact though cross-border coordination.

4.30 Next steps of NARAHG outlined in the document include finalizing CTO/CTOT implementation plans, with China and Republic of Korea set to implement CTO-based ATFM trials by June 2025, and developing a Common Operating Procedure (COP) for cross-border ATFM, aligned with ICAO Doc 9971 guidelines.

4.31 The NARAHG group informed that they would be sharing the ICD for ATFM communications between the NARAHG group members and the Common Operation Procedures (COP) documents with the AMNAC group for harmonization of Regional ATFM procedures and the NARAHG was suggested to provide a WP in the next ATFM/SG meeting to report on the result of the CTO trial and COP.

Reactivation of BOBCAT Related to Kabul Contingency (WP/8)

4.32 The Meeting was informed on the side meeting during the SAIOSEACG/4 meeting in March 2025 convened Pakistan, Thailand, IATA and ICAO to discuss the reactivation of the Bay of Bengal Cooperative Air Traffic Flow Management System (BOBCAT) to address traffic congestion issues arising from Kabul FIR contingency.

4.33 The primary objectives of the side meeting were to discuss necessary steps to:

a) open up access to lower flight levels on ATS routes N644, L750, P628, and UL333

b) reduce the longitudinal spacing from 15 minutes to 10 minutes for RNP2 and RNP4 compliant aircraft entering the volume at same flight level.

4.34 The Meeting was informed of the series of outcomes and way forward subsequent to the side meeting including the scheduled CCT meeting on 23 April 2025, commencement of reactivation of BOBCAT and communication between all the related parties and stakeholders.

Challenges in Management of Air Traffic Flow in Delhi FIR due to Restrictions in Kabul FIR (WP/27, SP/11)

4.35 India presented to the Meeting on the difficulties in managing air traffic flow in the Delhi FIR including level restrictions and longitudinal separation requirements, have led to increased complexities, delays, and fuel consumption for both ANSPs and airlines due to restriction in Kabul FIR.

4.36 The Meeting was informed on India’s proposals to alleviate the situation and to improve the efficiency of flight operations. India suggested aligning Delhi FIR exit points with Kabul FIR entry points to reduce conflicts, complexity, coordination but enhances predictability and situation awareness among stakeholders.

4.37 Other suggestions such as reactivation of BOBCAT service, availability of extra flight level on specific route and possibility of reducing longitudinal separation was discussed.

4.38 IATA requested India to share a copy of the route proposal for member airlines consultation. India expressed the willingness to share with the note for Pakistan to confirm for any operational constraints inside Lahore FIR.

Preparation for BOBCAT Service Resumption (Flimsy SP/03)

4.39 Thailand provided a flimsy presentation on the potential resumption of BOBCAT service, focusing on the configurations, challenges, and steps involved in the reactivation process.

4.40 The Meeting was made aware of the conclusion from the Kabul CCT meeting on 23 April

2025 on the aspect of contingency routes, flight level availability and the required spacing. In response to the conclusion, Thailand proposed the new BOBCAT Spacing Parameter of 15 mins + 0 mins buffer for the BOBCAT slot allocation algorithm, commensurate with the required spacing as per the Afghanistan ATM Contingency Plan.

4.41 Thailand also informed the Meeting on the timeline and steps that were required to reactivate BOBCAT service which included system configuration update, operational personnel preparation, review of safety assessment hazard log and the requirement for concerned States/Administrations to revise their corresponding AIP.

4.42 Thailand proposed a timeline for BOBCAT service reactivation, indicating key milestones from May to September 2025, with the service potentially commencing on AIRAC date 4 September 2025.

4.43 The Meeting was informed of the sideline meeting schedule on the third day of the ATFM/SG/15 meeting to focus on the timeline of BOBCAT service reactivation and other related process. The Chair invited all the interested States/Administrations and stakeholders to participate the sideline meeting.

4.44 The sideline meeting was conducted on 1 May 2025 to plan reactivation of the BOBCAT ATFM procedure with target date of AIRAC 4 September 2025. The sideline meeting summary of discussion is provided as **Appendix C to the Meeting Report**.

Case Studies on Applying Flow Rate to ATFM Measures (WP/11, SP/04)

Incorporating the Use of Flow Rate into the Asia-Pacific ATFM Framework (WP/12, SP/05)

4.45 Republic of Korea shared their experiences in application of flow rate restrictions as an interim ATFM measures when demand exceeded capacity such as in the case of snow fall in Incheon Airport. The flow rate restriction was applied to flights from neighbouring States (China and Japan) by specifying number of aircraft per unit time to contain the workload while maintaining a certain level of flexibility.

4.46 China presented on the flow rate restriction application acting as a bridge between Miles-in-Trail/Minutes-in-Trail (MIT) and GDP. The Meeting was informed that flow rate balances simplicity and adaptability, application of flow rate restriction helped in reducing the ATC workload and reducing air traffic congestion. China acknowledged one of the key benefits of flow rate application was its cost-effectiveness, offering a pragmatic approach to enhance traffic flow efficiency without significant technological investment.

4.47 The Meeting deliberated on the two working papers. It was opined that specifying flow rate was a way of expressing airspace capacity. Meanwhile, ATFM measures normally had control mechanism to manage traffic demand in accordance with available capacity. For example, GDP's control mechanism was through issuing CTOT. Based on information presented in WP/11 and WP/12, application of flow rate also uses CTOT as control mechanism. The Meeting also noted that the ICAO Doc 9971 and Regional ATFM Framework documents contained references towards capacity determination and Demand Capacity Balancing (DCB). It was recommended that the concept be explored further before proposing for integration into in the Regional ATFM Framework.

Using Pretactical GDP to Solve Strategic Slot Non-Compliance (WP/22, SP/06)

4.48 Australia presented the issue of strategic slot non-compliance at Perth Airport in Western Australia, where the number of flights had grown beyond capacity, but compliance with GDP below acceptable level.

4.49 The Meeting was informed on the different mechanisms trialled to tackle the non-compliance issue including enacting a time delay penalty for any flight that failed to comply with the Calculated Off Block Time (COBT). Through collaboration with industry partners and Airservices Australia, a new model based on an Airservices Australia designed compliance assessment tool was put on trial to assess compliant schedules against strategic slot assignment and realign before running GDP.

4.50 The Meeting appraised Australia's effort in resolving the non-compliance issue through collaboration with the stakeholders and reaffirm the importance of slot compliance as first step of effective ATFM measures.

CTO Trial Update and Seasonal Analysis (IP/02)

4.51 Japan provided information on the progress of CTO trial within Fukuoka FIR since March 2023. The evaluation of CTO trial data and the seasonal analysis of the distribution and trend of aircraft subject to CTO speed control were discussed.

Case Study on ATFM Operations During a Contingency Situation: Earthquake (Flimsy SP/02)

4.52 Thailand presented on the contingency situation and the application of ATFM measures by Bangkok ATFMU during the earthquake occurred in late March 2025. The Meeting appreciated Thailand for the successful execution of contingency protocol and CANSO invited Thailand to share the experience in the next update of CANSO "Planning for the Expected and Unexpected," special events and disruption planning reference for ANSPs.

Harmonization of Air Traffic Services Procedures with the Provisions of ATFM to Enhance Efficiency and Effectiveness of Air Traffic Management (WP/25, SP/12)

4.53 The Meeting was informed on the efforts by India to harmonise ATS procedures with ATFM provisions. Such harmonisation aimed to enhance efficiency and effectiveness of ATM.

4.54 The Meeting was made aware that ICAO PANS-ATM stipulated that Start-up time procedures should be implemented when warranted by ATFM regulations and when an aircraft was subject to ATFM regulations, it should be advised to start up in accordance with its allocated slot time. However, ICAO PANS-ATM did not outline the phraseology to be used for communication between the Air Traffic Control (ATC) unit and pilots on ATFM operations, but those were contained in ICAO Doc 9971.

4.55 Other harmonisation was expected improve situation awareness with the intention to mandate the inclusion of ATFM measures on the controllers' flight progress strips to ensure CTOT compliance.

4.56 India recommended the inclusion of phraseology contained in ICAO Doc 9971 regarding ATFM communication at suitable place in ICAO PANS-ATM.

4.57 The Chair advised the Meeting that the proposal could be addressed to the ICAO ATM Operations Panel (ATMOPSP), which would convene its next meeting in October 2025, which India had a nominated member. The proposal is expected to involve both ATMOPSP ATFM Working Group and Phraseology Working Group. The Chair also advised that the process of revising ICAO PANS-ATM could be extensive given the necessity to consider applicability across all regions.

4.58 The Secretariat concurred that proper strip markings of ATFM measures be a crucial indication of proper communication between ATFMU and ATS unit which should be captured as part of the implementation compliance.

Benefit of Measuring Reduced Air Delays, Fuel Savings and Reduction in CO_2 Emissions due to Implementation of ATFM and Sharing It with Stakeholders in Achieving operational Efficiency; Calculations Thereof. (WP/26)

4.59 The Meeting was introduced with the methodology that India adopts to calculate the reduction in air delays, fuel savings and reduction in CO_2 emissions resulting from the implementation of flow measures.

4.60 Through the evaluated assumptions and algorithm India proclaimed that in 2024, ATFM measures in India achieved more than 30,000 tons of fuel save and approximately103,000 tons of CO_2 emissions. Such calculations provided a good, visualised indicator to recognise the overall benefits of implantation of flow measures and upkeep the incentive to participate in collaborative decision-making process leading to enhanced operational efficiency.

4.61 The Chair appreciated India for the good example of effective post-operations analysis providing solid evidence of the benefits of adequate ATFM measures.

4.62 CANSO queried if the scope of the analysis be extended to cover international or regional flights. India clarified that international flights were not subjected to ATFM measures but would explore to look into the situation on regional manner.

4.63 IATA invited India to share the data and methodology with IATA for comparison with the industry data and concurred with Airport Authority of India (AAI)'s effort to meet and review with the stakeholders in regular basis. India intimated that such information was being shared with stakeholders and also available on AAI website.

4.64 USA commented that the Data Analytics Ad-hoc Group (DAG) under the ATM/SG possessed similar key performance indicators (KPIs) for analysis for operational effectiveness and efficiency. USA suggested India to share the data with DAG possibly in the next DAG meeting. Thailand also invited India to share the methodology and data as an example for other relevant parties' references. India proposed to share the information and process in detail to all interested stakeholders.

Operational Capacity Guidelines Linked to Weather (Plenary Session WP/10)

4.65 Republic of Korea presented the operational capacity guidelines for proactive ATFM at Incheon International Airport during snowfall was presented during the MET/ATM Seminar session.

4.66 The Meeting was informed on the necessity of ATFM measures during snowfall and Republic of Korea's stage approach in setting up different level of operation capacity according to the severity of snow weather.

4.67 The Meeting acknowledged the CDM meetings to engage different stakeholders when operational constraints were anticipated to cultivate proactive responses.

4.68 The Meeting appreciated the efforts of Republic of Korea, and a draft conclusion was proposed that the WP be added as an appendix to the Regional ATFM Framework.

<table>
<tr><td colspan="3"><u>Draft Conclusion ATFM/SG/15-1</u>: Addition Appendix to the Asia/Pacific Regional Framework for Collaborative ATFM</td></tr>
<tr><td colspan="2">What: The Operational Capacity Guidelines from Republic of Korea to be added as an appendix to the next update Asia/Pacific Regional Framework for Collaborative ATFM.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: To provide sample guidance for regional States/Administration to develop tailored guidance materials in response to specific MET event resulting in capacity disruption.</td><td colspan="2">Follow-up: ☐Required from States</td></tr>
<tr><td>When: 29-Aug-25</td><td colspan="2">Status: Draft to be adopted by Subgroup</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other</td></tr>
</table>

4.69 Secretariat would include the same during the next update of the Asia/Pacific Regional Framework for Collaborative ATFM in 2027.

Agenda Item 5: A-CDM Operations and A-CDM/ATFM Integration

<u>Progress Update on Regional A-CDM Implementation Monitoring Scheme (WP/23, SP/15)</u>

5.1 The Meeting was informed on the result of the trial Asia/Pacific Regional A-CDM Monitoring and Reporting Scheme.

5.2 Trial reporting using an online form was conducted and completed in Q1 2025, with replies received from 11 Asia/Pacific Administrations, covering A-CDM implementation in 68 airports. Initial findings indicate that most reported aerodromes are international, with over 80% in the Operation and Monitoring Phase.

5.3 The trial was considered successful in capturing the progress and status of A-CDM implementation and operation within the region.

5.4 The Meeting agreed to normalise and integrate the Asia/Pacific Regional A-CDM Monitoring and Reporting Scheme into the annual reporting framework, alongside with the Regional ATFM Plan Implementation report.

Draft Decision ATFM/SG/15-5: Normalisation of Asia/Pacific Regional A-CDM Monitoring and Reporting Scheme		
What: The trial Asia/Pacific Regional A-CDM Monitoring and Reporting Scheme to be normalised as part of the annual reporting framework.		Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To gather A-CDM implementation and operational status within the Asia/Pacific region for enhancement of common understanding of operational capability and enhancement to ATFM measures.	Follow-up: ☒Required from States	
When: 29-Aug-25	Status: Draft to be adopted by Subgroup	
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:		

A-CDM Implementation in Australia (IP/3)

5.5 The presentation provided an overview on how Airservices Australia, airlines and airports collaborated to implement A-CDM in Australia's four major airports: Brisbane, Perth, Sydney, and Melbourne in stages. A-CDM for all four airports were expected to be operational by the end of 2025.

5.6 The implementation of A-CDM was envisioned to bring upon benefits such as enhanced situational awareness, operational efficiency, elevate recovery towards adverse conditions, better asset and resource utilisation, improved customer experience, cost savings, and environmental benefits through reduced emissions

Integration of A-CDM into ATFM in Australia (Plenary Session IP/04, SP/08)

5.7 Australia shared the experience on how the A-CDM operation in Australia fused with the ATFM measures through collaboration of MET assessment, capacity assessment, demand assessment, the digital twin and migration of mentality from “First come, first served” to “Best planned, best served” concept.

Cooperation Between China and Europe in Airport Collaborative Decision Making (IP/05, SP/13)

5.8 China discussed the cooperation between China and Europe in the field of A-CDM. Cooperation included the EU-China Aviation Partnership Project (EU-China APP) to strengthen economic ties and technical cooperation such as implementing regulations, development processes, stakeholder involvement, information exchange, technology's role, performance indicators, and strategic supervision.

A-CDM Operations and ACDM and ATFM Integration (IP/06)

5.9 Malaysia presented the Meeting with the implementation of A-CDM at Kuala Lumpur International Airport (KLIA) and the integration of A-CDM with ATFM in collaboration with Thailand for the deployment of ATFM system with the anticipation to launch service in 2026.

Agenda Item 6: Regional ATFM Framework, A-CDM Plan and related Guidance Material

Amendments to Asia/Pacific Region AFTN/AMHS-Based Interface Control Document for ATFM, Version 2.0 (WP/6)

6.1 The Meeting was presented with the proposed amendment to the Asia/Pacific Regional AFTN/AMHS-based Interface Control Document (ICD) for ATFM version 2.0. aimed at harmonising the use of fields for indicating the designation and the reason for the ATFM measure, in support of enhanced post-operations analysis.

6.2 The Meeting agreed on AMNAC Core team's proposal to harmonise the use of REGUL field in para 3.2.1.13 of the ICD version 2 as below:

3.2.1.13 REGUL Field

The —REGUL field indicates the designation of the ATFM measure, including the specific location of the constraint, affecting the flight. Several —REGUL fields may be present, with the first one being the ATFM measure that controls the flight. The syntax required is:

'-' "REGUL" regulid

where regulid = AAAACCCCCDDMMMVV

AAAA : 4 characters to represent constrained area, i.e. airport or FIR

Example

- Airport, e.g. VTBS
- FIR, e.g. VTBB

CCCCC : Maximum 5 characters to represent specific constrained location

Example

- Sector, e.g. 3N
- Waypoint, e.g. BENSA

Note: This CCCCC *field can be omitted if it is not applicable.*

DDMMM : 5 characters to represent date and month when the ATFM measure is effective

Example

27MAR

VV	:	2 digits to represent version of the designation of the ATFM measure

Example

03

6.3 The Meeting agreed on AMNAC Core team's proposal to harmonise the use of REGCAUSE field in para 3.2.1.15 of the ICD version 2 by adapting the full REGCAUSE codes from the EURCONTROL's ATFCM Users' Manual as below:

3.2.1.15 REGCAUSE Field

The —REGCAUSE field indicates the reason for the ATFM measure to assist in post-operations analysis. —REGCAUSE comprises the following.

a) Regulation cause code – One letter code corresponding to the cause of the ATFM measure assigned by the flow management personnel
   - C – ATC capacity
   - I – ATC industrial action
   - R – ATC routings
   - S – ATC staffing
   - T – ATC equipment
   - A – Accident/incident
   - G – Aerodrome capacity
   - E – Aerodrome services
   - N – Industrial action NON-ATC
   - M – Airspace management
   - P – Special event
   - W – Weather
   - V – Environment issue
   - O – Other

b) Regulation location code – One letter code, i.e. D, E, or A, describing the phase of the flight (Departure, Enroute, and Arrival) where the constrain triggers the ATFM measure

c) A space

d) The IATA delay code in numeric (e.g. 81, 82, 83, 89) or 00 where no IATA code is available
   - 81 – ATFM due to ATC EN-ROUTE DEMAND/CAPACITY
   - 82 – ATFM due to ATC STAFF/EQUIPMENT EN-ROUTE
   - 83 – ATFM due to RESTRICTION AT DESTINATION AIRPORT
   - 84 – ATFM due to WEATHER AT DESTINATION
   - 85 – MANDATORY SECURITY
   - 86 – IMMIGRATION, CUSTOMS, HEALTH
   - 87 – AIRPORT FACILITIES
   - 88 – RESTRICTIONS AT AIRPORT OF DESTINATION
   - 89 – RESTRICTIONS AT AIRPORT OF DEPARTURE
   - 98 – INDUSTRIAL ACTION OUTSIDE OWN AIRLINE
   - 99 – OTHER REASON

The syntax required is: '-' "REGCAUSE" regulationcausecode regulationlocationcode " " IATAdelaycode

6.4 The Meeting agreed to the following Draft Conclusion:

Draft Conclusion ATFM/SG/15-2: Adoption of AFTN/AMHS-based Interface Control Document (ICD) to the Asia/Pacific Regional Framework for Collaborative ATFM	
What: That, the revised AFTN/AMHS-based Interface Control Document at **Appendix D to the Meeting Report** be uploaded to the Asia/Pacific Regional Office website, to replace the existing version, for use by Asia/Pacific States/Administrations in implementing cross-border ATFM communications in accordance with the provision of the Regional Framework for Collaborative ATFM.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To enhance ATFM post-operations analysis and to improve regional interoperability by broadening the technical applicability of the ICD to conform with system requirements of all Asia/Pacific States/Administrations	Follow-up: ☐Required from States
When: 29-Aug-25	Status: Draft to be adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☐ICAO APAC RO ☐ICAO HQ ☒Other: CNS SG/29	

Update on FIXM V4.3 Extension Development for Asia/Pacific Region (WP/07)

6.5 The Meeting was briefed on the update on FIXM version 4.3 Extension development to support cross-border ATFM operation, A-CDM, ATFM/A-CDM integration, and traffic synchronization in the Asia/Pacific region. This effort aimed to ensure the readiness of FIXM Extension in alignment with *Conclusion APANPIRG/35/4* which agreed on the adoption of FIXM version 4.3 as the standard format for the region from Q3/2026.

6.6 The AMNAC TSG, together with members of SWIM TF, examined the feasibility of using FIXM version 4.3 Core to support cross-border ATFM operation, A-CDM, ATFM/A-CDM integration, and traffic synchronization. It was found that FIXM version 4.3 Core could support the exchange of certain data attributes originally included in the Asia/Pacific FIXM version 4.1 Extension. Specifically, it was considered that FIXM version 4.3 Core could be used for exchange of CTOT, CTO, and Calculated Landing Time (CLDT).

6.7 It was concluded that trajectory and aircraft track data attributes included in the Asia/Pacific FIXM version 4.2 Extension would be removed from the subsequent version of the Extension due to availability of alternative data formats.

6.8 To facilitate a smooth transition from the use of ADEXP SAM, SRM and SLC over AFTN/AMHS to ATFM information exchange over SWIM, mandatory data fields and some optional fields currently in use in SAM/SRM/SLC were identified for inclusion in the FIXM version 4.3 Extension. The Meeting agreed upon the list of data attributes in **Appendix A of WP/07** to be included in the regional FIXM version 4.3 Extension.

6.9 The Meeting acknowledged that upon successful validation, the Regional FIXM version 4.3 Extension would be proposed for adoption by SWIM TF.

Establishment of a Change Process of Flight Information Exchange Model (FIXM) Version for Asia/Pacific Cross-Border Operational ATFM System-To-System Information Exchange in System Wide Information Management (SWIM) (WP/24)

6.10 The Meeting was informed on the recommendations for the change process of the FIXM version used for cross-border ATFM information exchange in a SWIM environment as assigned by ATFM SG/14 to the AMNAC TSG.

6.11 Noting the potential necessity to revise the Cross-Border FIXM Operating version, the Meeting agreed on the following change process as proposed by AMNAC TSG:

a) submit the proposed change to the FIXM version, in the form of Working Paper, to ATFM SG for review and assessment of its operational impacts and suitability in supporting regional operational requirements;

b) upon adoption by ATFM SG, submit the proposal to SWIM TF for review and assessment of its technical implications; and

c) following agreement by SWIM TF, submit a summary of the change proposal to ATM SG for approval, and subsequently to APANPIRG for endorsement.

6.12 The Meeting also agreed to the content of change proposal as recommended by AMNAC TSG as below:

a) name of State(s) or collaboration group, including the specific names of organizations, proposing the change;

b) proposed FIXM version;

c) reason(s) for the proposed change(s);

d) testing result of the proposed version; and

e) proposed timeframe for the change to take effect (*a minimum lead time of 2 years is required*)

6.13 The Meeting agreed to the following Draft Conclusion:

Draft Conclusion ATFM/SG/15-3: Change Process of the FIXM Version Used for Asia/Pacific Cross-Border Operational ATFM System-to-System Information Exchange in SWIM	
What: That, the change process for the Cross-Border FIXM Operating Version be a) Submit the proposed change to the FIXM version, in the form of Working Paper, to ATFM SG for review and assessment of its operational impacts and suitability in supporting regional operational requirements; b) Upon adoption by ATFM SG, submit the proposal to SWIM TF for review and assessment of its technical implications; and c) Following agreement by SWIM TF, submit a summary of the change proposal to ATM SG for approval, and subsequently to APANPIRG for endorsement. and content of change proposal be a) Name of State(s) or collaboration group, including the specific names of organizations, proposing the change;	**Expected impact:** ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical

b) Proposed FIXM version; c) Reason(s) for the proposed change(s); d) Testing result of the proposed version; and e) Proposed timeframe for the change to take effect (a minimum lead time of 2 years is required) To be adopted as a regional process for revision of FIXM version for cross-border ATFM information exchange.	
Why: To ensure effective communication, interoperability, reduced risk of incompatibility among ATFM systems within the Asia/Pacific region, as well as aligned implementations of all stakeholders.	Follow-up: ☐Required from States
When: 29-Aug-25	Status: Draft to be adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☐ICAO APAC RO ☐ICAO HQ ☒Other: SWIM TF/10	

Outcomes from the Special Topic Meeting on the Future of Asia-Pacific ATFM (WP/16, SP/09)

6.14 The Meeting was informed of the Special Topic Meeting (STM) on the Future of Asia-Pacific ATFM, held in Bangkok, Thailand, from 13 to 14 March 2025, participated by ATFM subject matter expects from Hong Kong China, Singapore, Thailand and CANSO. The STM aimed to explore improvements and integration of new ATM concepts and capabilities into the existing regional ATFM concept and procedures. Outcomes from the STM were intended to provide a basis for reviewing the regional ATFM concept of operations (CONOPS).

6.15 The STM reviewed the current ATFM operations in the Asia/Pacific region, identified the most important challenges that should be addressed, and proposed a set of key vision statements and guiding principles that could form the basis for the new CONOPS.

6.16 Noting the need to continue the discussion in support of the new CONOPS development, the STM proposed an establishment of an ad-hoc group under the ATFM/SG to continue the work. This proposal was discussed further as part of WP/14.

6.17 The Secretariat acknowledged the effort to develop the next generation of ATFM and advised the discussion to be kept at high level suitable for regional application and to be future proof as much as possible.

6.18 CANSO commented on their commitment to evolve ATFM concept to next level and advised the ATFM/SG to be mindful that the concept developed might be adopted in other regions and the necessity to include industry in the discussion to ensure the alignment between evolution of the CONOPS and advancements in technological enablers.

Proposal for a Collaborative Asia-Pacific ATFM Cloud Network (ACN) (WP/13, SP/14)

6.19 The Meeting was presented with the idea of collaborative ATFM Cloud Network (ACN) aiming to enhance regional collaboration, streamline ATFM, and optimise operational efficiency in the face of growing traffic demand.

6.20 China emphasised on the need for a unified, technology-driven platform to handle the increasingly complex environment within the region. The application of ACN envisioned as a cloud-enabled platform accessible to all Asia/Pacific Administrations, providing a shared infrastructure for

seamless integration and real-time data exchange. It would offer comprehensive functionality, including strategic planning, pre-tactical preparation, real-time situational awareness, and post-operation analysis, in addition to core capabilities like CTOT calculation at a minimal affordable investment.

6.21 CANSO appreciated China for sharing the cloud-based approach for ATFM. CANSO supported the use of cloud network but commented the provision of ACN remained on concept level. It was suggested that China to share more on the details of working prototype of ACN.

6.22 The Chair also requested further elaboration on the concept of operation and details of work procedure on how ACN could handle the ATFM scenarios. China was invited to present a working paper to detail the practical case study on how the ACN perform the ATFM measures tasks at the next ATFM/SG meeting.

6.23 The Secretariat also invited China to share the use of ACN on the technical side of cloud network usage in the CNS SG meeting following presentation of the additional details in the next ATFM/SG meeting.

Industry's Contributions to Regional ATFM (WP/15)

6.24 The Meeting was informed on the current pain points in ATFM within the Asia/Pacific region and proposed ATM technology companies to collaborate with ANSPs to develop next-generation ATFM solutions.

6.25 CANSO identified several issues, including the lack of ATFM equipment among many participants, which limits their ability to calculate ATFM solutions and leads to a focus on local rather than regional optimisation.

6.26 Industry partners have had proposed various solutions, including cloud-based services that allow for cost reduction and sharing. In light of these issues and developments, CANSO advocated for trials of new technologies, such as the one planned by Thales and Aireon, to evaluate the latest technical advances and foster a partnership between service providers and industry in developing next-generation ATFM practices.

6.27 The Meeting requested CANSO to share details of the planned trials when available.

Establishment of ATFM Concept Design Ad-Hoc Group (WP/14)

6.28 This working paper echoed the recommendation from the STM as presented in WP/16 to propose the establishment of an ad-hoc group under the ATFM/SG to review and redesign the Asia/Pacific Regional ATFM Concept of Operations.

6.29 The ad-hoc group would be responsible for developing a new Regional ATFM Concept of Operations, considering the challenges of current operations and the advent of new capabilities and concepts in the coming years.

6.30 The new Regional ATFM Concept of Operations would be the primary deliverable of this proposed ad-hoc group, along with recommendations on guiding principles for amendments to related regional documents, including the Regional Framework for Collaborative ATFM.

6.31 The proposed ad-hoc group would be composed of subject matter experts (SMEs) nominated by Asia/Pacific States/Administrations and International Organizations. These experts should possess knowledge and experience in key areas such as ATFM, SWIM, FF-ICE/TBO, and possessed a strong familiarity with ATFM operations in the region. The group was also expected to coordinate closely with other relevant ICAO regional groups and efforts to ensure alignment. This ad-hoc group would have a tenure of two years for a start to be further reviewed.

6.32 The Meeting expressed concern regarding possible duplication of effort and resources utilisation in establishing additional working group, given the availability of ATFM/IR/SWG and the potential working group under Asia/Pacific ANSP Committee (AAC).

6.33 In response to a query about the inclusion of the task to develop any necessary Proposals for Amendment (PfAs) to the Regional ATFM Concept of Operations within the ATFM/IR/SWG Terms of Reference (TOR), the Meeting was informed that, due to the significant workload associated with reviewing and updating the Regional ATFM Concept of Operations, and in view of the limited time before the next scheduled update of the Asia/Pacific Regional Framework for Collaborative ATFM in 2027, it would be more efficient to form a dedicated group for this specific and critical task. It was further clarified that upon completion, the output of the ad-hoc group would be submitted to the ATFM/SG for consideration as the basis for the ATFM/IR/SWG to update the regional framework. Accordingly, the Meeting agreed that the ATFM/IR/SWG would delegate the development of the new Regional ATFM Concept of Operations to this ad-hoc group. To ensure broad and effective stakeholder participation, it was proposed that the ad-hoc group operates under the ICAO umbrella.

6.34 Regarding the duplication of work between the ad-hoc group and the working group under AAC, it was expressed that a clear delineation of tasks and roles between two groups could be ensured through the group's TOR. The Chair requested the co-authors of this WP/14 and other interested participants to prepare a TOR for the ad-hoc group for presenting to the Meeting before making decision.

6.35 CANSO expressed the concern on the progress to explore new Regional ATFM Concept of Operations and urged the ATFM community to kickstart the work as soon as possible.

Decision ATFM/SG/15-6: Establishment of Asia/Pacific ATFM Concept Design Ad-Hoc Group	
What: That, ATFM/SG establishes the Asia/Pacific ATFM Concept Design Ad-Hoc Group to review and redesign the regional ATFM concept of operations, considering the challenges of the current operations and the advent of new capabilities and concepts including but not limited to SWIM, FF-ICE, TBO. Key deliverable of the Ad-Hoc Group will be the new version of *Asia/Pacific Regional ATFM Concept of Operations*, guided by the group's Terms of Reference (TOR) as **Appendix E** to the Meeting Report.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical

Why: The current regional ATFM concept of operations has been adopted and implemented for more than ten years. While it has allowed for rapid and widening adoption over the years, increasing ATM complexity, operational limitations encountered, and upcoming advance concepts and capabilities mean that the current concept may no longer allow for the most optimum ATFM solution for the region. A review and redesign of the regional ATFM concept of operations can help the region overcome operational challenges while also leveraging the benefits from new concepts and capabilities.	Follow-up: ☒Required from States
When: 29-Aug-25	Status: Draft to be adopted by Subgroup
Who: ☒Sub groups ☐APAC States ☐ICAO APAC RO ☐ICAO HQ ☐Other:	

Finalization of APAC Common SWIM Information Services (WP/17)

6.36 The Meeting was presented on the matter to confirm the business functionality of APAC Common SWIM information Services proposed by SWIM TF.

6.37 The Meeting was to provide comment and input to the portion of APAC Common SWIM Flight Information Services, specifically the "ATFM/A-CDM integrated service" and "Traffic flow status service".

6.38 The Meeting reviewed the document and advised that further verification of the terminology used in the "Proposed business functionality of APAC Common SWIM Information Services" compared to the draft PfA of future ICAO PANS-ATM. The Meeting would revert to the SWIM TF with the confirmation before the next SWIM TF meeting.

Agenda Item 7: Any Other Business

Use of Digital Form for Status and Implementation Progress Report (WP/18)

7.1 To enhance the overall efficiency, reduce workload and the chance of human error during data compilation, the secretariat proposed to use digital form (Microsoft Form) to collect annual implementation status report.

7.2 The trial A-CDM Monitoring and Reporting Scheme used the digital form platform to collect data from the Asia/Pacific States/Administrations. 13 POC responded to the follow-up survey on the effectiveness and difficulties in navigating over the Microsoft Forms platform. All of the respondents agreed that Microsoft Form was easy to use and encountered no issues in navigating through the digital form.

7.3 The Meeting agreed to use digital form (Microsoft Forms) as primary data collection modality for Regional ATFM Monitoring and Reporting Form and Regional A-CDM Monitoring and Reporting Scheme.

Draft Conclusion ATFM/SG/15-4: The Use of Digital Form to Collect Annual Regional ATFM plan Monitoring and Reporting Form and Regional A-CDM Monitoring and Reporting Scheme	
What: Adopt the use of digital form (Microsoft Forms) as the primary means to collect annual Regional ATFM Monitoring and Reporting Form and Regional A-CDM Monitoring and Reporting Scheme.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To streamline and enhance efficiency in processing the Regional Plans' Implementation Status Monitoring.	Follow-up: ☒Required from States
When: 29-Aug-25	Status: Draft to be adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:	

ICAO Airport and Airspace Capacity Assessment Workshop (WP/19)

7.4 The Meeting was informed on the ICAO Airport and Airspace Capacity Assessment Workshop scheduled from 2 to 5 June 2025 at the Hotel Tentrem Yogyakarta, Yogyakarta, Indonesia. The workshop invitation and information bulletin were available on ICAO Asia/Pacific Regional Office website at icao.int/APAC/Meetings/Pages/2025-Capacity-Assessment-WS.aspx.

7.5 The workshop aimed to equip participants with the knowledge and skills needed for assessment of airport and airspace capacity and the leveraging techniques for enhancement of airspace efficiency and ATFM. The workshop intended to develop recommended actions and a draft Regional Guidance document to assist States in conducting capacity assessment of airports and airspace.

Airspace Capacity Enhancement Initiatives in Bay of Bengal and Arabian Sea (IP/07)

7.6 The Meeting was informed on the commencement of trial operations of PBCS based separation in oceanic airspace in Chennai FIR with Malaysia and the trial application of 20 NM longitudinal separation using space-based Automatic Dependent Surveillance-Broadcast (ADS-B) and Controller Pilot Data Link Communications (CPDLC) in Mumbai FIR with Muscat ACC.

7.7 The Chair and IATA appreciated India's effort to reduce the spacing requirement at FIR boundary in accordance with the ICAO Project 30/10 and encouraged other States to follow the good work for capacity enhancement.

Agenda Item 8: Review of Task List

Terms of Reference and Task List (WP/21)

8.1 The Meeting reviewed the TOR of the ATFM/SG which was provided in **Appendix C to the Report**.

8.2 The ATFM/SG Task List, as reviewed and updated by the Meeting, was provided in **Appendix D to the Report**.

Agenda Item 9: Date and Venue of the Next Meeting

9.1 The next meeting of ATFM/SG was tentatively planned to be held in April or May 2026. Other related meetings' schedules, such as SWIM TF, needed to be taken into account to fix the date. Any Administration considering hosting ATFM/SG/16 or later meetings was invited to contact ICAO.

Closing of the Meeting

10.1 The Chair thanked all participants for their contributions to the ATFM/SG/15 meeting.

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List of Participants

		STATE/NAME	TITLE/ORGANIZATION
1.	**AUSTRALIA (2)**		
	1.	Mr. Simon Godsmark	Network Operations Manager Airservices Australia **AUSTRALIA**
	2.	Mr. Ashwin Naidu	Aviation Customer Lead Australian Bureau of Meteorology **AUSTRALIA**
2.	**CAMBODIA (3)**		
	3.	Mr. Kimchhorn Chhan	ATS Official State Secretariat of Civil Aviation **CAMBODIA**
	4.	Mr. Sivarak Chutipong	Director of Technical Development Cambodia Air Traffic Services Co.,Ltd. **CAMBODIA**
	5.	Mr. Khorn Vannak	Senior ATM Development Manager Cambodia Air Traffic Services **CAMBODIA**

	STATE/NAME		TITLE/ORGANIZATION
3.	**CHINA (6)**		
	6.	Mr. Wei Xiaodong	Deputy Director of ATFM Division of Operations Management Center Air Traffic Management Bureau Civil Aviation Administration of China **CHINA**
	7.	Mr. Xiaoyu Yan	Engineer Air Traffic Management Bureau Civil Aviation Administration of China **CHINA**
	8.	Mr. Liu Hong	Professor Operation Supervisory Center Civil Aviation Administration of China **CHINA**
	9.	Mr. Zhiyuan Zhang	Assistant of ATC Division Air Traffic Management Bureau Civil Aviation Administration of China **CHINA**
	10.	Mr. Huixiong Zhou	Assistant East China Regional Air Traffic Management Bureau Civil Aviation Administration of China **CHINA**

	STATE/NAME		TITLE/ORGANIZATION
	11.	Mr. Liu Xiangbin	Assistant Middle South Regional Air Traffic Management Bureau Civil Aviation Administration of China **CHINA**
4.	**HONG KONG, CHINA (2)**		
	12.	Mr. Anfernee POON	Senior Operations Officer (Strategic Planning) Hong Kong Civil Aviation Department **HONG KONG, CHINA**
	13.	Mr. Gene KWOK	Electronics Engineer Hong Kong Civil Aviation Department **HONG KONG, CHINA**
5.	**INDIA (4)**		
	14.	Mr. Naresh Kumar Chaudhary	GM (ATM-ASM) Airports Authority of India **INDIA**
	15.	Mr. Sanjeev Gupta	Joint General Manager ATM Airports Authority of India **INDIA**
	16.	Mr. Manoj Singh	AGM(ATM-ATFM) Airports Authority of India **INDIA**

	STATE/NAME		TITLE/ORGANIZATION
	17.	Mr. Anshul Singh	Senior Manager Airports Authority of India **INDIA**
6.	**INDONESIA (4)**		
	18.	Mr. Merdi Uriko	Operational Manager AirNav Indonesia **INDONESIA**
	19.	Mr. Dedy Syahputra	Junior Manager of CDM Perum LPPNPI AirNav Indonesia **INDONESIA**
	20.	Mr. Justinus Aries Pancoro	AirNav Assistant Vice President of Services and Collaboration Planning AirNav Indonesia **INDONESIA**
	21.	Mr. Ari Satria Saputra	Research and Business Development Analyst AirNav Indonesia **INDONESIA**
7.	**JAPAN (2)**		
	22.	Mr. Toshihiro YONE	Special Assistant to the Director Japan Civil Aviation Bureau (JCAB) **JAPAN**

	STATE/NAME		TITLE/ORGANIZATION
	23.	Ms. Shiho NISHIMORI	Senior Air Traffic Management Officer Japan Civil Aviation Bureau (JCAB) **JAPAN**
8.	**LAO PDR (4)**		
	24.	Mr. Sohnsacksit Khamkeo	Director of Air Navigation Standards Division Department of Civil Aviation of Lao PDR **LAO PDR**
	25.	Mr. Vixay Vorlachit	ATM and SAR Officer Department of Civil Aviation of Lao PDR **LAO PDR**
	26.	Mr. Thongpane Manihuang	Director of AIS Lao Air Navigation Services (LANS) **LAO PDR**
	27.	Ms. Phouvong Sengvongdeuane	Government Lao Air Nagivation Service (LANS) **LAO PDR**
9.	**MALAYSIA (6)**		
	28.	Mr. Raja Amsyar Hillman Raja Badrul Hisham	Deputy Director Air Navigation Services and Aerodrome Division Civil Aviation Authority of Malaysia **MALAYSIA**

	STATE/NAME		TITLE/ORGANIZATION
	29.	Mr. Kamarul Rahmat Bin Muhammad Noor	Senior Assistant Director Air Navigation Services and Aerodrome Division Civil Aviation Authority of Malaysia **MALAYSIA**
	30.	Mr. Muhammad Firdaus Ismail	Air Traffic Management Unit Air Navigation Service Technical Division Civil Aviation Authority of Malaysia **MALAYSIA**
	31.	Mr. Ikhmal Hijaz Padullah	Senior Executive Malaysia Airports Holdings Berhad **MALAYSIA**
	32.	Ms. Norhidayati Nasrudin	Senior Executive Malaysia Airports Holdings Berhad **MALAYSIA**
	33.	Ms. Ruzliana Fazila Kamarudin	Senior Manager Malaysia Airports Holdings Berhad **MALAYSIA**
10.	**MONGOLIA (1)**		
	34.	Mr. Batbayar Turbat	Director of ATFM Division National Civil Aviation Center **MONGOLIA**

	STATE/NAME		TITLE/ORGANIZATION
11.	**PAKISTAN (2)**		
	35.	Mr. Younas Luqman Qazi	Additional Director ATS/ Radar Facility Chief IIAP Islamabad Pakistan Airports Authority - Ops. Directorate **PAKISTAN**
	36.	Mr. Sarfraz Gohar	Additional DIRECTOR ATS (RFC) Pakistan Airports Authority - Ops. Directorate **PAKISTAN**
12.	**PAPUA NEW GUINEA (1)**		
	37.	Mr. Konny Nato	Meteorological Inspector Civil Aviation Safety Authority of PNG **PAPUA NEW GUINEA**
13.	**PHILIPPINES (2)**		
	38.	Mr. Robin F. Alzona	Division Chief III, Aerodrome Division, Air Traffic Service **PHILIPPINES**
	39.	Ms. Tamya Lemuria T. Sullivan	ATMO IV, Manila ATFM Air Traffic Service **PHILIPPINES**

	STATE/NAME		TITLE/ORGANIZATION
14.	**REPUBLIC OF KOREA (3)**		
	40.	Mr. Woo Jin Kim	Cross-Border ATFM Ministry of Land, transport and Maritime Affairs, Republic of Korea (MOLIT) **REPUBLIC OF KOREA**
	41.	Mr. Seotaek Oh	Cross-border ATFM Ministry of Land, Infrastructure and Transport of the Republic of Korea (MOLIT) **REPUBLIC OF KOREA**
	42.	Ms. Doyeon Kim	Manager Incheon International Airport Corporation (IIAC) **REPUBLIC OF KOREA**
15.	**SINGAPORE (10)**		
	43.	Ms. Jialing He	Head ATC Specialist (ATFM) Civil Aviation Authority of Singapore **SINGAPORE**
	44.	Mr. Aathiq M N M	Deputy Manager (Technology) Civil Aviation Authority of Singapore **SINGAPORE**
	45.	Mr. Sicheng Su	Senior Assistant Director (ATM-2) Civil Aviation Authority of Singapore **SINGAPORE**

	STATE/NAME		TITLE/ORGANIZATION
	46.	Mr. Roger Lau	Senior Chief (ATM) Civil Aviation Authority of Singapore **SINGAPORE**
	47.	Mr. Jack Toh	Head (Info-centric Air Traffic Management) Civil Aviation Authority of Singapore **SINGAPORE**
	48.	Mr. Jason Sim	Engineer Civil Aviation Authority of Singapore **SINGAPORE**
	49.	Ms. Karen Tan	Lead Air Traffic Control Officer Civil Aviation Authority of Singapore **SINGAPORE**
	50.	Ms. Candy Chen	SATCM (Regional ATM) / NGPO Civil Aviation Authority of Singapore **SINGAPORE**
	51.	Mr. Jake Koh	Senior ATC Manager Civil Aviation Authority of Singapore **SINGAPORE**
	52.	Mr. KaiYu Foo	Head (RATM, NGPO) Civil Aviation Authority of Singapore **SINGAPORE**

	STATE/NAME		TITLE/ORGANIZATION
16.	**THAILAND (34)**		
	53.	Mr. Napatra Chuepan	Senior Air Navigation Operations Planning Officer 7 The Civil Aviation Authority of Thailand **THAILAND**
	54.	Ms. Kamonchanok Chuamnat	Senior Air Navigation Operations Planning Officer 7 The Civil Aviation Authority of Thailand **THAILAND**
	55.	Ms. Thitibhorn Prathumchai	Senior Standards Development Officer 7 The Civil Aviation Authority of Thailand **THAILAND**
	56.	Mr. Jirakrit Thamnarak	Senior Air Traffic Air Navigation Services Standards Officer 7 The Civil Aviation Authority of Thailand **THAILAND**
	57.	Mr. Sakorn Peekong	Senior Air Traffic Air Navigation Services Standards Officer 8 Air Traffic Standards Officer The Civil Aviation Authority of Thailand **THAILAND**
	58.	Mr. Natpakhan Moontongchun	Air Navigation Services Standards Officer 5 The Civil Aviation Authority of Thailand **THAILAND**

	STATE/NAME		TITLE/ORGANIZATION
	59.	Ms. Matuhathai Hunthong	Aerodrome Standards Development Officer 5 The Civil Aviation Authority of Thailand **THAILAND**
	60.	Ms. Pataraporn Jessadapornchai	Aerodrome Standards Development Officer 6 The Civil Aviation Authority of Thailand **THAILAND**
	61.	Mr. Somchai Yimsricharoenkit	ANS Senior Officer Civil Aviation Authority of Thailand (CAAT) **THAILAND**
	62.	Mr. Theerut Wunkhwan	Officer Civil Aviation Authority of Thailand (CAAT) **THAILAND**
	63.	Ms. Thitichaya Phongpaew	Officer Civil Aviation Authority of Thailand (CAAT) **THAILAND**
	64.	Ms. Ratchaneekorn Thamchadee	Transport Technical Officer Department of Airports, Thailand **THAILAND**
	65.	Ms. Jirawadee Sopitnonthagul	Transport Technical Officer Department of Airports **THAILAND**

	STATE/NAME		TITLE/ORGANIZATION
	66.	Mr. Piyawut Tantimekabut	Expert, Director Level Aeronautical Radio of Thailand Ltd. **THAILAND**
	67.	Ms. Amornrat Jirattigalachote	Expert, Director Level Aeronautical Radio of Thailand Ltd. **THAILAND**
	68.	Mrs. Sarinna Suwanrak	Air Traffic Engineer Manager Aeronautical Radio of Thailand Ltd. **THAILAND**
	69.	Mr. Patchara Kaewboran	Air Traffic Engineer Manager Aeronautical Radio of Thailand Ltd. **THAILAND**
	70.	Mr. Nattapol Srinorasret	Senior Air Traffic Systems Engineer Aeronautical Radio of Thailand Ltd. **THAILAND**
	71.	Ms. Chamaiporn Sangphet	Senior Air Traffic Systems Engineer Aeronautical Radio of Thailand Ltd. **THAILAND**
	72.	Mr. Sugoon Fucharoen	Air Traffic Management Network Assistance Manager Aeronautical Radio of Thailand Ltd. **THAILAND**

	STATE/NAME		TITLE/ORGANIZATION
	73.	Mr. Dudsadee Sungthong	ATM Network Assistance Manager Aeronautical Radio of Thailand Ltd. **THAILAND**
	74.	Mr. Voramet Chunvattananon	Contracted Officer (Engineering) Aeronautical Radio of Thailand Ltd. **THAILAND**
	75.	Mr. Wasoontra Powlinjong	Contracted Officer (Network Operations Air Traffic Management Center) Aeronautical Radio of Thailand Ltd. **THAILAND**
	76.	Mr. Arthit Tosukolvan	Engineer Aeronautical Radio of Thailand Ltd. **THAILAND**
	77.	Mr. Chayanin Phoosangthong	Administration Officer of Airside Services Airports of Thailand Public Company Limited **THAILAND**
	78.	Mr. Amnat Jenpanitsap	Executive Officer of Innovation Strategy Airports of Thailand Public Company Limited **THAILAND**

	STATE/NAME		TITLE/ORGANIZATION
	79.	Ms. Saowakhon Tetiya	Aerodrome Safety Specialist Airports of Thailand Public Company Limited **THAILAND**
	80.	Ms. Suvachira Teeraphathananon	Senior Engineer of Airport Operations System Airports of Thailand Public Company Limited **THAILAND**
	81.	SGT. Peerapat Chancharoen	Senior Airport Operations Officer of Airside Services Airports of Thailand Public Company Limited **THAILAND**
	82.	Ms. Threenuch Lueangwichit	Administrative Officer of Airside Services Airports of Thailand Public Company Limited **THAILAND**
	83.	Mr. Warapong Noothong	Meteorologist, Thai Meteorological Department **THAILAND**
	84.	Mr. Surasak Khemakasem	Flight Operations Officer Thai Airways International Public Company Limited **THAILAND**
	85.	Mr. Kittisak Sudtachart	Director of Operations Control Center Bangkok Airways Public Co, Ltd. **THAILAND**

	STATE/NAME		TITLE/ORGANIZATION
	86.	Mr. Pakdee Dangkasan	Manager of Flight Dispatch Bangkok Airways Public Co, Ltd. **THAILAND**
17.	**UNITED STATES (2)**		
	87.	Ms. Almira Ramadani (Online)	Senior Air Traffic Representative, Asia Pacific Federal Aviation Administration Air Traffic Organization, Mission Support **SINGAPORE**
	88.	Mr. Shayne Campbell (Online)	Senior Air Traffic Representative, Asia Pacific Federal Aviation Administration Air Traffic Organization, Mission Support **SINGAPORE**
18.	**VIET NAM (9)**		
	89.	Mr. Bui Thanh Ha	Director of ATS Department Vietnam Air Traffic Management Corporation (VATM) **VIET NAM**
	90.	Mr. Pham Van Manh	Chief of ATFM Group - Department of ATS Vietnam Air Traffic Management Corporation (VATM) **VIET NAM**

	STATE/NAME		TITLE/ORGANIZATION
	91.	Ms. Nguyen Thi Thom	Deputy Manager of ATFM Services Division/ATFMC Vietnam Air Traffic Management Corporation (VATM) **VIET NAM**
	92.	Mr. Le Hai Anh	Official of CNS Department Vietnam Air Traffic Management Corporation (VATM) **VIET NAM**
	93.	Mr. Cao Thanh Phuc	Official of Safety and Quality Dept Vietnam Air Traffic Management Corporation (VATM) **VIET NAM**
	94.	Mr. Le Hoai Nam	Deputy Director of Da Nang International Airport Airports Corporation of Vietnam **VIET NAM**
	95.	Mr. Vu Ngoc Tuan	Deputy Manager of Airport Operation Center – Noi Bai International Airport Airports Corporation of Vietnam **VIET NAM**
	96.	Mr. Cao Quoc Phong	Deputy Manager of Airport Operation Center – Tan Son Nhat International Airport Airports Corporation of Vietnam **VIET NAM**

	STATE/NAME		TITLE/ORGANIZATION
	97.	Ms. Do Dieu Huyen	Specialist of Airport Operation Airports Corporation of Vietnam Department of ACV **VIET NAM**
19.	**CANSO (2)**		
	98.	Mr. Poh Theen Soh	Director, Asia Pacific Affairs CANSO **SINGAPORE**
	99.	Mr. Stuart Ratcliffe	Co -Chair CANSO ATFM/A-CDM WG Aireon LLC Virginia **UNITED STATES**
20.	**IATA (5)**		
	100.	Mr. John Moore	Assistant Director, Safety and Flight Operations, ASPAC IATA **SINGAPORE**
	101.	Ms. Rebecca Holman (MET/ATM Seminar)	Senior Manager, Industry Solutions IATA Asia Pacific
	102.	Mr. George Chan	Regulatory Affairs Manager – Operations and Industry IATA **HONG KONG, CHINA**

	STATE/NAME		TITLE/ORGANIZATION
	103.	Captain Seow Chee Seng	VP Technical & Flight Services IATA/Singapore Airlines **SINGAPORE**
	104.	Mr. Khee Yew Ken Adrian	Manager Flight Dispatch IATA/Singapore Airlines **SINGAPORE**
21.	**ICCAIA (2)**		
	105.	Mr. Diego Albert	Director, APAC Sales ICCAIA - Aireon **SINGAPORE**
	106.	Mr. Joe Holewa	Manager, APAC Sales ICCAIA - Aireon
22.	**IFATCA (1)**		
	107.	Mr. John Wagstaff (MET/ATM Seminar – Online only)	Representative IFATCA – Asia and Pacific **CANADA**
23.	**ICAO (11)**		
	108.	Mr. Elie Tanious El Khoury (Online)	Technical Officer, Airspace Management and Optimization ICAO Headquarters **CANADA**

	STATE/NAME		TITLE/ORGANIZATION
	109.	Mr. Manjunath K Nelli	Regional Officer, Air Traffic Management ICAO Asia and Pacific Regional Sub-Office **CHINA**
	110.	Mr. Mior Adli Mior Sallehhuddin	Regional Officer, Air Traffic Management ICAO Asia and Pacific Regional Office **CHINA**
	111.	Mr. Hiroyuki Takata	Regional Officer, Air Traffic Management ICAO Asia and Pacific Regional Office **THAILAND**
	112.	Mr. Peter Dunda	Regional Officer, Aeronautical Meteorology/Environment ICAO Asia and Pacific Regional Office **THAILAND**
	113.	Ms. Soniya Nibhani	Regional Officer, Air Navigation Systems (CNS) Implementation ICAO Asia and Pacific Regional Office **THAILAND**
	114.	Mr. Sudhir Singh	Chief Technical Advisor (Civil Aviation Safety) Programme Coordinator (CTA/PC) COSCAP-SEA **THAILAND**

	STATE/NAME		TITLE/ORGANIZATION
	115.	Mr. Ying Weng Kit	Air Traffic Management Officer ICAO Asia and Pacific Regional Office **THAILAND**
	116.	Mr. Tak Chuen Chui	Aeronautical Information Management/ Air Traffic Management Officer ICAO Asia and Pacific Regional Office **THAILAND**
	117.	Dr. Prakayphet Chalayonnawin	Programme Analysis Associate, Air Traffic Management ICAO Asia and Pacific Regional Office **THAILAND**
	118.	Ms. Varapan Meefuengsart	Programme Assistant, CNS/MET ICAO Asia and Pacific Regional Office **THAILAND**

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LIST OF WORKING AND INFORMATION PAPERS

WORKING PAPERS

NO	AGENDA	TITLE	PRESENTED BY
WP/01	1	Provisional agenda	Secretariat
WP/02	2	Related Meetings Outcomes	Secretariat
WP/03	4	Addressing of Flight Plans and Missing Dep Messages	Secretariat
WP/04	4	Regional ATFM Implementation Status	Secretariat
WP/05	4	Progress Update from Asia-Pacific Cross-Border Multi-Nodal ATFM Collaboration (AMNAC) (SP/02)	China, Hong Kong China, Singapore, Thailand, CANSO, and IATA
WP/06	6	Amendments to Asia/Pacific Region AFTN/AMHS-Based Interface Control Document for ATFM, Version 2.0	Hong Kong China, Singapore, and Thailand
WP/07	6	Update on FIXM V4.3 Extension Development for Asia/Pacific Region	Hong Kong China, Singapore, and Thailand
WP/08	4	Reactivation of BOBCAT Related to Kabul Contingency	IATA
WP/9	4	NARAHG Update	China, Japan, and Republic of Korea
WP/10	4	Case Study on the Operational Capacity Guidelines linked to Weather Forecasts (SP/10)	Republic of Korea
WP/11	4	Case Studies on Applying Flow Rate to ATFM Measures (SP/04)	Republic of Korea
WP/12	4	Incorporating the Use of Flow Rate into the Asia-Pacific ATFM Framework (SP/05)	China
WP/13	6	Proposal for a Collaborative Asia-Pacific ATFM Cloud Network (ACN) (SP/14)	China
WP/14	6	Establishment of ATFM Concept Design Ad-Hoc Group	Hong Kong China, Singapore, Thailand, and CANSO
WP/15	6	Industry's Contributions to Regional ATFM	CANSO
WP/16	6	Outcomes from the Special Topic Meeting on the Future of Asia-Pacific ATFM (SP/09)	Hong Kong China, Singapore, Thailand and CANSO
WP/17	6	Finalization of APAC Common Swim Information Services	Secretariat for SWIM TF

NO	AGENDA	TITLE	PRESENTED BY
WP/18	6	Use of Digital Form for Status and Implementation Progress Report	Secretariat
WP/19	7	ICAO Airport and Airspace Capacity Assessment Workshop	Secretariat
WP/20	7	ATFM Points of Contact List	Secretariat
WP/21	8	Terms of Reference and Task List	Secretariat
WP/22	4	Using Pretactical GDP to Solve Strategic Slot Non-Compliance (SP/06)	Australia
WP/23	5	Progress Update on Development of Regional A-CDM Implementation Monitoring Scheme (SP/15)	ATFM/IR/SWG
WP/24	6	Establishment of a Change Process of Flight Information Exchange Model (FIXM) Version for Asia/Pacific Cross-Border Operational ATFM System-To-System Information Exchange in System Wide Information Management (SWIM)	Hong Kong China, Singapore, and Thailand
WP/25	4	Harmonization of Air Traffic Services Procedures with the Provisions of Air Traffic Flow Management (ATFM) to Enhance Efficiency and Effectiveness of Air Traffic Management (SP/12)	India
WP/26	4	Benefit of Measuring Reduced Air Delays, Fuel Savings and Reduction in CO_2 Emissions due to Implementation of Air Traffic Flow Management (ATFM) and Sharing It with Stakeholders in Achieving Operational Efficiency; Calculations Thereof	India
WP/27	4	Challenges in Management of Air Traffic Flow in Delhi FIR due to Restrictions in Kabul FIR (SP/11)	India

INFORMATION PAPERS

NO	AGENDA	TITLE	PRESENTED BY
IP/01	-	List of working and information papers	Secretariat
IP/02	4	CTO Trial Update and Seasonal Analysis	Japan
IP/03	5	A-CDM Implementation in Australia	Australia
IP/04	5	Integration of A-CDM into ATFM in Australia (SP/08)	Australia
IP/05	5	Cooperation between China and Europe in Airport Collaborative Decision Making (SP/13)	China
IP/06	5	A-CDM Operations and A-CDM/ATFM Integration	Malaysia

NO	AGENDA	TITLE	PRESENTED BY
IP/07	7	Airspace Capacity Enhancement Intiatives in Bay of Bengal And Arabian Sea	India

FLIMSIES

NO	AGENDA	TITLE	PRESENTED BY
Flimsy 01	4	Preparation for BOBCAT Service Resumption (SP/03)	Thailand
Flimsy 02	4	Case Study on ATFM Operations during a Contingency Situation: Earthquake (SP/07)	Thailand
Flimsy 03	2	MET/ATM Seminar Report	Secretariat

PRESENTATIONS

NO	AGENDA	TITLE	PRESENTED BY
SP/01	3	ATFM Global Updates - ATFM New Provisions	ICAO HQ
SP/02	4	AMNAC Update APAC Cross-Border Multi-Nodal ATFM Collaboration (AMNAC) Progress Update (WP/05)	China, Hong Kong China, Singapore, Thailand, CANSO, and IATA
SP/03	4	BOBCAT Reactivation Preparation for BOBCAT Service Resumption (Flimsy 01)	Thailand
SP/04	4	Case Studies on Applying Flow Rate to ATFM Measures (WP/11)	Republic of Korea
SP/05	4	Incorporating the Use of Flow Rate into the Asia/Pacific ATFM Framework (WP/12)	China
SP/06	4	Using Pretactical GDP to Solve Strategic Slot Non-Compliance (WP/22)	Australia
SP/07	4	Case study on ATFM operations during a contingency situation - Earthquake (Flimsy 02)	Thailand
SP/08	5	Integration of A-CDM into ATFM in Australia (IP/04)	Australia

NO	AGENDA	TITLE	PRESENTED BY
SP/09	6	Outcomes from the Special Topic Meeting on the Future of Asia-Pacific ATFM (WP/16)	Hong Kong China, Singapore, Thailand, and CANSO
SP/10	4	Operational Capacity Guidelines linked to Weather Forecast (WP/10)	Republic of Korea
SP/11	4	Challenges in Management of Air Traffic Flow in Delhi FIR due to Restrictions in Kabul FIR (WP/27)	Australia
SP/12	4	Harmonization of Air Traffic Services Procedures with the Provisions of Air Traffic Flow Management (ATFM) to Enhance Efficiency and Effectiveness of Air Traffic Management (WP/25)	India
SP/13	5	Cooperation between China and Europe in Airport Collaborative Decision Making (IP/05)	China
SP/14	6	Proposal for a Collaborative Asia-Pacific ATFM Cloud Network (ACN) (WP/13)	China
SP/15	5	Progress Update on the Development of Regional A-CDM Implementation Monitoring Scheme (WP/23)	ATFM/IR/SWG

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REPORT OF THE SIDE MEETING ON THE PLANNED REACTIVATION OF BAY OF BENGAL COOPERATIVE AIR TRAFFIC FLOW MANAGEMENT SYSTEM (BOBCAT)

1. Introduction

1.1. The Side Meeting on the Planned Reactivation of Bay of Bengal Cooperative Air Traffic Flow Management System (BOBCAT) was held on 01 May 2025, at the ICAO Asia/Pacific Regional Office, Bangkok, Thailand.

1.2. The Meeting was attended by 28 participants from six States and two International Organizations, including India, Malaysia, Pakistan, Singapore, Thailand, Viet Nam, IATA and ICAO.

1.3. The meeting agenda was to:

a) review BOBCAT Safety Assessment and Hazard Log; and

b) review Model Aeronautical Information Publication (AIP) Supplement.

2. Discussion

2.1. The Meeting was informed that while the BOBCAT system remains operational, the Air Traffic Flow Management (ATFM) service was currently suspended, and slot requests were neither monitored nor approved. Nevertheless, regular preventive maintenance of the BOBCAT system continues to ensure its readiness. However, the configurations update would be needed to meet Kabul Flight Information Region (FIR) contingency arrangement, including but not limited to, Air Traffic Service (ATS) route structure, flight level allocation, and aircraft spacing parameter.

Review BOBCAT Safety Assessment and Hazard Log

2.2. The safety assessment activities undertaken by the Meeting recognized that BOBCAT was not intended nor designed to "control" aircraft or relieve any of the traffic separation responsibilities of the ATS providers concerned. ATS providers would retain full responsibility for all ATS functions, including traffic management.

2.3. The Meeting reviewed, updated and accepted the safety assessment and associated Hazard Log (**Attachment A**) that was prepared during the Sixth Meeting of the Air Traffic Flow Management Task Force (ATFM/TF/6, Bangkok, Thailand, from 09 to 11 May 2006).

2.4. The Meeting was informed that AEROTHAI would update the Bay of Bengal and South Asia ATFM Handbook currently available at <https://www.bobcat.aero>, to reflect the most recent information necessary for airline operators and ATS providers to carry out their responsibilities within the BOBCAT system.

Review Model Aeronautical Information Publication (AIP) Supplement

2.5. The Meeting was informed that the following States/Administration had BOBCAT information published in their AIP ENR 1.9, and this information would need to be updated to facilitate the reactivation of BOBCAT.

Afghanistan, Hong Kong China, India, Indonesia, Malaysia, Pakistan, Philippines, Singapore, Thailand and Viet Nam

2.6. Thailand presented the draft model AIP Supplement for the Meeting's review. The Meeting was informed that Thailand would update the draft and circulate it to all concerned air navigation service providers (ANSPs), IATA, and ICAO by the end of May 2025.

2.7. To ensure smooth coordination for the updating and circulation of the revised draft model AIP, Thailand requested that all concerned States/Administrations with BOBCAT information published in their State AIPs provide their points of contact (POC) as soon as possible.

2.8. As the reactivation of BOBCAT required updating procedures and training, AEROTHAI proposed the publication of AIP Supplement over two AIRAC cycles to ensure that changes to aeronautical data were made available to users in an organized and timely manner. The planned publication date for the AIP Supplement was 24 July 2025, with an effective date of 04 September 2025.

HAZARD LOGS

Hazard No 1	
Description:	Non-standard, incorrect or corrupt data leading to erroneous advisory information.
Remarks:	The BOBCAT is a computerized system with user access via the public internet. This hazard identifies the possibility of incorrect data being presented to or utilized by BOBCAT, resulting in erroneous advisory information being promulgated by BOBCAT.
Mitigation:	1) **ATS Providers** – ATS providers retain responsibility for tactical ATS and traffic management. 2) **Hardware** – The BOBCAT Concept of Operations includes details of system hardware architecture which incorporates contemporary firewall protection to ensure no unauthorized access is obtained, in particular to application and database servers. 3) **Software** – incorporates checking algorithms to ensure aircraft can not be allocated at the same CTO at the same waypoint and at the same flight level. 4) **Engineering Support** – AEROTHAI support engineers will monitor BOBCAT Error Log and provide support for Bangkok ATFMU staff to resolve non-standard, incorrect of corrupt data issues. 5) **Structured training program for Bangkok ATFMU staff** to ensure recognition of non-normal data configurations, and a "reasonableness" check of slot allocation lists is conducted by Bangkok ATFMU staff prior to the list being published to users. 6) **ATS Unit** – ATS Units adjacent to or controlling concerned waypoints would identify situations where traffic was inappropriately managed and provide tactical ATS intervention. 7) **Training Package -** Computer based training package for BOBCAT operations and interactive web board (i.e. discussion page) will be provided on the BOBCAT website.

Hazard No 2	
Description:	Errors or bugs in software update leading to erroneous advisory information.
Remarks:	This hazard identifies concerns in respect of major software changes or other major equipment changes which could result in introduction of catastrophic software threats.
Mitigation:	1) **ATS Providers** – ATS providers retain responsibility for tactical ATS and traffic management. 2) **Hardware** – The BOBCAT Concept of Operations includes details of system hardware architecture which includes duplicated systems throughout enabling redundancy, allows one system to be non-operational whilst duplicated system carries the load. 3) **Software Change Management Process** - Bay of Bengal and South Asia ATFM Handbook includes requirements and procedures for major software updates. Significant system and software changes to be reviewed by appropriate group prior to implementation.

Hazard No 3	
Description:	Hardware or networking failures or incompatibilities leading to absence of advisory information or promulgation of erroneous advisory information.
Remarks:	Hardware and/or hardware networking problems/public internet failures may create a situation where BOBCAT goes off line without warning, leading to an absence of data or erroneous data presentation to users due lack of update capability.
Mitigation:	1) **ATS Providers** – ATS providers retain responsibility for tactical ATS and traffic management. 2) **Hardware** – The BOBCAT Concept of Operations includes details of system hardware architecture which includes duplicated systems throughout enabling redundancy of hardware without compromising entire BOBCAT system. 3) **Date/Time Stamp** – Software configuration includes user-visible date/time stamp of CTOT/CTO list and other time-bound pages. 4) **Contingency Procedures** – AIP Supplement and Bay of Bengal and South Asia ATFM Handbook includes requirements and procedures for internet outage, including manual procedures for contact with Bangkok ATFMU via telephone, AFTN, email, or fax to allow CTO to be updated and issued. Template will be included in ATFM Users Handbook. 5) **Qualified ATSEPs** - Bangkok ATFMU staffing includes provision for ATSEPs qualified and trained on all BOBCAT facilities to be on duty during hours of operation of Bangkok ATFMU.

Hazard No 4	
Description:	Inadequate or inappropriate information entered into the system by users leading to erroneous advisory information.
Remarks:	BOBCAT would have a large number of users, particularly dispatchers from many airlines, interacting with the system. Potential for the "wrong" information to be entered, leading to consequential erroneous data being promulgated by BOBCAT.
Mitigation:	1) **ATS Providers** – ATS providers retain responsibility for tactical ATS and traffic management. 2) **Training Workshops for Airline Dispatchers** – IATA to coordinate with airlines to organize training workshops as required. 3) **Comprehensive Procedures** – Bay of Bengal and South Asia ATFM Handbook includes comprehensive requirements and procedures for users of the system. 4) **AIP Supplement Publication** – Comprehensive AIP Supplement, including slot submission procedures, published 2 AIRAC cycles prior to commencement of trial. 5) **Structured training program for Bangkok ATFMU staff** to ensure recognition of non-normal data configurations, and a "reasonableness" check of slot allocation lists is conducted by Bangkok ATFMU staff prior to the list being published to users. 6) **System User Interface** – BOBCAT software makes extensive use of simplified menus for user selection of data input, limited choices in each menu for routes, levels etc, no ability for users to vary menus or input data other than what is contained in the menus. Checking algorithms incorporated to test "reasonableness" of submitted Mach Number, elapsed time from departure to waypoint, CTOT at least equal to EOBT plus standard taxi time, unique aircraft registration number check to ensure single slot per airframe. 7) **User Access Security** – BOBCAT Concept of Operations includes provisions for security of user access to BOBCAT. Access only via password to authorized users with written approval from Bangkok ATFMU manager. 8) **Training Package** – Computer-based training package for BOBCAT operations and interactive web board (i.e. discussion page) are available on the BOBCAT website.

Hazard No 5	
Description:	Unforeseen changes in airspace operational status leads to sudden reduction in airspace capacity.
Remarks:	If the airspace operational status changes without due notification e.g. sudden non-availability of an ATS route and/or flight level, it will take some time before BOBCAT can reschedule slots if the sudden change in status occurs prior to the publication of the nightly slot allocation list. If the change in airspace operational status occurs after the slot allocation list has been published, BOBCAT is unable to assist.
Mitigation:	1) **ATS Providers** – ATS providers retain responsibility for tactical ATS and traffic management. 2) **Configuration Change Flexibility** – Sudden changes in operational status that occur prior to the cut off time for the calculation and promulgation of the CTO can be managed by BOBCAT, e.g. a route that is suddenly not available is removed from the route selections available to users. Users that have already selected the route that is no longer available would be allocated one of their other preferences that did not include this route. 3) **Aircraft Spacing Adjustment** – aircraft spacing can be redefined on any route or waypoint without requiring re-submission of slot requests. 4) **Normal ATS in case of post-CTOT/CTO Release** – Circumstances where the change in operational status occurs after the CTOTs/CTOs have already been promulgated would require ATS providers to tactically manage the situation in accordance with normal ATS contingency plans/procedures.

Hazard No 6	
Description:	Industry does not comply with ~~agreed wheels up~~ CTOT and/or ~~gateway fix times~~ CTO leading to congestion and un-flowed traffic sequence.
Remarks:	Non compliance by Industry with published ~~wheels up~~ CTOT and/or ~~gateway fix times~~ CTO could lead to ~~schedule conflicts at gateway fixes additional~~ ATC workload.
Mitigation:	1) **ATS Providers** – ATS providers retain responsibility for tactical ATS and traffic management. 2) **PANS-ATM Procedure** – ICAO PANS-ATM (Doc 4444) includes provisions at paragraph 7.9.1 which place responsibility on pilot and operator to ensure that aircraft is ready to taxi in time to meet ATFM requirements. 3) **CTOT Compliance Facilitation Procedure** – ICAO Asia-Pacific Regional Framework for Collaborative ATFM para 7.32 stated that all States/Administrations should ensure that local ATC procedures and, where available, CDM processes facilitating compliance with received CTOT are implemented. 4) **AIP Supplement Publication** – Comprehensive AIP Supplement agreed by users and issued by involved States requires compliance by users with gateway slots allocated by BOBCAT. 5) **Post-Ops Analysis** – Bangkok ATFMU procedures include analysis capability to identify users that regularly do not comply with ATFM procedures. Bangkok ATFMU will contact these users to advise of non-compliance and ascertain remediation proposed by users. 6) **Comprehensive CTOT Non-Compliance Procedure** – Bay of Bengal and South Asia ATFM Handbook includes comprehensive requirements and procedures for users of the system, including provision for exempted aircraft, and coordination activities required in the event of a missed slot. Includes procedures for ANSPs to submit report of non-compliance with BOBCAT procedures for review by the appropriate group. 7) **Training Workshops for ANSPs –** ANSPs to coordinate with Bangkok ATFMU to request training workshops as required.

Hazard No 7	
Description:	ATS Units do not comply with ~~agreed wheels up~~ CTOT and/or ~~gateway fix times~~ CTO leading to congestion and un-flowed traffic sequence.
Remarks:	Non compliance by ATS Units with published wheels up and/or gateway fix times would lead to ~~schedule conflicts at gateway fixes~~ additional ATC workload.
Mitigation:	1) **ATS Providers** – ATS providers retain responsibility for tactical ATS and traffic management. 2) **PANS-ATM Procedure** – ICAO PANS-ATM (Doc 4444) includes provisions at paragraph 7.9.1 which enable adjustments to be made to sequence of departing aircraft in respect of aircraft subject to ATFM requirements. 3) **CTOT Compliance Facilitation Procedure** – Asia-Pacific Regional Framework for Collaborative ATFM includes provisions at paragraph 7.32 stated that all States should ensure that local ATC procedures and, where available, CDM processes facilitating compliance with received CTOT are implemented. 4) **AIP Supplement Publication** – Comprehensive AIP Supplement agreed by users and issued by involved States requires compliance by users with CTOT/CTO by BOBCAT. 5) **Non-Compliance Reporting –** Downstream ATS Units will be required to tactically manage non-compliances from upstream ATS Units and submit a report to the Bangkok ATFMU in accordance with procedures in the ATFM Users Handbook. 6) **Post-Ops Analysis –** Bangkok ATFMU procedures include analysis capability to identify ATS Units that regularly do not comply with ATFM procedures. Bangkok ATFMU will contact these ATS Units to advise of non-compliance and ascertain remediation proposed by ATS Units. 7) **Comprehensive CTOT Non-Compliance Procedure** – Bay of Bengal and South Asia ATFM Handbook includes comprehensive requirements and procedures for users of the system, including provision for exempted aircraft, and coordination activities required in the event of a missed slot. Includes procedures for submission of report of non-compliance with BOBCAT procedures for review by BOBCAT appropriate group. 8) **Training Workshops for ANSPs –** ANSPs to coordinate with Bangkok ATFMU to request training workshops as required.

INTERNATIONAL CIVIL AVIATION ORGANIZATION

ASIA/PACIFIC REGION
AFTN/AMHS-BASED INTERFACE CONTROL DOCUMENT
FOR
AIR TRAFFIC FLOW MANAGEMENT

Version ~~2.0~~3.0

Approved by the Communications, Navigation and Surveillance Sub-Group of APANPIRG (CNS SG)

RECORD OF AMENDMENTS

Version	Description	Date	Authored By	Approved By
1.0	-		ATFM/SG/9	CNS SG/23
2.0	Amendment Outcomes from ATFM/SG/10		ATFM/SG/10	CNS SG/24
3.0	New format of REGUL and REGCAUSE (outcomes of ATFM/SG/15)		ATFM/SG/15	

TABLE OF CONTENTS

LIST OF ACRONYMS

ADEP .....Departure Airport

ADES .....Arrival Airport

ADEXP .....ATS Data Exchange Presentation

AFIL .....Flight Plan Filed in the Air

AFTN .....Aeronautical Fixed Telecommunications Network

AIDC .....ATS Interfacility Data Communications

AMHS .....ATS Message Handling System

ANSP .....Air Navigation Service Provider

ARCID .....Aircraft Identification

ARR .....Arrival message

ASCII .....American Standard Code for Information Interchange

ATC.....Air Traffic Control

ATFCM .....Air Traffic Flow and Capacity Management

ATFM .....Air Traffic Flow Management

ATS .....Air Traffic Services

ATSU .....Air Traffic Services Unit

CCITT ……...Consultative Committee for International Telephony and Telegraphy, now known as the Telecommunication Standardization Sector of the International Telecommunications Union (ITU-T)

CDM .....Collaborative Decision Making

CTOT .....Calculated Take-Off Time

DEP .....Departure message

DOF.....Date of Flight Departure

EOBD .....Estimated Off-Block Date

EOBT .....Estimated Off-Block Time

ETFMS .....Enhanced Tactical Flow Management System

FMP.....Flow Management Position

FPL .....Flight Plan message

HDG .....Heading

IA5 .....International Alphabet Number 5

IATA .....International Air Transport Association

ICAO .....International Civil Aviation Organization

ICD .....Interface Control Document

IFPLD .....Individual Flight Plan

IFPLID .....Individual Flight Plan Identifier

IFPS.....Integrated Initial Flight Plan Processing System

IOBD .....Initial Off-Block Date

IOBT .....Initial Off-Block Time

IP .....Internet Protocol

ITU-T.....Telecommunication Standardization Sector of the International Telecommunications Union (formerly known as the Consultative Committee for International Telephony and Telegraphy - CCITT)

K .....Kilometre

M .....Mach

N .....Knot

NM .....Network Manager

OBT.....Off Block Time

ODF.....Optional heading information Data Field

REG.....Aircraft Registration

RVR .....Runway Visual Range

SAM .....Slot Allocation Message

SLC .....Slot Cancellation Message

SMI .....Standard Message Identifier

SRM .....Slot Revision Message

TOT .....Take Off Time

UTC.....Coordinated Universal Time

…….

1. ICD SCOPE

This section identifies the scope, purpose, and organization of this Interface Control Document (ICD) and identifies the subsystem responsibility list.

1.1 Introduction

The Distributed Multi-Nodal Air Traffic Flow Management (ATFM) Network concept is based on a network of Air Navigation Service Providers (ANSPs) leading independent ATFM operation within their area of responsibility and connecting to each other through information sharing framework.

Unlike regional-centralized ATFM where there is an overarching authority responsible for ATFM operation for the entire region, each ANSP together with associated Airspace Users (AUs) and Airport Operators (AOs) within their area of responsibility comprising one or more Flight Information Regions (FIRs), or airspace within the area of responsibility of ANSPs without an assigned FIR, participates in cross-border ATFM following this Distributed Multi-Nodal ATFM Network concept, and forms an ATFM Node where the ANSP as a Node Leader is responsible for engaging with various Node stakeholders and ensuring that the Node as a whole is ready and able to participate in the regional cross-border ATFM process.

By establishing common ATFM operating procedures and utilizing fully-interconnected information sharing mechanism among ATFM Nodes, ATFM programs based on Collaborative Decision Making (CDM) process, involving both domestic and intra-regional international flights can be effectively implemented in the region.

To achieve the efficient information dissemination required for such ATFM operation, the baseline standard for information exchange among related stakeholders is needed. This Interface Control Document (ICD) specifies the interface requirements which ATFM support system of each Node Leader must meet in order to be able to communicate with systems of other ATFM Nodes participating in the cross-border ATFM and to ensure the compatibility between them.

1.2 Scope

This ICD details the interface between nodes of the distributed Multi-Nodal ATFM.

This ICD:

- Establishes data exchange, functional, and performance requirements
- Assigns responsibilities for interface implementation and maintenance

1.3 Subsystem Responsibility List

The leader of each node develops and maintains its own ATFM software in accordance to this ICD.

1.4 Operational Requirement

The Distributed Multi-Nodal ATFM Network comprises ATFM Nodes, each of which is led by an ANSP responsible for ATFM operation within their area of responsibility. With various ATFM support systems developed independently or procured by different ANSPs and lack of information linkage among them, an airline operating flights across such areas falling within the area of responsibility of different ANSPs is required to access different systems to obtain ATFM information on their flights. The requirement of accessing multiple and varying ATFM support systems increases workload the on part of an airline and so creates a possible roadblock to expanding the ATFM Network to areas falling within the area of responsibility of different ANSPs. This calls for the need of a so-called single-point information access able to be achieved by establishing the interconnection between ATFM support systems aiming at enabling the seamless information sharing among stakeholders. However, to maintain the flexibility to accommodate new users and additional customized functions of ATFM support systems developed or procured separately as previously mentioned and to minimize the impact of changes among them, loose system coupling is still required. Furthermore, to attain cost-effective communication among stakeholders and to gain the network-wide scalability, common standards for information exchange are needed to be considered. On the other hand, with the nature of decentralized ATFM operational approach where ATFM support system of each ATFM Node locating geographically dispersed, security across systems is of paramount importance. Technical requirements to address the operational need for information sharing between ATFM support systems stated above can be summarized as follows:

1) Loose system coupling
2) Common standards for information exchange
3) System-wide security

To facilitate the aforementioned requirements, this document describes an interface connection that is designed using the currently deployed AFTN networking (or AMHS).

In particular, considering variation in interactions among stakeholders required at different phases of ATFM operation and keeping in mind the objective of having systems loosely coupled, a data exchange architecture based on existing messaging is chosen to exchange ATFM information. This solution is intended to eventually be deprecated and replaced by a SWIM based solution that uses FIXM data models. However, considering the timeline for deployment of all nodes of the multi-nodal network, it is considered a necessary first step to initially deploy ATFM using data exchange with AFTN/AMHS.

2. APPLICABLE DOCUMENTS

List of all applicable documents:

ICAO DOC 4444

ICAO DOC 9971

Asia/Pacific Regional Framework for Collaborative ATFM

Asia/Pacific Regional ATFM Concept of Operations

FIXM 4.1.0 core

FIXM XXX APAC extension for MN

SWIM Version of the Multi-Nodal ICD

Asia-Pacific Cross-Border Multi-Nodal ATFM Collaboration Common Operating Procedure

3. INTERFACE CHARACTERISTICS

This section provides the general, functional, and physical characteristics for each AFTN node and the AFTN/AMHS interface.

3.1 General Characteristics

This section identifies the interfacing subsystem(s); the point(s) of interface including associated cable terminations, functions, and services provided by the interface; and each layer implemented within the interfacing subsystem(s) necessary to achieve connectivity.

Figure 1 (next page) identifies the interface described within this ICD and depicts how the systems fit into the logical architecture context of the implementation.

3.1.1 Data Format

In general, data that is sent to the local ATFM System across the interface will use text-based messages, as defined by the *ICAO Doc 4444* standard for exchange of flight information messages. Specifically, the communication described in this ICD is based on the message transfer requirements necessary to exchange character-based International Alphabet Number 5 (IA-5) AFTN message data[1] between two ATM systems. IA-5 is a modified subset of American Standard Code for Information Interchange (ASCII) characters that can only be supported by AFTN and AFTN/AMHS Gateway. The information in this document pertaining to the message transmission is based on the CCITT 1984 X.25 standard[2].

[1] This ICD includes a collection of information from several standards that are applicable to the interface. This is because the Multi-Nodal concept only needs a subset of all of the messages available from the relevant standards. Universally, when discussing the general characteristics of the data format of the messages: the message composition is defined as IA-5 as described in *ICAO Annex 10, Volume I*, paragraph 4.11.1; message format is as specified in *Volume II*, section 4.4.16; and message text shall be as specified in *Volume II*, section 4.4.16.3.

[2] https://icao.int/APAC/Documents/edocs/cns/ICD_X25Protocol.pdf

The messages in this ICD are not defined in ICAO Doc 4444. They are defined in the EUROCONTROL *ATS Data Exchange Presentation* (ADEXP). For simplicity, only messages related to multi-nodal ATFM operations are included in this ICD.

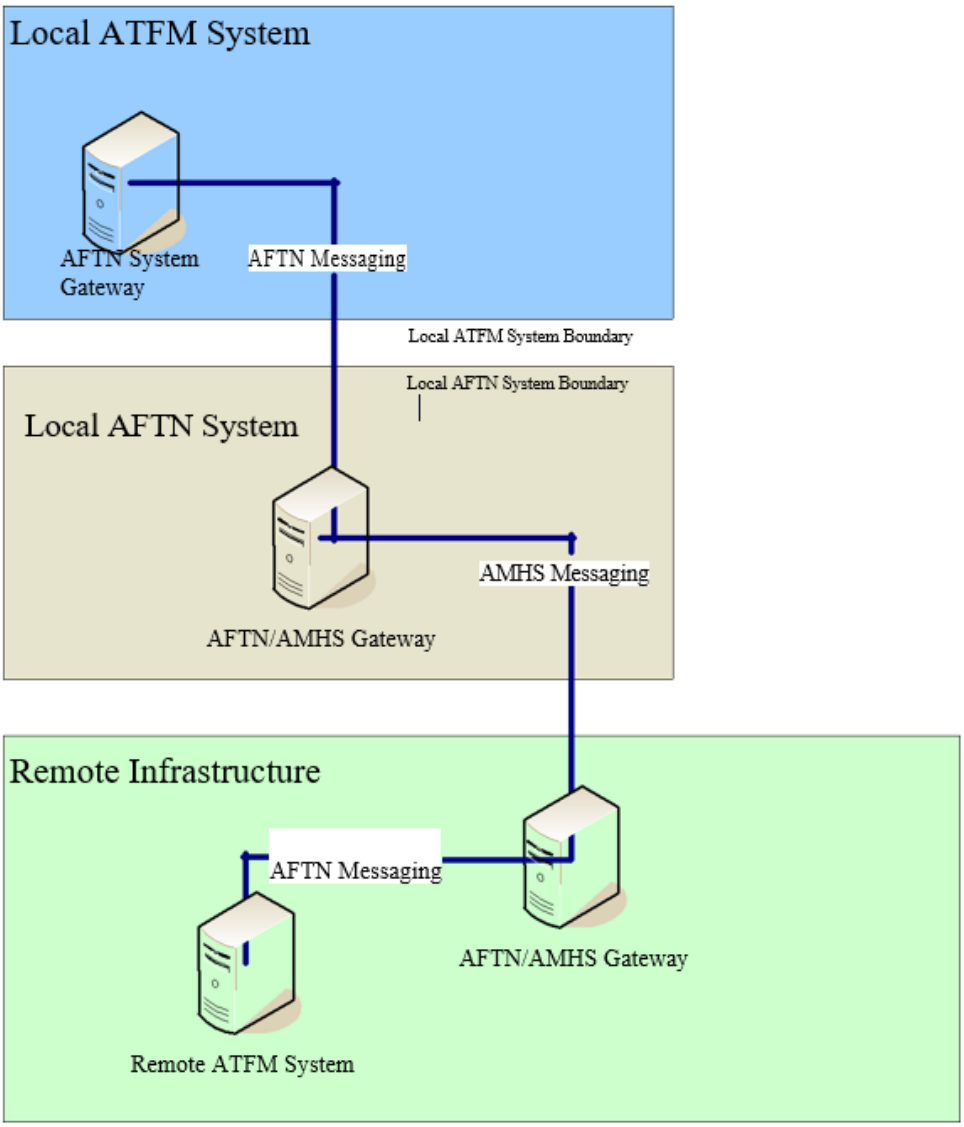


Figure 1: Logical Architecture showing interface demarcation between the Local ATFM System and AFTN/AMHS

3.1.2 Messages defined by ADEXP

For the Slot Allocation Message (SAM) and the Slot Revision Message (SRM), the Slot Cancellation Message (SLC), the standard that is applied is referenced using the EUROCONTROL document: *ATFCM User's Manual Edition 21*, dated 03 May 2018. The SAM, SRM, and SLC follow the same form as required by *ICAO Doc 4444* and as reiterated in this ICD (see section 3.1.4).

3.1.3 Message Construction

Each AFTN message, regardless of the data format, contains a specific structure that is compliant with IA-5 and defined in ICAO Annex 10. This structure is summarized in Table 1.

Field #	Description	Format	Example
1	Start of Message/ Start of heading	~~4 letters~~ 1 character	~~ZCZC~~ 0/1
2	Transmission Identification	3 letters + 3 numbers	HAR001
3	Additional Service Indication	Optional <11 characters	123456
4	Priority Indicator	2 letters	FF
5	Addressee of the message	8 letters	EGLLZRZX
6	Day / time of the message	DDHHMM (UTC)	041345
7	Originator of the message	8 letters	OPSTZQZX
8	Optional Heading Information	ODF – See AIDC	See AIDC
9	ATS Message Payload	…	…
10	End of Message	1 character	0/3

Table 1: Summary of IA-5 Fields used in messages sent via AFTN/AMHS

Generally, ICAO, ADEXP, and AIDC use the IA-5 format to send messages over AFTN/AMHS. However, there are key differences in how ICAO and ADEXP use the fields. These differences are explained in the following sections and follow the format illustrated in **Figure 2** and **Figure 3**.

```
FAB3887 251146
FF WSJCZQZX
251146 WMFDYFYX
(DEP-MAS2530/A2165-WMKK1146-WBGG-DOF/150125)
```

Figure 2: IA-5 Illustration of ICAO Message

```
WSB0903 250145
FF YMMLJSTX
250145 VTBBFDMC
—TITLE SAM
—ARCID SAA123
—ADEP FAJS
—ADES FADN
—EOBD 100303
—EOBT 1020
—CTOT 1035
```

Figure 3: IA-5 Illustration of ADEXP Message

3.1.3.1 IA-5 Message Field 1: Start of Message

The Start of Message / Start of heading is handled outside the scope of this ICD, but it is included for completeness.

3.1.3.2 IA-5 Message Field 2: Transmission Identification

The transmission identification field includes a prescribed sequence of characters intended to convey a specific keyboard (terminal) and a channel on which the terminal will communicate:

a) Transmitting-terminal letter

b) Receiving-terminal letter

c) Channel-identification letter

d) Channel-sequence number

For the purposes of this ICD, the Transmission Identification for the local ATFM system will be in alphanumeric code as locally agreed.

3.1.3.3 IA-5 Message Field 3: Additional Service Indication

For the purposes of this ICD, the additional service indication field is the time of the transmission.

3.1.3.4 IA-5 Message Field 4: Priority Indicator

The priority indicator is a two (2)-letter identifier that provides context for the associated message. The following priority indicators are possible:

- SS – Distress message
- FF – Standard Air Traffic Service (ATS) Message
- DD – Urgent message
- GG – One of the following:
  - Meteorological message
  - Flight Regularity Message
  - Aeronautical Information Services message
- KK – Aeronautical Administrative message.

For the purposes of this ICD, the ATFM messaging will only send FF messages.

3.1.3.5 IA-5 Message Field 5: Addressee of the Message

The addressee of the message is an eight-character code that is interpreted by the network to determine the routing location that the message will be sent.

When the number of addressees required is more than the operational system parameters allow, two or more transmissions of the message must be made. The eight (8)-letter combination addressee indicators are composed as follows:

- The four (4)-letter ICAO location indicator, as defined by *ICAO DOC 7910* (*Location Indicators*).
- A three (3)-letter designator for the facility type/office, or if no designator has been assigned, ZZZX for aircraft in flight, or YYYX for all other cases. The source of the facility designator is *ICAO DOC 8585, Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services*.
- The eighth character of the address indicates the end system application and is determined by the Air Traffic Services Unit (ATSU).

3.1.3.6 IA-5 Message Field 6: Day / Time of the Message

The day/time field is the time the message is sent by a local ATFM System or filed for sending (for incoming messages). The field is a six (6)-digit date/time group that follows the format, DDHHMM in

Coordinated Universal Time (UTC).

3.1.3.7 IA-5 Message Field 7: Originator of the Message

The originator of the message is an eight-character code of the ANSP, organization, and application which is sending the message. Similar to IA-5 Message Field 5, the originator address is constructed in three parts:

- The four (4)-letter ICAO location indicator, as defined by *ICAO DOC 7910* (*Location Indicators*).
- A three (3)-letter designator for the facility type/office, as defined by *ICAO DOC 8585, Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services*.
- The eighth character of the address indicates the end system application and is determined by the ATSU.

3.1.3.8 IA-5 Message Field 8: Optional Heading Information

The optional heading information field is used for AIDC messages. It is rarely used for ICAO or ADEXP messages; therefore, it is not included in this ICD.

3.1.3.9 IA-5 Message Field 9: ATS Message Payload

See section 3.1.4 and section 3.2.

3.1.3.10 IA-5 Message Field 10: End of Message

The end of message field is a specific character sequence that is indicative of the end of the AFTN message. Similar to IA-5 message field 1, this is handled by the AFTN/AMHS gateway; therefore, it is not within the scope of this ICD.

3.1.4 Message Body (ATS Message Payload)

The message body—message type and data—follows the message header. The message body contains the message type and information used to identify the flight attributes as well as maintain an updated flight state. The message body may be different depending on whether it is defined by ICAO or ADEXP. The context of this ICD Is focused on multi-nodal operations, and therefore only ADEXP related messaging is included.

3.1.4.1 Messages defined by ADEXP

In contrast with messages defined by AIDC and ICAO, the message body for ADEXP messages does not begin with an open parenthesis. Instead, they begin with the hyphen "—", followed by a keyword (TITLE), and then the three (3)-letter indicator of the message type. Although there are several complexities related to simple and compound fields in ADEXP messages, for this ICD, the focus is limited to only simple fields.

Each field is delimited a by hyphen "–", and the data elements within each field are separated by '/' or spaces. The example shown in **Figure 4** has been presented in a manner which makes it easy to read. This has been achieved through the use of carriage returns, line feeds, indents, etc. Such a layout does not form part of the ADEXP format rules; therefore, presentation of a message is at the discretion of the receiving system.

```
—TITLE [Message Type]
—[FIELD1][Element]
```

—[FIELD2][Element]
—[FIELD3][Element]
…

Figure 4: Overall structure of AFTN (ADEXP) message

Figure 5 is an example of a SAM message that follows the ADEXP structure:

—TITLE SAM
—ARCID SAA123
—ADEP FAJS
—ADES FADN
—EOBD 100303
—EOBT 1020
—CTOT 1035
—REGUL FAJS
—TAXITIME 0015
—REGCAUSE WA 84

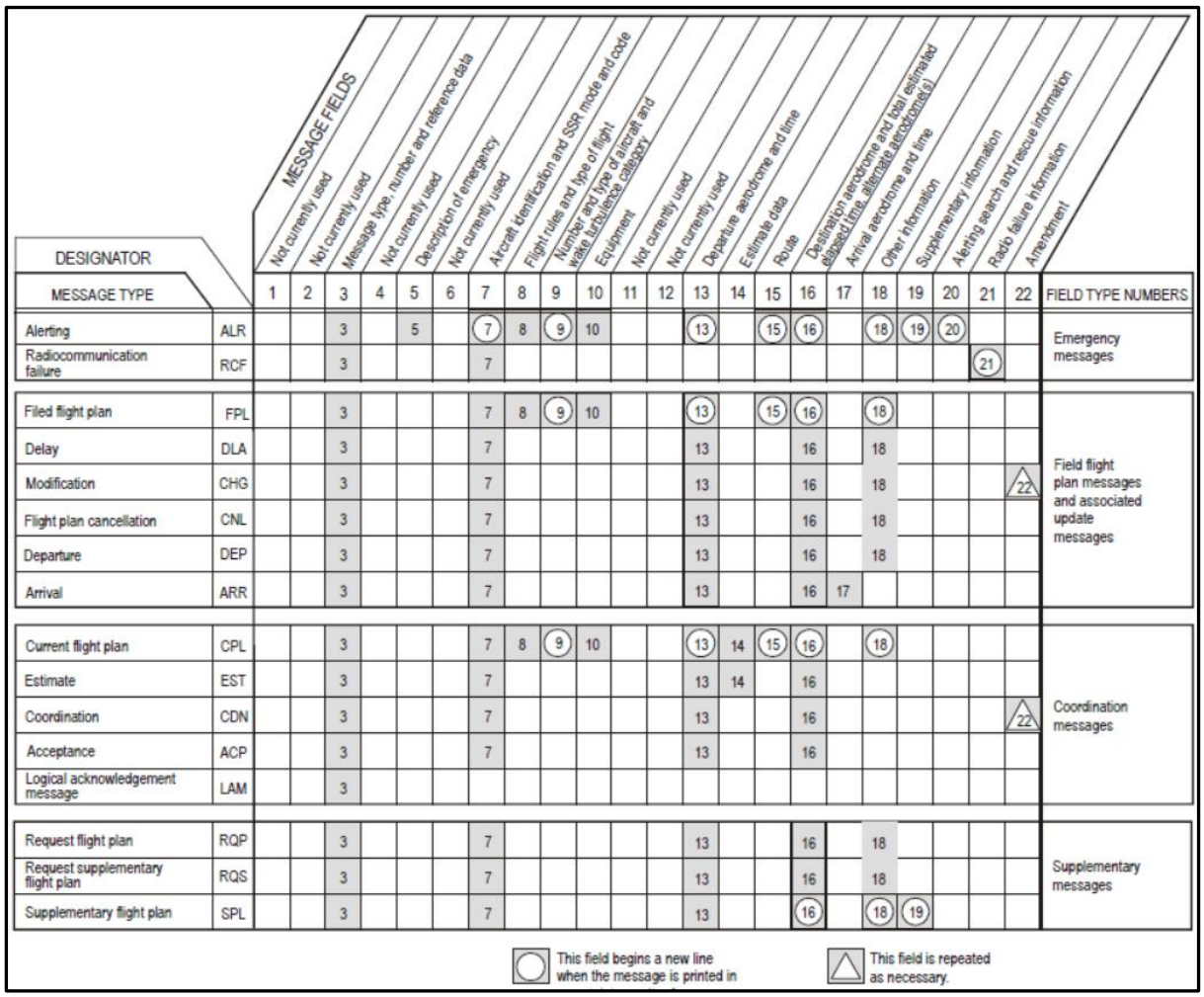
Figure 5: SAM message using ADEXP structure

3.2 Functional Design Characteristics

This subsection describes the functional design characteristics of this interface and focuses on the AFTN messages that contain the information necessary to manage flight data for multi-nodal operations, or are related to the communication between a local ATFM system and AFTN. These messages are independent of the messaging system—AFTN or AMHS.

Every AFTN message contains a combination of identifying fields for uniqueness and specific flight data attributes for the flight. **Table 2** shows the information contained in each field and which fields are sent with each message type from *ICAO Doc 4444 PANS-ATM* and includes all AFTN messages. **Table 3** shows a similar table for those messages defined in ADEXP[3].

[3] **Table 3** indicates the messages, as defined in ADEXP. The source of the table is the EUROCONTROL *Air Traffic Flow & Capacity Management Operations (ATFCM) Users Manual, edition 22.1,* dated 14 November 2018.]



DESIGNATOR / MESSAGE TYPE		1 Not currently used	2 Not currently used	3 Message type, number and reference data	4 Not currently used	5 Description of emergency	6 Not currently used	7 Aircraft identification and SSR mode and code	8 Flight rules and type of flight	9 Number and type of aircraft and wake turbulence category	10 Equipment	11 Not currently used	12 Not currently used	13 Departure aerodrome and time	14 Estimate data	15 Route	16 Destination aerodrome and total estimated elapsed time, alternate aerodrome(s)	17 Arrival aerodrome and time	18 Other information	19 Supplementary information	20 Alerting search and rescue information	21 Radio failure information	22 Amendment	FIELD TYPE NUMBERS
Alerting	ALR			3		5		(7)	8	(9)	10			(13)		(15)	(16)		(18)	(19)	(20)			Emergency messages
Radiocommunication failure	RCF			3				7														(21)		
Filed flight plan	FPL			3				7	8	(9)	10			(13)		(15)	(16)		(18)					Field flight plan messages and associated update messages
Delay	DLA			3				7						13			16		18					
Modification	CHG			3				7						13			16		18				△22	
Flight plan cancellation	CNL			3				7						13			16		18					
Departure	DEP			3				7						13			16		18					
Arrival	ARR			3				7						13			16	17						
Current flight plan	CPL			3				7	8	(9)	10			(13)	14	(15)	(16)		(18)					Coordination messages
Estimate	EST			3				7						13	14		16							
Coordination	CDN			3				7						13			16						△22	
Acceptance	ACP			3				7						13			16							
Logical acknowledgement message	LAM			3																				
Request flight plan	RQP			3				7						13			16		18					Supplementary messages
Request supplementary flight plan	RQS			3				7						13			16		18					
Supplementary flight plan	SPL			3				7						13			(16)		(18)	(19)				

◯ This field begins a new line when the message is printed in

△ This field is repeated as necessary.

Table 2: Fields and corresponding flight information contained in each ICAO ATS message type (*Source – ICAO Doc 4444 PANS-ATM Appendix 3*)

PRIMARY FIELD COMPOSITION OF TACTICAL ATFCM MESSAGES EXCHANGE (1)														
Message Field	**SAM**	**SRM**	**SLC**	**SIP**	**FLS**	**DES**	**RRP**	**RRN**	**ERR**	**SMM**	**SPA**	**SRJ**	**FCM**	**RJT**
-TITLE	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-IFPLID	1	1	1	1	1	1	1	1	(1)	(1)	(1)	(1)	(1)	(1)
-ADDR	(1)	(1)	(1)	(1)	(1)	(1)								
-ARCID	1	1	1	1	1	1	1	1	(1)	1	1	1	1	1
-ADEP	1	1	1	1	1	1	1	1	(1)	1	1	1	1	1
-EOBD	1	1	1	1	1	1	1	1	(1)	(1)	(1)	(1)	(1)	(1)
-EOBT	1	1	1	1	1	1	1	1	(1)	1	1	1	1	1
-IOBD	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
-IOBT	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
-CTOT	1			1			(1)	(1)		1				
-NEWCTOT		1		1			(1)	(1)			1			
-NEWPTOT							(1)	(1)						
-REJCTOT												1		
-REASON	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)					
-ADES	1	1	1	1	1	1	1	1	(1)	1	1	1	1	1
-REGUL	1<	1<		1<	0<								0<	
-ORGRTE							1	1						
-PTOT					(1)		(1)	(1)						
-NEWRTE							1	1						
-RRTEREF							(1)	1						(1)
-RVR	(1)	(1)			(1)								(1)	
-RESPBY				1	(1)		1	1						
-ORGMSG									(1)					
-FILTIM									1					
-ERRFIELD														
-MINLINEUP														
-COMMENT	0<	0<	0<	0<	0<	0<	0<	0<	0<					
-TAXITIME	1	1	1	1	1	1	1	1	(1)					
-REGCAUSE	1	1			(1)									
-OBTLIMIT - VALPERIOD							1	1						
-TTO	1	1												

'1' means: exactly one field of the specified type is required
'(1)' means : a single optional field of the specified type is allowed
a 'blank cell' means: this field is not in a message
'n<' means: n or more occurrences of this field can appear in a message

Table 3: Fields and corresponding flight information contained in each ADEXP message type

The messages needed to perform the slot management functionality are the SAM, SRM and SLC. Each message sent by the Local ATFM system to AFTN/AMHS or received by the local ATFM System from AFTN/AMHS is compliant with *ADEXP*. The table 3 above is for reference only, please refer to the table 4 below for the exact ADEXP fields to be sent in the respective SAM, SRM and SLC messages.

3.2.1 ADEXP ATS Message Payload – Message Fields

Table 4 provides an overview of the data that is contained in each field for the ADEXP messages defined in this document. The complete structure and the format of the information in each field can be found in the *EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP), version 3.2*.

Each ATFM message comprises a number of fields, some of which are mandatory and some of which are optional. This may vary from message to message. Specific requirements are given in this document according to the principles of the ADEXP Standard document already mentioned. All ATFM messages shall begin with the TITLE field. The order of other fields is optional.

The field IFPLID, the unique identifier assigned to a flight by EUROCONTROL's Integrated Initial Flight Plan Processing System (IFPS) (two (2) alphabetic characters followed by eight (8) digits, e.g. —IFPLID AA12345678), will be in all ADEXP messages issued by the Network Manager (NM). EUROCONTROL's Enhanced Tactical Flow Management System (ETFMS) will accept the IFPLID when provided in an incoming message in ADEXP format. Therefore, messages sent to NM may include the Individual Flight Plan (IFPLD). The field is optional and it is not used in any other system worldwide so the value can be anything such as AA00000000.

The M and O designation in Table 4 indicates mandatory or optional fields for the specific message; if the field is blank it is not used for the specific message.

ADEXP Field Name	Message & Example	SAM	SRM	SLC
TITLE	-TITLE SAM	M	M	M
ADDR	-BEGIN ADDR -FAC LLEVZPZX -FAC LFFFZQZX -END ADDR	O	O	O
ARCID	-ARCID AMC101	M	M	M
IFPLID	-IFPLID AA12345678	O	O	O
ADEP	-ADEP EGLL	M	M	M
ADES	-ADES LMML	M	M	M
EOBD	-EOBD 160224	M	M	M
EOBT	-EOBT 0950	M	M	M
IOBD	-IOBD 160224	O	O	O
IOBT	-IOBT 0950	O	O	O
CTOT	-CTOT 1030	M		
NEWCTOT	-NEWCTOT		M	
REGUL	-REGUL RMZ24M	O	O	O
TAXITIME	-TAXITIME 0020	M	M	M
REGCAUSE	-REGCAUSE CE 81	M	M	
REASON	-REASON	O	O	O
RVR	-RVR	O	O	O
COMMENT	-COMMENT	O	O	O

Table 4: Flight data attributes associated with ADEXP message fields

3.2.1.1 TITLE Field

The TITLE field is a three (3)-letter identifier of the message. The TITLE field always is first in the payload. The syntax required for this field is:

'-' "TITLE" titleid

3.2.1.2 ADDR Field

List field that requires BEGIN and END (i.e., -BEGIN ADDR and –END ADDR) as brackets around a listing of eight character addresses with subfields (e.g., -FAC CFMUTACT). The eight-character identifiers are the same as that which is identified for location identifiers in section 3.1.3.5. The syntax required for this field is:

'- "BEGIN" "ADDR" 1 { fac } '-' "END" "ADDR"

3.2.1.3 ARCID Field

The ARCID field is the registration marking of the aircraft, or the ICAO designator of the aircraft operator followed by the flight identifier. The syntax required for this field is:

'-' "ARCID" aircraftid

3.2.1.4 IFPLID Field

IFPS Identification. This is the unique flight plan identification which is issued by EUROCONTROL's Flight Planning System (IFPS). It is only available in flight plans that have been distributed in ADEXP format. The IFPLID is two (2) alphabetic characters followed eight (8) digits, e.g. —IFPLID AA12345678), and will be in all ADEXP messages issued by the NM. EUROCONTROL's ETFMS will accept the IFPLID when provided in an incoming message in ADEXP format. Therefore, messages sent to NM may include the IFPLD. The field is optional and it is not used in any other system worldwide, so for sending the message to any other ATFM system, the value can be anything such as AA00000000.

The Syntax required is:

'-' "IFPLID" 2{ALPHA}2 ! 8{ DIGIT }8

3.2.1.5 ADEP Field

ICAO indicator for Aerodrome of Departure. The syntax required is:

'-' "ADEP" (icaoaerodrome | 'AFIL' | 'ZZZZ')

3.2.1.6 ADES Field

ICAO indicator for Aerodrome of Destination. The syntax required is:

'-' "ADES" (icaoaerodrome | 'ZZZZ')

3.2.1.7 EODB Field

Estimated Date of Flight. The format is YYMMDD (i.e., no century). The syntax required is:

'-' "EOBD" YYMMDD

3.2.1.8 EOBT Field

Estimated Off-Block Time. The syntax required is:

'-' "EOBT" hhmm

3.2.1.9 IOBD Field

Initial Off-Block Date. The format is YYMMDD (i.e., no century). The syntax required is:

'-' "IOBD" YYMMDD

3.2.1.10 IOBT Field

Initial Off-Block Time. The syntax required is:

'-' "IOBT" hhmm

3.2.1.11 CTOT Field

Calculated Take-Off Time. Importantly, the send or receipt of an SAM message (with a CTOT) is only done at approximately two hours before EOBT. This relative delivery time will allow the ATFM systems to determine whether the CTOT is intended for the current day or next day. Specifically, if the CTOT will be late enough in the day relative to current time that it actually is for the next day, the ATFM systems can assume it is the next day and use the EOBD to determine the correct day of flight. The syntax required is:

'-' "CTOT" hhmm

3.2.1.12 NEWCTOT Field

A new Calculated Take-Off Time, as updated by an ATFM system. Importantly, the send or receipt of an SRM message (with a NEWCTOT) is only done at approximately two hours before EOBT. This relative delivery time will allow the ATFM systems to determine whether the NEWCTOT is intended for the current day or the next day. Specifically, if the NEWCTOT will be late enough in the day relative to current time that it actually is for the next day, the ATFM systems can assume it is the next day and use the EOBD to determine the correct day of flight. The syntax required is:

'-' "NEWCTOT" hhmm

3.2.1.13 REGUL Field

~~The —REGUL field indicates the name of the ATFM Measure affecting the flight. Several —REGUL fields may be present, the first one being the ATFM Measures field that controls the flight. The syntax required is:~~

~~'-' "REGUL" regulid~~

The —REGUL field indicates the designation of the ATFM measure, including the specific location of the constraint, affecting the flight. Several —REGUL fields may be present, with the first one being the ATFM measure that controls the flight. The syntax required is:

'-' "REGUL" regulid

where regulid = AAAACCCCCDDMMMVV

AAAA : 4 characters to represent constrained area, i.e. airport or FIR

Example

- Airport, e.g. VTBS
- FIR, e.g. VTBB

CCCCC : Maximum 5 characters to represent specific constrained location

Example

- Sector, e.g. 3N
- Waypoint, e.g. BENSA

Note: This CCCCC *field can be omitted if it is not applicable.*

DDMMM : 5 characters to represent date and month when the ATFM measure is effective

Example

27MAR

VV : 2 digits to represent version of the designation of the ATFM measure

Example

03

3.2.1.14 TAXITIME Field

The difference in time between the 'off blocks time' and the 'take-off time'. The times referred to could be actual or estimated depending upon the context. The syntax required is:

'-' "TAXITIME" hhmm

3.2.1.15 REGCAUSE Field

~~In order to provide more specific nomenclature for delay causes and, at the same time, to assist the post-flight analysis, the ADEXP field —REGCAUSE comprises:~~

~~a) ATFM Measure cause code (one (1) letter code corresponding to the cause assigned by the Flow Management Position [FMP] upon the implementation of the ATFM measure).~~

~~b) ATFM Measure Location code – one (1) letter code: D, E or A, describing the phase of the flight (Departure, Enroute, and Arrival) of the constraint that triggered the ATFM Measure.~~

~~c) A space.~~

~~d) The IATA Delay Code in numeric (e.g., 81, 82, 83, 89) or 00 when no IATA Code available.~~

~~The following codes comprise the list of Air Traffic Control (ATC) delay codes. There are other codes related to airline operations that are not applicable to this ICD and are therefore omitted. The codes are as follows:~~

~~i. 81 (AT) ATFM due to ATC EN-ROUTE DEMAND/CAPACITY, standard demand/capacity problems~~

~~ii. 82 (AX) ATFM due to ATC STAFF/EQUIPMENT EN-ROUTE, reduced capacity caused by industrial action or staff shortage, equipment failure, military exercise, or extraordinary demand due to capacity reduction in neighboring area~~

~~iii. 83 (AE) ATFM due to RESTRICTION AT DESTINATION AIRPORT, airport and/or runway closed due to obstruction, industrial action, staff shortage, political unrest, noise abatement, night curfew, special flights~~

~~iv. 84 (AW) ATFM due to WEATHER AT DESTINATION~~

~~v. 85 (AS): Mandatory security~~

~~vi. 86 (AG): Immigration, Customs, Health~~

~~vii. 87 (AF): Airport Facilities, parking stands, ramp congestion, buildings, gate limitations~~

~~viii. 88 (AD): Restrictions at airport of destination, airport/runway closed due obstruction, industrial action, staff shortage, political unrest, noise abatement, night curfew, special flights~~

~~ix. 89 (AM): Restrictions at airport of departure, airport/runway closed due obstruction, industrial action, staff shortage, political unrest, noise abatement, night curfew, special flights, start-up and pushback, weather phenomena.~~

~~The —REGCAUSE appears in the SAM and SRM messages, and is associated only with the controlling ATFM Measure. The code appearing in the message is the code valid at the time the delay was given to the flight.~~

~~The syntax required is:~~

~~**' ' "REGCAUSE" regulationreasoncode locationcode " " IATAdelaycode**~~

The —REGCAUSE field indicates the reason for the ATFM measure to assist in post-operations analysis. —REGCAUSE comprises the following.

a) Regulation cause code – One letter code corresponding to the cause of the ATFM measure assigned by the flow management personnel
   - C – ATC capacity
   - I – ATC industrial action
   - R – ATC routings
   - S – ATC staffing
   - T – ATC equipment
   - A – Accident/incident
   - G – Aerodrome capacity
   - E – Aerodrome services
   - N – Industrial action NON-ATC
   - M – Airspace management
   - P – Special event
   - W – Weather
   - V – Environment issue
   - O – Other

b) Regulation location code – One letter code, i.e. D, E, or A, describing the phase of the flight (Departure, Enroute, and Arrival) where the constrain triggers the ATFM measure

c) A space

d) The IATA delay code in numeric (e.g. 81, 82, 83, 89) or 00 where no IATA code is available
   - 81 – ATFM due to ATC EN-ROUTE DEMAND/CAPACITY
   - 82 – ATFM due to ATC STAFF/EQUIPMENT EN-ROUTE
   - 83 – ATFM due to RESTRICTION AT DESTINATION AIRPORT
   - 84 – ATFM due to WEATHER AT DESTINATION
   - 85 – MANDATORY SECURITY
   - 86 – IMMIGRATION, CUSTOMS, HEALTH
   - 87 – AIRPORT FACILITIES
   - 88 – RESTRICTIONS AT AIRPORT OF DESTINATION
   - 89 – RESTRICTIONS AT AIRPORT OF DEPARTURE
   - 98 – INDUSTRIAL ACTION OUTSIDE OWN AIRLINE
   - 99 – OTHER REASON

The syntax required is:

'-' "REGCAUSE" regulationcausecode regulationlocationcode “ ” IATAdelaycode

3.2.1.16 REASON Field

Reason to explain an action by the FMP (e.g. rejection, cancellation, etc.). The syntax required is:

'-' "REASON" 4{ALPHA}12

3.2.1.17 RVR Field

Runway Visual Range. The syntax required is:

'-' "RVR" 1{ DIGIT }3

3.2.1.18 COMMENT Field

This field provides additional information. The syntax required is:

'-' "COMMENT" 1 { LIM_CHAR }

3.2.1.19 REFDATA Field

This is reference data for the message being transmitted that collectively defines the unique message number. This field has three subfields, namely the sender subfield, the receiver (recvr) subfield, and the sequence number (seqnum) subfield. The sender subfield indicates the eight (8)-letter facility address of the sending facility; the receiver subfield indicates the eight (8)-letter facility address to which the message is being sent; and the sequence number subfield indicates the three (3)-digit serial number of the message being sent.

The message sequence number progresses sequentially from 001 to 000 (representing 1000), thence repeats from 001, for all messages sent to the same addressee, regardless of the type of message.

The three (3)-digit sequence number, the sender and receiver address, creates a unique combination used as the reference data. This is the equivalent of Field type 3, element (b) called ‘message number’ in *ICAO Doc 4444*.

The syntax required is:

'-' "REFDATA"

'-' "SENDER" '-' "FAC" 1{ LIM_CHAR }30

'-' "RECVR" '-' "FAC" 1{ LIM_CHAR }30

'-' "SEQNUM" 3{DIGIT}3

3.2.1.20 MSGREF Field

Reference data for associated, previously transmitted messages. This field has three subfields, namely the sender subfield, the receiver (recvr) subfield and the sequence number (seqnum) subfield. Together the MSGREF field is intended to provide the necessary reference context for a message being sent. The sender subfield indicates the eight (8)-letter facility address that sent the original message; the receiver subfield indicates the eight (8)-letter facility address to which the original message was sent; and the sequence number subfield indicates the three (3)-digit serial number of the original message sent.

This is the equivalent of Field type 3, element (c) called 'reference data' in *ICAO Doc 4444*.

The values of Sub-fields "sender", "recvr", and "seqnum", within Primary field "msgref", shall be those of the same Sub-fields within Primary field "refdata" of the OLDI message referred to

'-' "MSGREF"

'-' "SENDER" '-' "FAC" 1{ LIM_CHAR }30

'-' "RECVR" '-' "FAC" 1{ LIM_CHAR }30

'-' "SEQNUM" 3{DIGIT}3

3.2.2 ADEXP ATS Message Payload Types

3.2.2.1 SAM Message Composition

A SAM is sent by the local ATFM System any time a flight is assigned a CTOT. The SAM is used to inform of the Calculated Take-Off Time (CTOT) for each individual flight. The SAM is to be sent approximately 2 hours before EOBT. The construct shown in **Table 5** is inclusive of only the mandatory information.

- TITLE	**SAM**
- ARCID	**Aircraft ID**
- ADEP	**Departure Airport**
- ADES	**Arrival Airport**
- EOBD	**Estimated Off-Block Day**
- EOBT	**Estimated Off-Block Time**
- CTOT	**Calculated Take-Off Time**
- TAXITIME	**Estimated Taxi Time**
- REGCAUSE	**ATFM Measure Cause Code**

Table 5: SAM message – mandatory information

3.2.2.2 SRM Message Composition

A SRM is sent by an ATFM system any time a flight that has already received. A SAM message, is assigned a revised CTOT. The SRM is used to inform of the new Calculated Take-Off Time (CTOT) for each individual flight. Since the goal is to send the original CTOT (via SAM) approximately 2 hours before EOBT, the SRM should not be sent until after the SAM has been acknowledged, + a short interval of time (e.g., 5 minutes). That way, the SAM will always be the first message sent with a CTOT, and SRM messages are suppressed until the CTOT is sent. All revisions to the CTOT should be sent via SRM. The construct shown (**Table 6**) is inclusive of only the mandatory messages.-

TITLE	**SRM**
- ARCID	**Aircraft ID**
- ADEP	**Departure Airport**
- ADES	**Arrival Airport**
- EOBD	**Estimated Off-Block Day**
- EOBT	**Estimated Off-Block Time**
- NEWCTOT	**New Calculated Take-Off Time**
- TAXITIME	**Estimated Taxi Time**
- REGCAUSE	**ATFM Measure Cause Code**

Table 6: SRM message – mandatory information

3.2.2.3 SLC Message Composition

A SLC is sent by an ATFM system any time a flight is no longer assigned a CTOT. The SLC is used to inform that the previously assigned Calculated Take-Off Time (CTOT) no longer applies for an individual flight. The construct shown (**Table 7**) is inclusive of only the mandatory messages.

- TITLE	**SLC**
- ARCID	**Aircraft ID**
- ADEP	**Departure Airport**
- ADES	**Arrival Airport**
- EOBD	**Estimated Off-Block Day**
- EOBT	**Estimated Off-Block Time**
- TAXITIME	**Estimated Taxi Time**

Table 7: SLC Message Composition – mandatory information

3.2.3 Message Summary Table

Table 8 provides a summary of the required message including the ID, message title, and the message flow direction.

ID	Message Title	Message Direction
SAM	Slot Allocation Message	Local AFTN System ←→ AFTN
SRM	Slot Revision Message	Local AFTN System ←→ AFTN
SLC	Slot Cancellation Message	Local AFTN System ←→ AFTN

Table 8: Message summary table

3.2.4 Protocol implementation

TBD – dependent on specific site implementation

3.2.5 Security

This is a direct connection between AFTN / AMHS and the local ATFM system through a cable connection and after the data is ingested into local ATFM System, the interface is controlled explicitly via firewall rules and precise protocols.

3.3 Physical Design Characteristics

TBD – dependent on specific site implementation

3.3.1 Electrical Power and Electronic Characteristics

3.3.1.1 Connectors

TBD – dependent on specific site implementation

3.3.1.2 Wire/Cable

TBD – dependent on specific site implementation

3.3.1.3 Electrical Power/Grounding

TBD – dependent on specific site implementation

3.3.1.4 Fasteners

TBD – dependent on specific site implementation

3.3.1.5 Electromagnetic Compatibility

Not applicable.

Terms of Reference
Asia/Pacific Air Traffic Flow Management (ATFM) Concept Design Ad-Hoc Group

1. Objectives

1.1 The current model of regional ATFM in Asia/Pacific is the *Distributed Multi-Nodal ATFM Network concept*, outlined in the *Asia/Pacific Regional ATFM Concept of Operations (v1, September 2015)*. The concept was developed based on operational and technical landscape of the region at the time of its development and has been adopted over the years by regional ATFM implementation groups and States/Administrations in Asia/Pacific. This is a testament to the success of the concept of operations as was initially developed.

1.2 However, the regional circumstance is changing, with the increasing traffic demand and complexity on one hand and the need to modernize regional air traffic management with the advanced capabilities to be ready to support the future operational concepts on the other. A review and redesign of the regional ATFM concept of operations is therefore crucial, with a view that the new concept will be able to address the current operational challenges while also leveraging the benefits from new concepts and technologies, leading to a more efficient, effective, and inclusive ATFM operations in the Asia/Pacific region.

1.3 The ***Asia/Pacific Air Traffic Flow Management (ATFM) Concept Design Ad-Hoc Group*** is therefore established to ***develop a new version of the Asia/Pacific Regional ATFM Concept of Operations****, considering the challenges of current operations and the advent of new capabilities and concepts in the coming years.* This is the primary deliverable of the group.

2. Scope of Responsibilities

The ***Asia/Pacific ATFM Concept Design Ad-Hoc Group*** shall have the following primary responsibilities:

2.1 Review current Regional ATFM Concept of Operations, Regional Framework for Collaborative ATFM, and ATFM operational initiatives in the region to identify areas for improvement and challenges that need to be addressed.

2.2 Research current technological landscape that can enable new ways of implementing ATFM by States/Administrations, including but not limited to Software as a Service (SaaS) concept, cloud-based software solutions, enhanced computing power, and modern optimization algorithms.

2.3 Research future ATM capabilities and concepts, including but not limited to cross-border A-CDM information exchange, SWIM, FF-ICE, and TBO. Subsequently, identify how these capabilities can be used and/or integrated to improve regional ATFM.

2.4 Develop a draft of a new version of *Asia/Pacific Regional ATFM Concept of Operations* to enable a more effective ATFM operations in the Asia/Pacific region as well as a pathway for inter-regional ATFM cooperation.

2.5 Based on the new version of the Regional ATFM Concept of Operations, develop principles to guide an amendment of the Asia/Pacific Regional Framework for Collaborative ATFM, including common operating procedures for the region.

2.6 Establish close working arrangement with other relevant ICAO regional groups, including but not limited to the *ATFM Information Requirement Small Working Group (ATFM-IR/SWG)*, the *Asia/Pacific SWIM Task Force (SWIM TF)*, and the *Asia/Pacific FF-ICE Ad-Hoc Group* to ensure alignment with the progress of future capabilities and concepts, as well as to provide support in defining pathway to realize the new Concept of Operations.

3. Duration

3.1 The *Asia/Pacific ATFM Concept Design Ad-Hoc Group* shall have a tenure of 2 years, with an extension as necessary to ensure the primary deliverable, i.e. the new version of the Asia/Pacific Regional ATFM Concept of Operations, is completed.

4. Administrative Arrangement

Membership

4.1 Members of the Ad-Hoc Group shall be Subject Matter Experts (SMEs) nominated by Asia/Pacific States/Administrations with expertise, knowledge, and experience in any of the following areas:

Air Traffic Flow Management (ATFM)

- ATFM implementation strategies, including operational procedure development,
- Strategic, pre-tactical, and tactical ATFM operations,
- ATFM operational analysis and performance measurement,
- ATFM system/automation development,
- Strong familiarity with the current Asia/Pacific ATFM concept and operational procedures,
- Preferably, ATS knowledge,

System-Wide Information Management (SWIM)

- SWIM concept, including SWIM technical infrastructure, SWIM information services, and SWIM governance,
- SWIM implementation strategies and Asia/Pacific implementation roadmap,

Flight and Flow Information for a Collaborative Environment (FF-ICE)

- FF-ICE concept, including services, processes, and technical requirements,
- Integration of FF-ICE with other ATM processes,
- FF-ICE implementation strategies and Asia/Pacific implementation roadmap,

Aviation Stakeholders' Operations

- Flight planning and flight operations,
- Airport operations and Airport Collaborative Decision Making (A-CDM),

Other Knowledge Areas

- Software development and algorithms
- ATM automation systems
- Applied mathematics / mathematical modeling / network optimization,
- Other areas of knowledge that may be helpful for the work.

4.2 SMEs may also be nominated by international organizations (IOs) including CANSO, IATA, IFATCA, IFALPA, and ICCAIA to become members of the Ad-Hoc Group. Nominated SMEs shall also possess expertise in any of the key knowledge areas mentioned in 4.1.

4.3 To ensure continuity of the discussion and effective working arrangement, States/Administrations and IOs are *encouraged* to provide their nominated SMEs with necessary resources to *continually and consistently participate in the discussions* through both in-person and online meetings throughout the terms of the Ad-Hoc Group.

Working Arrangement

4.4 The Ad-Hoc Group will establish a meeting plan that allows continuous engagement and active contribution of members throughout its duration. Meetings may be conducted in person or online as appropriate to the planned topics of discussion. Meeting plan should be established by the group as early as practicable to allow members to plan their schedule and travel arrangements as necessary.

4.5 The Ad-Hoc Group will also establish a working arrangement and communication channels that allows the members to coordinate and collaborate on the work in a timely and consistent manner.

4.6 The Ad-Hoc Group will coordinate its work with relevant regional groups working on ATFM concept to ensure alignment and complementarity, with a view that there should only be one harmonized regional ATFM concept of operations for Asia/Pacific.

4.7 The Ad-Hoc Group will also coordinate its work with relevant regional groups to ensure that that the new Asia/Pacific Regional ATFM Concept of Operations is used as the basis for developing or updating regional framework and operating procedures, guiding regional development of technological enablers, and initiating implementation efforts to operationalize the concept in the Asia/Pacific region.

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Terms of Reference

AIR TRAFFIC FLOW MANAGEMENT STEERING GROUP (ATFM/SG)

1. Having considered relevant documents such as the *Manual on Collaborative Air Traffic Flow Management* (Doc 9971), regional air traffic data and the Asia/Pacific Region city pairs and associated airspace and ATS routes and aerodromes experiencing the most significant traffic demand, and noting the Asia/Pacific Seamless ATM Plan provisions for structural airspace capacity increasing measures, develop an Asia/Pacific Regional ATFM Framework which addresses ATFM implementation and ATFM operational issues in the Asia/Pacific Region;

2. Identify, research and recommend appropriate guidance regarding:

    a. capacity assessment and adjustment mechanisms;

    b. regular review for all aerodromes and ATC sectors where traffic demand is expected to reach capacity, or is resulting in traffic congestion;

    c. mechanisms for ATFM and A-CDM data gathering, collation and sharing between States, International Organizations and ICAO, which may include;

        i. capacity assessments, including factors affecting capacity such as special use airspace status, runway closures and weather information;

        ii. traffic demand information which may include flight schedules, flight plan data, repetitive flight plan data as well as associated surveillance updates of flight status; and

        iii. ATFM Daily Plan;

    d. compliance by airspace and aerodrome users with ATFM and A-CDM measures; and

    e. any other guidance relevant to the Regional ATFM Framework and Asia/Pacific A-CDM Implementation Plan.

3. Maintain an overview of CDM/ATFM and A-CDM programs being conducted within the Region, with a view to facilitating their coordination and alignment, and to promote;

    a. harmonized procedures;

    b. Implementation of the performance expectations of the Regional ATFM Framework and Asia/Pacific A-CDM Implementation Plan;

    c. Interoperability of A-CDM with ATFM

4. Review the effectiveness of existing and planned ATFM and A-CDM programs in the Asia and Pacific Region, and make specific recommendations, including any adjacent airspace affecting the Asia and Pacific Regions, and research and recommend appropriate mechanisms for the on-going review of such programs.

5. The Group coordinates closely with other relevant bodies such as Airport Operations and Planning Sub-Group, the Meteorological Requirements Working Group (MET/R WG) and System-Wide Information Management Task Force (SWIM TF).

6. The Group reports to the ATM Sub-Group.

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Air Traffic Flow Management Steering Group

Task List

(last updated ATFM/SG/15, 2 May 2025)

ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
9/9	Analysis of MET requirements to support Non-ASBU elements of Seamless ANS Plan	~~ATFM/SG/12~~ ~~ATFM/SG/13~~ ATFM/SG/15	Secretariat/MET R WG Chair	Open Closed	Updated ATFM/SG/11 To be discussed by ~~MET/R WG/9~~ MET/R WG/~~11~~ 13– to consider in context of 202~~2~~3 update of Seamless ANS Plan
11/1	*APA-CDM/TF Action Item 5/2 - included in ATFM/SG Task List pending APANPIRG decision on re-assignment of responsibility for A-CDM.* Develop joint operational procedure guidance for the integration of ATFM and A-CDM operations, focusing the integration between A-CDM and "cross-border" ATFM in collaboration with Experts from ATFM/SG and SWIM TF	~~ATFM/SG/12~~ ~~ATFM/SG/13~~ ~~ATM/SG/10~~ ~~(CANSO)~~ ~~ATFM/SG/14~~ ATFM/SG/16	(APA-CDM/TF/6) ATFM/IR/SWG ~~to lead China, Hong Kong China, India, Pakistan, Republic of Korea, Thailand, Group of Experts, CANSO~~	In progress	Included at ATFM/SG/11 APA-CDM/TF/6 WP/03 Task to be carried out by the APANPIRG technical body assigned ongoing responsibility for oversight of A-CDM. ~~CANSO provides a paper ATM/SG/10~~
12/3	Register the Asia/Pacific Bi-Weekly Web Conference (AMNAC) to share the ATFM-related information through the MS Teams	Ongoing	Administrations willing to join	Open	ATFM/SG/12 report para. 4.29 invitation extended to some States outside of AMNAC ATFM/SG/13 report para. 4.13 ATFM/SG/14 report para 4.80
12/4	CTO compliance window follow-up (lessons learned from other Regions)	~~ATFM/SG/13~~ Ongoing	Secretariat	Open Closed	ATFM/SG/12 report para. 4.73
12/6	Explore what seasonal meteorological conditions information (airport and airspace) are required during ATFM	~~MET/R WG/12 (22-26 May 2023)~~ ~~MET/R WG/13~~	ATFM/IR/SWG	~~Open~~ Closed	ATFM/SG/12 report para. 5.3

ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
	strategic phase in coordination with AUs				Hong Kong China provides a presentation to MET/ATM seminar in May 2023
~~**12/10**~~	Provide a FAQ to assist States in reviewing their ATFM implementation	ATFM/SG/13	New Zealand, Hong Kong China, Thailand and Singapore	~~Open~~ Closed	ATFM/SG/12 report para. 4.16
13/1	Report on the progress of CTO trials	~~ATFM/SG/14~~ Ongoing	Japan	Open	ATFM/SG/13 report para. 4.53 ATFM/SG/14 report para 4.89 ATFM/SG/15 report para 4.51
13/2	Report on the progress of multi constraints resolution	~~ATFM/SG/14~~ Ongoing	China, Hong Kong China, Republic of Korea, Singapore, Thailand	Open	ATFM/SG/13 report para. 4.71 ATFM/SG/15 report para 4.20
13/3	Support the workshop on capacity assessment, and consider to include ATFM-related USOAP PQs	Nov ~~2023~~ 2024 ~~(tentative)~~ 2-5 June 2025	Secretariat, China, Thailand, Singapore, Japan, Hong Kong China, ROK, Pakistan, USA, India, Malaysia, Philippines, IATA and CANSO	Open	ATFM/SG/13 report para. 7.5 ATFM/SG/15 report para. 7.4
13/5	Draft Regional A-CDM Implementation monitoring and reporting scheme	~~ATFM/SG/14~~ ATM/SG/12	ATFM/IR/SWG	Open Closed	ATFM/SG/13 report para. 6.6 ATFM/SG/14 report para 6.19 ATFM/SG/15 report para. 5.1
13/7	Update MET/R WG ad-hoc group member list (ATFM experts)	MET/R WG/12	MET/R WG ad-hoc group member	Open	ATFM/SG/13 report para. 2.4
13/8	Provide feedback and additional use cases for *APAC User Requirements for SWIM-based MET Information Services Supporting ATFM* to MET R/WG ad-hoc group	MET/R WG/13	Secretariat, All administrations	Open	ATFM/SG/13 report para. 2.4
14/1	APAC Region ATFM Implementation Status report analysis – Show Phase IIIA and IIIB elements status separately	ATM/SG/12 ATFM/SG/15	Secretariat, All Administrations	~~Open~~ Closed	ATFM/SG/14 report para 4.6 ATFM/SG/15 report para. 4.12
14/2	Air Traffic Flow over Bay of Bengal – Status Update	~~ATM/SG/12~~ ATM/SG/13	Singapore, Malaysia, India, IATA	Open	ATFM/SG/14 report para 4.23 ATFM/SG/15 Report Para. 7.6
14/3	Provide recommendations and share experiences on ATM contingency	ICAO APAC/MID ATM Contingency	All Administrations	~~Open~~ Closed	ATFM/SG/14 report para 7.9

ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
		Planning Workshop			
15/1	To update the APAC ADP exchange procedures- working draft	ATFM/SG/16	AMNAC Group	Open	ATFM/SG/15 report para. 4.18
15/2	Sharing of COP and ICD for ATFM information exchange by NARAHG group with AMNAC Group for harmonization of procedures	ATFM/SG/16	NARAHG Group	Open	ATFM/SG/15 report para. 4.31
15/3	Examine the applicability of Flow Rate restrictions as an interim ATFM measure for application between adjacent airspaces and inclusion in the Regional ATFM Framework	ATFM/SG/16	ROK, China,…….	Open	ATFM/SG/15 report para 4.47
15/4	Present a WP on inclusion of ATFM related phraseologies in Doc 4444 to the ATMOPS panel meeting	ATMOPS meeting later this year ATM/SG Meeting	India	Open	ATFM/SG/15 report para. 4.57
15/5	To update APAC ATFM Post ops analysis framework	ATFM/SG/16	Thailand, India……	Open	ATFM/SG/15 report para. 6.1
15/6	To provide inputs and share process of data analysis carried out for Post Ops analysis by India with the Ad-Hoc DAG in the next meeting	May 2025 (Ad-Hoc DAG meeting in Tianjin, China)	India	Open	ATFM/SG/15 report para 4.64
15/7	To provide a WP to the SWIM/TF meeting in May 2025 on the draft conclusions of WP06, WP07 and WP24 presented in the ATFM/SG/15 meeting	May 2025	Thailand, Singapore and HKG China with Secretariat	Open	ATFM/SG/15 report para 6.1-13
15/8	To include Capacity calculation guidelines as adopted by ROK as an Appendix to Regional ATFM Framework document	ATFM/SG/17	Secretariat, ROK	Open	ATFM/SG/15 report para. 4.68
15/9	To include mapping of ASBU Priority 1 and Priority 2 elements of APSAP	ATM/SG/14	Secretariat	Open	ATFM/SG/15 report para 2.10

ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
	provided by MET/R/WG ad-hoc group as an appendix to the APSAP				
15/10	States and Administrations to nominate members to the AD-Hoc group for conducting the next MET requirements survey	Immediate	All States and administrations	Open	ATFM/SG/15 report para. 2.10
15/11	To share experiences and results of trial operations using cloud network including ATFM data exchange	ATFM/SG/16	China	Open	ATFM/SG/15 report para. 6.22
15/12	Review the SWIM information services on ATFM/ACDM integrated service and Traffic Flow information services and provide inputs to the SWIM TF/10 meeting	10th May 2025 for onward presentation to the SWIM TF/10 meeting (May 2025)	Thailand, Singapore …. and compiled by Secretariat	Open	ATFM/SG/15 report para 6.38
15/13	Nominate subject matter experts to Ad-Hoc group for developing a new Regional Concept for Collaborative ATFM in APAC Region	31st May 2025	All States and Administrations, IO	Open	ATFM/SG/15 report para 6.31
15/14	Develop a new Regional Concept for Collaborative ATFM in APAC Region and submit to ATFM/SG for consideration	ATFM/SG/17	Ad-Hoc Group	Open	ATFM/SG/15 report para 6.29

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