



ICAO

*International Civil Aviation Organization*

**Fifteenth Meeting of the Asia/Pacific Air Traffic Flow Management Steering Group (ATFM/SG/15)**

Bangkok, Thailand, 28 April – 02 May 2025

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

**HARMONIZATION OF AIR TRAFFIC SERVICES PROCEDURES WITH THE PROVISIONS OF AIR TRAFFIC FLOW MANAGEMENT (ATFM) TO ENHANCE EFFICIENCY AND EFFECTIVENESS OF AIR TRAFFIC MANAGEMENT**

(Presented by India)

**SUMMARY**

This paper presents the efforts made by Airports Authority of India (AAI) on the subject matter. In the process of harmonization of procedures, AAI has decided to include following enabling provisions of ATFM in its manual of air traffic services procedure:

- Start-up time procedure, related to ATFM provisions as per PANS ATM DOC 4444.
- ATFM related phraseologies contained in ICAO DOC 9971 on CATFM.
- Strip marking procedures to include Flow measure information on controller's strips.

The said harmonization will enhance common situational awareness of Air traffic controllers about applied ATFM measures due to availability of flow related information on their strips. The inclusion of relevant ATFM related provisions in ATS procedures will also enhance the probability of its successful application through appropriate phraseologies, thus creating an enabling environment for the better monitoring and ensuring of CTOT compliances, leading to efficient and effective air traffic management.

**1. INTRODUCTION**

1.1 The Procedures for Air Navigation Services, Air Traffic Management (PANS-ATM) DOC 4444 specify procedures, in greater detail, elaborating the actual procedures to be applied by air traffic services units. Doc 4444 stipulates the requirement of having local procedures/instructions at many places, so that such procedures can be suitably adapted as per local requirements. Based on DOC 4444, and other ICAO documents states are developing their Manual of Air traffic services procedures applicable for the concerned nation.

1.2 DOC 4444 also contains the provisions related to ATFM procedures and capacity management. It also stipulates the requirement that the procedures governing the provision of the ATFM measures, and service within a region or area should be prescribed in a regional ATFM manual or handbook. Accordingly, AAI has prepared and published an operations handbook containing comprehensive information on procedures of ATFM operations including duties and responsibilities of stakeholders.

1.3 Airports authority of India has also prepared a document called Manual of air traffic services Part 1(MATS 1) for the use and guidance of the executive and staff of Airports authority of India. This manual provides processes, procedures and instructions that are essential for the provisions of safe and efficient air traffic services within the airspace/airports under the jurisdiction of AAI. This document has been prepared in accordance with national regulations, SARPS ICAO annex 11, DOC 4444 and other ICAO documents relevant to provision of air traffic services. Based on MATS 1, every ATS facility also prepares a facility specific document, manual of air traffic services Part 2 (MATS 2) containing instructions valid for the concerned facility.

1.4 DOC 9971 manual on collaborative air traffic flow management details the purpose, uses and benefits of flow management. It provides a complete set of operational guidelines that cover the definition and improvement of capacities, the various ATFM solutions and measures, as well as the communication requirements underscoring flow management.

1.5 Air traffic in India has been growing at rapid pace, accordingly the requirement of ATFM measures are also increasing along with it. In the year 2023, total 348 ATFM measures were applied, whereas in the year 2024, total 757 ATFM measures were applied across India. AAI has identified that there is requirement of harmonizing the ATS procedures with ATFM related provisions, based on provisions contained in DOC 4444, DOC9971, ATFM operational hand book. The objective of such harmonization is to facilitate enhanced common situational awareness of air traffic controllers about flow constraints, readily available relevant ATFM provision as ATS instruction and its effective application through appropriate phraseologies. The increased successful application of such provisions in MATS 1 is expected to meet the evolving level of ATFM services by increasing the CTOT compliances, leading to efficient and effective air traffic management.

## 2. DISCUSSION

ICAO PANS ATM DOC 4444 chapter 7 procedures for aerodrome control service, para 7.4.1.1 start time procedures.

2.1 Para 7.4.1.1.2 of DOC 4444 stipulates that ***Start-up time procedures should be implemented where necessary to avoid congestion and excessive delays on the manoeuvring area or when warranted by ATFM regulations. Start-up time procedures should be contained in local instructions, and should specify the criteria and conditions for determining when and how start-up times shall be calculated and issued to departing flights.***

2.2 Para 7.4.1.1.3 of DOC 4444 stipulates ***When an aircraft is subject to ATFM regulations, it should be advised to start up in accordance with its allocated slot time***

ICAO DOC 9971 manual on collaborative air traffic flow management, Chapter 6 ATFM communication, para 6.5.4 ATFM Phraseologies

2.3 Table II-6-4 of DOC 9971 ***outlines the phraseology to be used for communication between the ATC unit and pilots on ATFM operations, some of the examples are:***

**Table II-6-4. ATFM Phraseology**

| <i>Circumstance</i>   | <i>Phraseology</i>        |
|---|---------------------------|
| Calculated take-off time (CTOT) delivery resulting from a slot allocation. <b><i>The CTOT shall be communicated to the pilot at the first contact with ATC.</i></b> | <b><i>CTOT (time)</i></b> |

| <i>Circumstance</i>                                   | <i>Phraseology</i>           |
|---|------------------------------|
| Change to CTOT resulting from a slot revision.        | REVISED CTOT ( <i>time</i> ) |
| CTOT cancellation resulting from a slot cancellation. | CTOT CANCELLED, REPORT READY |

2.4 The above table clearly stipulates the circumstances associated to ATFM measures and phraseologies to be used contextually.

AAI- ATFM operations handbook, chapter 3, Para 3.4 ATFM compliance requirement.

2.5 Para 3.4 of ATFM operations handbook stipulates that adherence to calculated take off time (CTOT) window is a shared responsibility between Aircraft Operators (AO) and departure ATS unit. This para also details the duties and responsibilities of all the stakeholders in terms of ATFM compliance.

Harmonization of ATS procedures with the provision of ATFM provisions.

2.6 AAI is planning to harmonize the ATS procedures contained in its Manual of Air traffic services with the provision of ATFM provisions based on provisions contained in the DOC 4444, DOC9971, ATFM operational hand book in its upcoming version as mentioned below.

2.7 **Updated startup procedures in its Manual of Air traffic services part 1 are as below :**

#### ***7.4.1.1. Start-up time procedures***

***7.4.1.1.1 Start-up time procedures should be implemented where necessary to avoid congestion and excessive delays on the manoeuvring area or when warranted by ATFM regulations. Start-up time procedures should be contained in local instructions/MATS Part 2, and should specify the criteria and conditions for determining when and how start-up times shall be calculated and issued to departing flights.***

***7.4.1.1.2 When an aircraft is subject to ATFM regulations, it should be advised to start up in accordance with its allocated slot time. ATC should develop and implement local procedures to facilitate and ensure adherence to calculated take off time [CTOT] at an airport of departure. These procedure should normally include:***

***7.4.1.1.2.1 The CTOT shall be communicated to the pilot at the first contact with ATC. The CTOT adherence window is defined as –5 to +10 minutes of the CTOT time.***

***7.4.1.1.2.2 CTOT, if applicable, be included as part of the ATC pre-departure clearance/ start-up clearance.***

***7.4.1.1.2.3 Aircraft should be advised to start up in accordance with its allocated slot time.***

***7.4.1.1.2.4 ATC shall provide all possible assistance to Aircraft operators [AOs] to meet CTOT or to coordinate for a revised CTOT.***

***7.4.1.1.2.5 ATC may deny start up clearance to a flight unable to meet its CTOT until coordination with the ATFM units concerned has been effected.***

*7.4.1.1.2.6 In case of a flight departing to a constrained airport during the period when flow measures are in force, ATC shall ensure that no flights depart without a CTOT. If a flight is not issued a CTOT, in all probability such a flight is missed in the CDM scenario because of late filing of the flight plan. ATC/Airlines will coordinate with central command centre for a CTOT as per procedure.*

*7.4.1.1.2.7 As far as practicable, preference should be accorded to aircraft subject to ATFM measures to ensure compliance of CTOT/CTO*

2.8        **Phraseologies contained in Para 6.5.4 Table II-6-4 of ICAO DOC 9971 manual on collaborative air traffic flow management will be added in para 12.16.4.21 of Manual of air traffic services (MATS) Part 1**

2.9        **Strip marking procedures contained in the chapter 12 appendix- A will be suitably updated by including the provision 2.16 mentioned below:**

*Any ATFM regulation requirement such as calculated take off time (CTOT)/ Calculate time over (CTO) etc. should be appropriately written on the ATM flight progress strip. Electronic flight strips, when available should be suitably highlighted.*

2.10       Such enabling provisions should facilitate controllers in attaining enhanced common situational awareness in monitoring and ensuring compliance of ATFM measures through usage of appropriate phraseologies.

### **3. ACTION BY THE MEETING**

3.1        The meeting is invited to:

- a) note the information contained in this paper;
- b) discuss any relevant matters as appropriate
- c) Other states may consider including similar provisions in respective Air traffic services documents.
- d) recommend the inclusion of phraseologies contained in ICAO DOC 9971 manual on collaborative air traffic flow management, Chapter 6 ATFM communication, para 6.5.4 ATFM Phraseologies Table II-6-4, at suitable place in chapter 12 of ICAO PANS ATM DOC 4444 for ATM/SG's consideration.

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