*International Civil Aviation Organization*

**Eleventh Meeting of the Air Traffic Management Sub-Group (ATM/SG/11) of APANPIRG**

Singapore, 2 – 6 October 2023

**Agenda Item 5: ATM Systems (Modernization, Seamless ATM, CNS, ATFM)**

# IMPLEMENTATION OF 3NM SURVEILLANCE BASED SEPARATION IN TERMINAL AIRSPACE OF KOLKATA

(Presented by India)

**SUMMARY**

This paper presents the progress made by India in implementing reduction in Surveillance based separation from 5NM to 3NM in Terminal Airspace at Kolkata Airport, India, to improve Airspace capacity, efficiency and to further enhance Runway capacity to cope up with the future growth of traffic.

## 1. INTRODUCTION

1.1 The Aviation Sector in India has seen an exponential growth post covid slowdown specially in the domestic sector. As mandated in Asia/Pacific Seamless ATM Plan to implement the reduced horizontal separation stated in DOC4444 (PANS ATM) and to cater to the expected future growth of traffic, 3 NM Surveillance based separation has been implemented in Terminal Airspace at Netaji Subhas Chandra Bose International Airport Kolkata since April, 2023. This reduction in horizontal separation from 5 NM to 3 NM has not only improved airspace capacity but also will help to enhance Runway capacity by reducing Inter-arrival spacing in future.

## 2. DISCUSSION

Application of 3 NM Surveillance Based Separation minima within terminal airspace of Kolkata airport

2.1 In India, 3NM Surveillance based separation in Terminal Airspace has already been implemented at Delhi, Mumbai, Chennai, Bengaluru and Hyderabad. Kolkata Terminal Airspace is served by a PSR/Mode-S SSR combined, One Mode-S RADAR and an ADS-B Ground station. The INDRA Aircon ATM Automation System at Kolkata has multi sensor tracking and advanced safety net features along with Mode-S DAP. The RADAR performance and other factors permits reduction of surveillance separation from 5NM to 3NM within 30NM of Kolkata. After conducting safety assessment, the horizontal separation in Terminal Airspace at Kolkata Airport was reduced from 5 NM to 3 NM since April 2023.

2.2 With current layout of the ground configuration and with 5NM surveillance based separation minima in Terminal Airspace, minimum spacing between consecutive Arrivals was 6NM and with departure in between two arrivals is 7NM. With 5 NM Surveillance based Separation, the existing hourly runway capacity in mix mode operations (Arrival and Departure) for primary runway 19L/01R was declared as 35.

2.3 With 3 NM Surveillance based Separation applied within 30 NM of Kolkata Airport from ground to FL 140 has increased overall efficiency and Airspace capacity of the Airport.

2.4 This has been implemented as a precursor to enhancing the Runway capacity with the construction of three new Rapid Exit Taxiways. With the commissioning of three new Rapid Exit Taxiways at Kolkata airport, Runway occupancy time will be reduced by 20 seconds for RWY 19L/01R, making it feasible for Kolkata to reduce the inter arrival spacing between consecutive Arrivals from 6NM to 4NM and with departures in between arrivals the spacing is likely to reduce from 7NM to 6NM.

2.5 3NM Surveillance based Separation in Terminal Airspace will help enhancing the runway capacity in mix mode (Arrivals and Departures) operations for primary runway 19L/01R from the existing 35 to 45 in an hourly basis.

## 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.

…….