International Civil Aviation Organization

MIDANPIRG Air Traffic Management Sub-Group

Eleventh Meeting (ATM SG/11)
(Abu Dhabi, UAE, 19 – 23 October 2025)

Agenda Item 3: Planning and Implementation issues related to ATM/SAR

IMPLEMENTATION OF REDUCED LATERAL SEPARATION MINIMA (RLAT) IN THE EMIRATES FIR

(Presented by the United Arab Emirates)

SUMMARY

This paper details the strategic, phased implementation of 3 Nautical Mile (NM) Reduced Lateral Separation Minima (RLAT) within the Emirates Flight Information Region (FIR). It outlines the robust technical framework, operational procedures, and comprehensive safety assurance activities that underpin this initiative. The implementation of 3 NM RLAT is a foundational enabler for future airspace capacity and efficiency enhancements, directly supporting the continued growth and operational excellence of aviation within the UAE.

1. INTRODUCTION

1.1 Reduced Lateral Separation Minima (RLAT) is a proven, data-supported concept for enhancing airspace capacity and efficiency. The implementation of RLAT within the Emirates FIR is a strategic imperative designed to unlock future airspace potential and solidify the UAE's position as a leading global aviation hub. This paper details the strategic, phased implementation of this initiative.

1.2 The primary objective is to safely reduce the standard surveillance-based lateral separation from 5 NM to 3 NM. This reduction is not an end in itself, but rather a critical enabler for subsequent efficiency gains, such as optimizing transfer of control procedures and refining future airspace design to increase overall throughput and flexibility.

1.3 The safe execution of this operational change is contingent upon a robust technical framework, which provides the necessary system support and safety assurance, as detailed in the following discussion.

2. DISCUSSION

2.1 Technical Framework and Safety Assurance

2.1.1 The safe implementation of RLAT is founded upon a triad of verified surveillance performance, advanced Air Traffic Management (ATM) system support, and mandated aircraft capabilities. Each component has been rigorously assessed to ensure that the reduction in separation minima maintains or enhances existing safety levels.

2.1.2 Surveillance Infrastructure: A comprehensive performance assessment, utilizing the FAA's Radar Beacon Analysis Tool (RBAT), concluded that the current surveillance infrastructure is 'more than adequate' to support a 3 NM separation standard. For Emirates ACC, two radar sensors are

critical for RLAT application, and procedural integrity is tied to the operational status of both sensors feeding the ATM Surveillance Tracker and Server (ARTAS) tracker system.

2.1.3 ATM System Support: The current ATM system provides critical safety support, including a Short-Term Conflict Alert (STCA) safety net reconfigured to align with the 3 NM standard. The future Next-Generation ATM (NG-ATM) system will further enhance these capabilities with tools such as Medium-Term Conflict Detection (MTCD).

2.2 Aircraft Capabilities

2.2.1 The safety case for RLAT is strongly supported by mandated aircraft equipage. UAE regulations require aircraft to be equipped with Area Navigation RNAV 1 (GNSS) and an Airborne Collision Avoidance System (ACAS II).

2.2.2. These requirements ensure high navigational performance and provide an independent, last-resort layer of collision avoidance. This combination of precise aircraft performance and an onboard safety net forms an essential prerequisite for safely operating in a reduced separation environment. This technical foundation supports the development of clear operational procedures.

2.3 Operational Implementation and Procedures

2.3.1 The General Civil Aviation Authority-Sheikh Zayed Air Navigation Centre (GCAA-SZC ANS) has adopted a deliberate, phased approach to ensure a safe and seamless transition, supported by clear procedures, robust contingency plans, and targeted controller training.

2.3.2 Area of Application and Phased Rollout:

• Phase I involves the application of a 3 NM lateral separation standard within the Emirates AoR (Area of Responsibility), below FL195.

• Phase II is a subsequent trial designed to leverage the established 3 NM lateral separation. This trial aims to reduce the longitudinal in-trail separation from the current 8 NM to 6 NM at selected Transfer of Control Points (TCPs) for arrivals and departures managed between Emirates ACC and both Dubai and Abu Dhabi Approach.

2.3.3 Contingency and Suspension Criteria: ATC procedures unequivocally mandate a reversion to 5 NM lateral separation if either available radar sensor that are required for RLAT is not operational in ARTAS. ATC Supervisors are also authorized to temporarily suspend reduced separation based on operational judgment, including adverse weather, excessive traffic demand, staffing constraints, or system degradation.

2.4 Hazard Identification and Risk Mitigation

Identified Hazard	Primary Mitigation Strategy
Increased controller workload and complexity	Dynamic sector management; utilization of planner controllers; enhanced system safety nets (STCA).
Surveillance or communication system degradation	Immediate reversion to 5 NM separation minima; established temporary suspension procedures.

Adverse weather impacting aircraft performance	Application of standard weather avoidance procedures; temporary suspension of RLAT by ATC supervisors.
Potential for misunderstanding separation minima	Formal publication of operational instructions and procedures; pre-operational briefings and self-study training for all controllers.

2.5 Implementation Timeline and Expected Outcomes

2.5.1 The RLAT implementation follows a clear timeline and is expected to deliver significant, quantifiable improvements to airspace capacity and operational efficiency.

2.5.2 Timeline: The implementation date for Phase I (3 NM lateral separation) was the 11th of July 2024, aligned with AIRAC cycle 07. The implementation date for Phase II was the 25th of Sep 2025.

2.5.3 Expected Outcomes and Benefits:

- The primary outcome of Phase I is the establishment of an essential foundational capability. While not yielding immediate capacity gains, the successful implementation of 3 NM lateral separation is the non-negotiable prerequisite that enables all future enhancements, including the significant efficiency gains projected for Phase II.
- The benefits of the subsequent Phase II trial are significant. The reduction of in-trail separation is calculated to yield:
- A 33.3% increase in arrival capacity per TCP, equating to an additional 9.5 aircraft per hour.
- A 33.3% increase in departure capacity per TCP, equating to an additional 12.5 aircraft per hour.

3. CONCLUSION

3.1 The implementation of 3 NM RLAT in the Emirates FIR is supported by a robust safety case and a comprehensive technical and operational analysis. This initiative fundamentally modernizes the ATM environment, creating the foundation for a more dynamic, resilient, and efficient airspace system for the coming decade. The GCAA-SZC ANS is confident that this carefully managed implementation will have a lasting positive impact on the safety, integrity, and efficiency of the air traffic management system, accommodating future growth while optimizing airspace utilization.

4. ACTION BY THE MEETING

4.1 The meeting is invited to note the information contained in this paper.

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