

# Interval Management

## BACKGROUND

Interval Management (IM) is an Airborne Surveillance Application (ASA) and provides new means of managing traffic flows and spacing of aircraft based on specific ground and airborne capabilities. It allows the flight crew of a suitably equipped aircraft (so called "IM aircraft") to achieve and/or maintain an assigned spacing in respect to a designated preceding aircraft, called the "target aircraft".

Air Traffic Control remains responsible for separation while providing IM clearances to the IM aircraft, specifying the spacing goal to the target aircraft in time or distance, where or when to achieve it and the planned cancellation point. This should facilitate the traffic flow on same or similar routings, e.g., towards the same destination. Suitable ground automation systems should support the controller in the strategic sequencing and in selecting appropriate spacing goals.

Upon reception of an IM clearance, the flight crew of an IM aircraft has to identify the target aircraft on the Cockpit Display of Traffic Information (CDTI), which can be integrated in the usual navigation displays. The target aircraft needs to be equipped with ADS-B Out and the IM aircraft must be able to receive the target aircraft's data via ADS-B In and display it on the CDTI. This capability is referred to as Basic Airborne Situational Awareness (AIRB).

If the crew accepts the IM clearance, the target aircraft has to be selected in the Flight-deck Interval Management (FIM) avionics and the clearance parameters need to be inserted. The FIM avionics validate the feasibility and provide speed advisories which have to be complied with by the flight crew in order to meet the spacing goal.

New procedures and phraseology need to be developed for IM operations (concerns ICAO Doc 4444 PANS ATM and ICAO Doc 8168 PANS OPS) and operators will need to obtain regulator's approval for the operation, the aircraft equipment, and the flight crew (just applicable for the IM aircraft, not the target aircraft).

## POSITION

Interval Management shifts a certain responsibility for the spacing of aircraft from air traffic control to flight crews. This may relieve ATC workload and enhance traffic flows but can add to pilot workload and distraction from primary duties during critical phases of flight, e.g., while below 10,000 ft AAL.

It is important to understand that ATC always remains responsible for separation while flight crews adhere to airspeeds provided by the FIM avionics to meet spacing goals. This is paramount, as flight crews do not have a complete picture of the overall traffic situation and may only build a limited situational awareness of the surrounding traffic.

IFALPA believes that the following principles should apply to the application of Interval Management:

- Air Traffic Control should remain responsible for separation.
- Safety may not be degraded, and pilot workload should not be increased.
- The decision to accept an IM clearance should rest solely with the Pilot in Command and should not lead to negative operational consequences when being declined.
- The display of traffic information should be integrated in original aircraft displays in the pilots' primary field of vision and allow for quick and easy interpretation of the preceding aircraft's position, flight path, distance, and ground speed.
- The FIM avionics interface should be conveniently accessible and distinctive with unique indications, symbols, and colours to avoid misinterpretation to limit head-down time to the minimum extent possible.
- FIM avionics should provide the crew with clear indications and advisories (such as airspeed) whether the IM clearance is achievable, and how to meet the spacing goals in terms of speed intervention without the need to perform own calculations or to monitor the target's position continuously.
- Clear procedures and phraseology need to be developed which leave no room for ambiguity or misunderstandings, e.g., regarding published procedures with corresponding constraints or when referring to the target aircraft on a frequency.
- Contingency procedures need to be developed to cover the cases such as loss of communications or weather activity enroute.
- Flight crews should be thoroughly trained on the IM procedures, display interpretations, FIM avionics inputs and communication requirements in a full flight simulator.
- Regulators should require operators to apply for operational approvals and to demonstrate thorough provisions for aircraft installations, training, and standard operating procedures. This should include regular recurrent training including system failures and contingency procedures.