



**THE FORTY-EIGHTH MEETING OF THE  
INFORMAL PACIFIC ATC COORDINATING GROUP  
(IPACG/48)**

FAA Northwest Mountain Regional Office - Des Moines, Washington  
September 25 - 28, 2023

Agenda Item 5: ATM Issues

**Supersonic and Hypersonic Commercial Aircraft Operations in the Pacific Region**

(Presented by the United States)

**SUMMARY**

Supersonic and hypersonic commercial passenger transport aircraft will be an emerging entrant with expected operations within the next five to seven years. This paper discusses the need for global and regional policies/procedures to ensure harmonized air traffic operations.

**1. Introduction**

1.1. There are several manufacturers developing supersonic and hypersonic passenger transport aircraft that will operate between FL550 and FL950. One manufacturer, Boom Supersonic, has contracts with American Airlines, Japan Airlines, and United Airlines for delivery of its Overture aircraft, with expected passenger flights commencing in 2029.

1.2. Conventional supersonic aircraft tend to produce significant pressure waves that create a pronounced “boom” that cannot only be loud/startling but have even caused minor structural damage.

1.3. Manufacturers of these new generation aircraft are designing aircraft that are expected to create significantly reduced pressure waves, resulting in a “boom” that is similar to the sound of a car door closing.

1.4. Given that the sonic boom profile of these new generation aircraft is expected to be much different, several States, including the United States, are considering changes to policies that restrict supersonic flight over land and territorial waters, which typically includes a 12-mile zone off the coast.

1.5. As we anticipate a significant increase in commercial passenger service utilizing supersonic and hypersonic aircraft, consideration on how to best integrate these aircraft into oceanic airspace should be given both globally and regionally. This paper asks the IPACG to consider the steps towards successful integration of these new aircraft.

**2. Discussion**

2.1. Supersonic passenger flight, particularly through the North Atlantic Oceanic Airspace, was a relatively common occurrence prior to the retirement of the Concorde from commercial service in 2003.

In the ensuing almost two decades, procedures and regulations for supersonic flights have remained in place and relatively unchanged.

2.2. With the expected proliferation of these new generation supersonic passenger aircraft within the next decade, Air Navigation Service Providers (ANSPs) should consider if existing procedures within the ICAO Procedures for Air Navigation Service - Air Traffic Management (PANS-ATM) Document 4444, State air traffic procedures, and other regulatory/guidance material are sufficient to accommodate these new entrants.

2.3. FAA Order JO 7110.65, Air Traffic Control, Chapter 8 Offshore/Oceanic Procedures provides longitudinal and lateral separation standards within the North Atlantic and Caribbean Regions; however, there are no standards specified for use in other oceanic regions.

2.4. A cursory review of ICAO Doc. 4444 and ICAO Annex 11 shows no specific separation minima for longitudinal or lateral separation related to supersonic/hypersonic operations. Additionally, a review of Doc. 7030, Regional Supplementary Procedures, indicates that there are no specific procedures within the Pacific Region.

2.5. From a global perspective, there may be a need for ICAO development of standards and recommended procedures (SARPS) specific to supersonic/hypersonic operations, particularly as it relates to applicability of Performance-Based Horizontal Separation Minima. The existing standards, which rely on Performance Based Communications and Surveillance (PBCS) and Required Navigation Performance (RNP) were developed with modelling based upon conventional aircraft performance. The collision risk modeling assumptions and intervention timelines may not match the performance characteristics these aircraft; therefore, a need for evaluation of the applicability of those standards for supersonic/hypersonic aircraft may be required.

2.6.

2.7. Regionally, IPACG should consider how to best harmonize procedures within Pacific Ocean airspace and develop appropriate guidance material to integrate these entrants. For instance, will existing Upper Class E airspace definition/procedures meet the needs of the projected operations or will modifications be necessary? Additionally, since the sonic boom profile for these new generation of aircraft is expected to be significantly different than previous supersonic transport aircraft, flight over land and territorial waters may be viable. As such, consideration should be given to reviewing and modifying policies that would prevent continued operations at transonic speeds over territorial waters and land.

2.8. As ANSPs begin to plan for these operations, it would be helpful to understand potential routes/city pairs that air carriers anticipate operating these types of aircraft. In addition to the airlines that have been reported to plan on operating these type aircraft, information on other air carriers considering these types of operations would be useful. As part of its work, IPACG should be examining supersonic and hypersonic new entrants for development of guidance material and harmonization of procedures within Pacific Oceanic Airspace.

### **3. Conclusion**

3.1 The meeting is invited to note the information provided.

3.2 Discuss and consider development and harmonization of procedures to accommodate supersonic and hypersonic aircraft.

3.3 Discuss airlines future plans for use of supersonic/hypersonic operations with possible city pairs and routes.

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