

**THE FOURTY-FIFTH MEETING OF THE
INFORMAL PACIFIC ATC CO-ORDINATING
GROUP
(IPACG/45)**

(Tokyo, Japan, 11 & 12 December 2019)

Agenda Item 2: Communications/Navigation/Surveillance (CNS) Issues

ENSURING PREPAREDNESS FOR THE U.S. 2020 ADS-B EQUIPAGE MANDATE

(Presented by United States/Federal Aviation Administration)

SUMMARY

In 2010, the U.S. published a regulatory requirement for all aircraft operating within certain airspace to be equipped with ADS-B Out equipment after January 1, 2020. The FAA is promoting awareness of this mandate to the international community, particularly for operations in U.S. sovereign airspace away from the U.S. mainland.

Strategic Objectives:

*A: **Safety** – Enhance global civil aviation safety*

*B: **Air Navigation Capacity and Efficiency** — Increase the capacity and improve the efficiency of the global aviation system*

*E: **Environmental Protection** — Minimize the adverse environment effects of civil aviation activities.*

1. INTRODUCTION

- 1.1 Automatic Dependent Surveillance – Broadcast (ADS-B) is an important underlying technology in the U.S. Federal Aviation Administration’s (FAA’s) plan to transform Air Traffic Control (ATC) from the current system to the Next Generation Air Transportation System (NextGen). ADS-B is bringing the precision and reliability of satellite-based navigation to surveillance in the U.S.
- 1.2 In May 2010, the FAA published a regulatory requirement for all aircraft operating within certain airspace to be equipped with a specific version of ADS-B Out technology after January 1, 2020, in accordance with Title 14 of the U.S. Code of Federal Regulations (14 CFR), sections (§§) 91.225 and 91.227. [See “Automatic Dependent Surveillance – Broadcast (ADS-B) Out Performance Requirements to Support Air Traffic Control (ATC) Service Final Rule” (75 FR 30160; May 28, 2010; Docket No. FAA-2007-29305)]
- 1.3 This requirement will affect all flights within the airspace specified in 14 CFR §91.225. To prepare the aviation community and prevent any operational disruptions, the FAA is providing information on §91.225 so that foreign aircraft intending to operate within the affected airspace will be equipped with the appropriate ADS-B Out technology by the compliance date.

- 1.4 Note that the FAA provides a Google Earth file showing FAA ADS-B coverage as well as polygons encompassing the airspace where ADS-B Version 2 is required after January 1, 2020 as specified in §91.225 at:
<https://www.faa.gov/nextgen/equipadsb/research/airspace/media/2020ADS-B-AirspaceMap.kmz>.

2. DISCUSSION

- 2.1 Under U.S. law, 14 CFR §91.225 (the U.S. ADS-B mandate) applies only to the sovereign airspace of the United States. U.S. sovereign airspace is defined as any airspace which is over the land regions comprising the constituent States of the U.S., the District of Columbia, Puerto Rico, Guam, and all other territories or possessions of the United States, including the territorial waters surrounding these land regions out to 12 nautical miles from their coastlines.
- 2.2 The U.S. ADS-B mandate does not apply to U.S.-managed international airspace, nor to any airspace which the U.S. manages under an agreement with another country, unless it is specifically included in the agreement. Note that in some U.S.-managed airspace where the U.S. ADS-B mandate does not apply, aircraft which are equipped with ADS-B Version 2 (TSO-C166b or TSO-C154c) may receive preferential ATC services from the FAA.
- 2.3 FAA policy for aircraft without TSO-C166b avionics operating over U.S. Pacific territories. The information in sections 2.3.1-2.3.3 summarizes the contents of “Notices to Airmen Domestic/International,” dated 10-Oct-2019, section 2, pages 2-INTL-26 to 2-INTL-27. See http://www.faa.gov/air_traffic/publications/notices/media/10_10_19_ntap.pdf,
- 2.3.1. Several U.S. territories have Class A airspace defined over them. These territories include the following:
Caribbean: Navassa Island, Puerto Rico, U.S. Virgin Islands
Pacific: American Samoa, Baker Island, Guam, Howland Island, Jarvis Island, Johnston Atoll, Kingman Reef, Midway Atoll, Northern Mariana Islands, Palmyra Atoll, Wake Atoll.
American Samoa, Baker Island, Guam, Howland Island, Jarvis Island, Johnston Atoll, Kingman Reef, Midway Atoll, Northern Mariana Islands, Palmyra Atoll, Wake Atoll.
- 2.3.2. The following U.S. territories do not have FAA ADS-B coverage at this time: Navassa Island, American Samoa, Baker Island, Howland Island, Jarvis Island, Johnston Atoll, Kingman Reef, Midway Atoll, Palmyra Atoll, and that portion of the Commonwealth of the Northern Mariana Islands which lies north of latitude North 17 degrees 49 minutes. Until such coverage exists, FAA will not devote resources to identifying aircraft without TSO-C166b avionics which elect to traverse these locations.
- 2.3.3. For flight operations within the Class A U.S. sovereign airspace of Puerto Rico, U.S. Virgin Islands, Guam and that portion of the Commonwealth of the Northern Mariana Islands which lies south of latitude North 17 degrees 49 minutes (shown in the graphic below), the FAA notes the following expectations:
- a. Operators without equipment meeting the performance requirements in TSO-C166b are expected to plan their routes of flight (including alternate airports) around this airspace; and
 - b. Operators without equipment meeting the performance requirements in TSO-C166b should train their flight crews to generally decline a voluntary ATC rerouting through this airspace unless required to safely operate their aircraft (e.g., in-flight emergencies, weather deviations, or diversions, etc.), advising ATC that they are not equipped with appropriate ADS-B avionics. If, however, ATC chooses to proceed with the rerouting, the flight crew should accept and execute the clearance.

- 2.4 The U.S. ADS-B mandate requires all operators to broadcast ADS-B Out information when operating in specified U.S. sovereign airspace, with few exceptions. States with operators that intend to operate within the specified U.S. sovereign airspace are encouraged to promote awareness of this approaching compliance date and the associated equipage and performance requirements. An aircraft that is not equipped to meet the requirements of the U.S. ADS-B mandate may be denied access to the specified U.S. sovereign airspace.
- 2.5 The FAA recognizes that extenuating circumstances will arise that require an aircraft without appropriate ADS-B avionics to be permitted in the U.S. sovereign airspace where it is required. 14 CFR §91.225 includes provisions for such circumstances, which include aircraft that are not equipped and aircraft with an inoperative ADS-B system. Note that procedures to accommodate such aircraft were defined as exceptions in §91.225 and were not intended to grant routine access to U.S. ADS-B mandate airspace.
- 2.6 14 CFR §91.225 stipulates that requests for authorization for an aircraft without appropriate ADS-B avionics to operate in U.S. ADS-B mandate airspace must be made at least one hour before the operation. 14 CFR §91.225 further stipulates that requests for operation of an aircraft with an inoperative ADS-B system may be made at any time. The FAA is currently establishing procedures for requesting such authorizations. However, ATC authorizations may contain conditions necessary to provide the appropriate level of safety for all operators in the airspace. Furthermore, ATC may not be able to grant authorizations in all cases for a variety of reasons, including workload, runway configurations, air traffic flows, and weather conditions.
- 2.7 To clarify various matters related to the U.S. ADS-B mandate in more detail for operators, the FAA has issued two new Notices in the U.S. Federal Register as Docket No. FAA-2019-0239 and Docket No. FAA-2019-0539. States with operators planning to operate in the airspace designated in §91.225 are urged to read these Notices, which can be found at: <https://www.federalregister.gov/documents/2019/04/01/2019-06184/statement-of-policy-for-authorizations-to-operators-of-aircraft-that-are-not-equipped-with-automatic> <https://www.federalregister.gov/documents/2019/07/03/2019-14127/statement-of-policy-on-performance-requirements-for-operators-of-aircraft-that-are-equipped-with>

3. ACTION BY THE MEETING

- 3.1 The Meeting is invited to:
- a) Note the information provided; and
 - b) Encourage States with operators that intend to operate within the affected U.S. airspace to promote awareness of this upcoming requirement

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