



ICAO

**Sixth Meeting of the Surveillance Implementation
Coordination Group (SURICG/6)**

Video Teleconference, 24 – 27 August 2021

Agenda Item 8 : Update on surveillance activities and explore potential cooperation opportunity

a) States/Administrations

**AUTOMATIC DEPENDENT SURVEILLANCE – BROADCAST (ADS-B) OUT
IMPLEMENTATION IN THE UNITED STATES**

(Presented by United States/Federal Aviation Administration)

SUMMARY

This paper provides an update on the ADS-B Out implementation in the U.S. After January 1, 2020, all aircraft operating within the sovereign airspace of the United States, including some airspace over the land and territorial waters of Puerto Rico, Guam, and all other territories or possessions of the United States, must be equipped with Automatic Dependent Surveillance-Broadcast Out (ADS-B Out) as specified in U.S. regulations. This information paper addresses the following ADS-B issues: airspace outside the continental United States where equipage is required; equipment performance requirements and consequences of non-performance; exemption request status; and a summary of current equipage levels observed within U.S. ADS-B coverage.

1. INTRODUCTION

1.1 After January 1, 2020, all aircraft operating within the airspace described in U.S. Code of Federal Regulations (14 CFR) § 91.225 must be equipped with the specified version of ADS-B Out (ADS-B Version 2). Additionally, 14 CFR § 91.227 specifies the performance requirements for operating in the specified ADS-B airspace. Based on analysis of U.S. Federal Aviation Administration (FAA) ADS-B Performance Monitor (APM) data, and operators' continued requests for ADS-B waivers and deviations, clarification of FAA policies with respect to 14 CFR § 91.225 and 91.227 is warranted.

1.2 This information paper addresses the following issues: airspace outside the continental United States where ADS-B is required, ADS-B performance requirements and consequences of non-performance, exemption request status, and a summary of current equipage levels observed within U.S. ADS-B coverage.

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2. DISCUSSION**2.1 U.S ADS-B Airspace**

2.2 The U.S. ADS-B mandate applies to the sovereign airspace of the United States. In addition to the continental United States, it includes airspace over the land regions of Puerto Rico, Guam, and all other territories or possessions of the United States, as well as the territorial waters surrounding these land regions out to twelve nautical miles from their coastlines. The FAA previously provided this information in APANPIRG/30-IP/18 and SURICG/5-IP/11. While compliance is extremely high in the continental United States, the FAA continues to observe operations of aircraft that are not properly equipped with ADS-B Out in U.S. sovereign airspace outside of the continental U.S. State regulators are encouraged to share this information with their operators to support regulatory compliance. Detailed information can be found in FAA International Notices: https://www.faa.gov/air_traffic/publications/internationalnotices/intl_2_20009.html.

2.2 Equipment Performance

2.2.1 The APM collects ADS-B data from all aircraft operating within range of the FAA ground radio network and assesses aircraft performance against the requirements of 14 CFR § 91.225 and 91.227. ADS-B systems consistently failing to meet those requirements are designated non-performing equipment (NPE) and are subject to potential inclusion in the ADS-B No-Services Aircraft List (NSAL). The NSAL prevents ATC use of ADS-B data transmitted by NPE aircraft via their 24-bit ICAO aircraft address (Mode S code). NPE aircraft on the NSAL do not meet the equipment performance requirements necessary to qualify for Traffic Information Service – Broadcast or ADS-R client services. Such aircraft are not in compliance with 14 CFR § 91.227.

2.2.2 Prior to placing NPE aircraft on the NSAL, the FAA provides written notification of relevant ADS-B equipment issues to the owner/operator at the address associated with the aircraft's registry, or when the registry information is not known, to the operator's civil aviation authority in an effort to coordinate NPE corrective action. In most instances, a forty-five day period is allowed from the date associated with the FAA notification letter to complete NPE corrective action. All NPE aircraft are subject to placement on the NSAL after the forty-five day period has elapsed and corrective action has not been completed. With good cause, an aircraft owner/operator can get an extension to the forty-five day period.

2.2.3 Operators of all aircraft equipped with ADS-B seeking to operate within U.S. airspace as described above are strongly encouraged to verify the performance of their equipment by requesting an FAA Public ADS-B Performance Report (PAPR) Request at: <https://adsbperformance.faa.gov/PAPRRequest.aspx>. The PAPR is a freely available method of determining whether ADS-B equipment is performing in accordance with 14 CFR § 91.227. Upon request, at the completion of any flight within FAA ADS-B coverage, the PAPR provides detailed analysis of an aircraft's ADS-B performance.

2.3 ADS-B Exemptions

2.3.1 The regulation establishing the U.S. ADS-B mandate was published in May 2010, providing almost ten years to ensure implementation prior to the January 2020 compliance date. As such, the FAA has found no good cause for granting exemptions from 14 CFR § 91.225; only authorized deviations for infrequent operations of non-scheduled operators have been approved as provided for in the regulation. For the same reason, no specific relief from 14 CFR § 91.225 has been granted during the COVID-19 pandemic.

2.3.2 There are many non-U.S. operators holding Exemption 12555 and the FAA has observed some confusion about the relief it provides. Exemption 12555 is **not** an exemption from the ADS-B Out equipage requirements of 14 CFR § 91.225. Rather, it is a time-limited grant of exemption from the Navigation Integrity Category (NIC) and Navigation Accuracy Category for Position (NACp) requirements specified in 14 CFR § 91.227(c)(1)(i) and (iii). Exemption 12555 is valid from January 1, 2020 through December 31, 2024 and is subject to certain conditions and limitations. It is intended for operators of aircraft with Global Positioning System receivers (position sources) that may not always meet the accuracy and integrity performance requirements of 14 CFR § 91.227.

2.3.3 In order to fully realize the benefit from investments made during the implementation of ADS-B, the FAA does not expect to continue accepting the operational risk associated with aircraft ADS-B equipment that fails to meet the performance requirements of 14 CFR § 91.227(c)(1)(i) and (iii) after Exemption 12555 expires. However, given the ongoing uncertainty in the aviation industry, there is a need to understand to what extent operators will be able to comply with planned upgrades prior to the expiration of Exemption 12555.

2.3.4 In September 2020, the FAA requested that the Performance-based operations Aviation Rulemaking Committee establish an Action Team composed of relevant air carrier and manufacturer stakeholders. The Committee proposed that the leaders of this Action Team be selected from each of these two communities. The details of the tasking and summary of the Action Team report are provided in a separate information paper.

2.4 **Current ADS-B Equipage**

2.4.1 Current observed ADS-B equipage continues to increase, but at a much slower rate than prior to January 1, 2020. As of August 1, 2021:

- Total: 171,930 (equipage was 17,508 in February 2016 when tracking began)
- U.S. Air Carriers –6,232 equipped (100% of active air carrier)
- U.S. General aviation – 122,078 equipped
- International Air Carriers – 2,709 equipped
- International General Aviation – 7,663 equipped
- Other (rotorcraft, etc.) – 33,248 equipped

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) discuss any relevant matter as appropriate
