MEMORANDUM OF AGREEMENT
BETWEEN THE
DEPARTMENT OF DEFENSE
AND THE
FEDERAL AVIATION ADMINISTRATION
DOCUMENTING DEPARTMENT OF DEFENSE AUTOMATIC DEPENDENT SURVEILLANCE - BROADCAST OUT EQUIPAGE & ACCOMMODATIONS

This is a Memorandum of Agreement (MOA) between the Federal Aviation Administration (FAA) and the Department of Defense (DoD) establishing necessary collaboration in order to equip DoD aircraft and to accommodate DoD aircraft in their national security and defense mission requirements after the Automatic Dependent Surveillance Broadcast - Out (ADS-B Out) Rule goes into effect. When referred to collectively, the FAA and DoD are referred to as the “Parties.”

Accommodation refers to FAA authorization of DoD aircraft that do not conform to 14 CFR §§ 91.225 or 91.227. Accommodation may or may not involve rulemaking procedures to address DoD operations.

1. BACKGROUND: Executive Order 13479 provides that it is the policy of the United States to establish and maintain a national air transportation system that meets the present and future civil aviation, homeland security, economic, environmental protection, and national defense needs of the United States, including through effective implementation of the Next Generation Air Transportation System (NextGen). Executive Order 13479 also provides that the Secretary of Defense shall assist the Secretary of Transportation by collaborating, as appropriate, and verifying that the NextGen meets U.S. national defense needs, consistent with the policies and plans established under applicable Presidential guidance.

In May 2010, the FAA published the “ADS-B Out” final rule that mandates equipage with ADS-B Out avionics for all aircraft operating in Classes A, B, and C airspace, as well as certain other specified classes of airspace, within the National Airspace System (NAS) beginning January 1, 2020. Section 91.227 defines ADS-B Out as a function of an aircraft’s onboard avionics that periodically broadcasts that aircraft’s state vector (3-dimensional position and 3-dimensional velocity) and other information required by the rule. Additionally, the rule mandates that all aircraft equipped with ADS-B Out must

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broadcast ADS-B Out messages regardless of the airspace in which they operate.\textsuperscript{3} During the notice of proposed rulemaking comment period, DoD submitted official comments addressing the safety, efficiency, security, and affordability of the proposal.\textsuperscript{4} No special accommodations were included in the final rule text that specifically addressed military aircraft not equipped with ADS-B Out. In the preamble to the final rule, however, the FAA stated that it would collaborate with DoD to develop memoranda of agreement to accommodate national defense mission requirements while supporting the needs of all other NAS users.\textsuperscript{5}

To ensure that the national air transportation system meets U.S. national defense needs, the FAA will partner with DoD to seek to minimize or, where possible, eliminate negative impact on DoD operations due to lack of ADS-B Out equipage while ensuring safety.\textsuperscript{6} Similarly, in order to support the needs of all other NAS users, DoD will seek to equip its fleet according to 14 CFR §§ 91.225 and 91.227 consistent with available resources, related avionics upgrade schedules, budget plans and aircraft lifecycles, where practicable. This MOA documents FAA commitment during the timeframe of the agreement to accommodate DoD aircraft which will not be equipped by 1 January 2020 (including those aircraft which may never be equipped due to Operational Security (OPSEC) risks or due to imminent retirement) and those which will be equipped but which may not continuously transmit ADS-B data. The FAA will review and assess the methods of accommodation provided under the terms of this agreement to address the changing operational environment and ensure the continuing safety of the NAS. Parties note that accommodation of DoD aircraft that are not equipped with ADS-B Out or not transmitting ADS-B Out after January 1, 2025, may take a different form and therefore will require further discussions.

The FAA and DoD fully recognize that security and cybersecurity are rapidly growing and maturing challenges that affect aviation as U.S. critical infrastructure. Assessment, identification, and mitigation of cyber risks within the aviation ecosystem will be performed in partnership with the aviation stakeholder community, including operators, manufacturers, airport authorities, and other actors associated with any aspect of the interconnected infrastructure that comprises the aviation ecosystem. Many activities are underway through various forums outside the scope of this MOA.

In some cases, the cost, budget, and depot schedule constraints make it prohibitive for DoD to equip all DoD aircraft by the compliance date. Notwithstanding these potential constraints, DoD will seek to align ADS-B Out equipage with other program upgrades (e.g., Identification Friend or Foe – Mode 5 and Military Code (M-Code) receivers) in order to reduce overall costs. However, in some cases, DoD cannot delay other scheduled program upgrades, some of which affect full ADS-B Out equipage by the compliance date. Additionally, there are instances where DoD airframes are scheduled to

\textsuperscript{3} 14 CFR §91.225 (f).
\textsuperscript{5} 75 FR 30160, 30169 (May 28, 2010).
\textsuperscript{6} This includes foreign State aircraft supporting DoD contributions, training, exercises, security treaties, and agreements.
be retired soon after the compliance date, which would narrow the benefit window considerably and may not be best value to the public. Accordingly, both Parties recognize that accommodations to the rule will be necessary for non-equipped aircraft.

DoD has a mature equipage plan in place for its mobility/transport fleets and has begun equipping in advance of the rule compliance date. However, many other aircraft types (e.g., tactical aircraft) in the DoD fleet will be late to equip. Additionally, because both Parties recognize that, due to OPSEC risks to DoD activities by equipping certain DoD aircraft with ADS-B Out, these certain aircraft may not be equipped with ADS-B Out in accordance with the rule. It is also DoD’s intent to exclude certain aircraft, appropriately equipped with ADS-B Out, from transmitting ADS-B data continuously. The Parties are therefore working to identify solutions for accommodation. As an example, the Parties may address ADS-B Out requirements by amending current exemptions granted to DoD to operate “transponder-off,” under regulatory relief, in designated airspace areas.

The FAA’s 2012 Joint Resources Council baseline of the ADS-B Program contains a strategy for removal of secondary surveillance radar (SSR) and the sustainment of an ADS-B Out backup strategy. The detailed plan for SSR removal is under development and will be finalized in the 2018-2019 timeframe. The FAA recognizes DoD as a partner in providing NAS surveillance services and agrees to coordinate with DoD to seek opportunities to align investments to maintain an operational network of SSRs to ensure continuity of services that are essential to long-term U.S. national security and defense, and the U.S. economy in order to provide best value to the public.

The Chief Operating Officer of the FAA’s Air Traffic Organization and the Executive Director of DoD’s Policy Board on Federal Aviation (DoD PBFA) established formal ADS-B Out workgroups to address FAA-DoD integration on the topics of ground infrastructure, avionics, and security. Through these workgroups, DoD received ADS-B Out data feeds for separation services at ten DoD facilities. The FAA baselined this provision into the ADS-B program and will continue to provide this capability, at no charge to DoD, until 2025. Additionally, the FAA established a conduit, through the NAS Defense Program, to provide ADS-B Out data to DoD, at no cost, for situational awareness and training needs.

The FAA is committed to working with DoD to assess opportunities to reduce costs by aligning multiple planned avionics upgrades, to identify innovative solutions to reduce equipage costs, and to align radar sustainment and removal plans with the DoD fleet equipage plan.

2. AUTHORITIES: The FAA enters into this MOA pursuant to the authority of Title 49, U.S. Code (U.S.C.) Section 106 (l) and (m). DoD enters into this MOA pursuant to statutory authority appearing in 10 U.S.C. §§ 113 and 133; Section 208 of P.L. 112-95; DoD Directive 5030.19; and DoD Instruction 4000.19.

3. PURPOSE: This MOA establishes responsibilities between the Parties that address DoD national security and defense mission requirements within the NAS after December 31, 2019, in view of the requirements for ADS-B Out in accordance with 14 CFR §§
91.225 and 91.227. This MOA also acts as a governing framework for creation of or modification to existing agreements between the FAA and DoD regarding NAS operations, to the extent necessary to address ADS-B Out accommodations. The execution of this MOA does not remove the need for regulatory relief from these requirements when necessary.

4. **RESPONSIBILITIES OF THE PARTIES:**

4.1 This MOA documents FAA commitment to accommodate DoD aircraft which will not be equipped by 1 January 2020. FAA will:

4.1.1 Coordinate with DoD on all activities necessary under DoD responsibilities as listed in paragraphs 4.2.2 – 4.2.7.

4.1.2 Provide a holistic and uniform NAS-wide approach for mixed-equipped DoD operations and accommodation in the post-2020 environment via national procedural guidance to ensure that necessary procedures and phraseology for use by personnel providing air traffic control services are in place to accommodate DoD aircraft that are not broadcasting ADS-B Out (either equipped or non-equipped).

**Deliverable:** The FAA will publish, by December 2018, its National Procedural Guidance for its approach to accommodation of DoD needs – (Air Traffic Procedures [AJV-8], System Operations Security [AJR-2])

4.1.3 Establish or modify existing FAA-DoD agreements as necessary regarding NAS operations to implement 4.1.2.

**Deliverable:** The FAA will provide guidance for the planned update of agreements by August 2019 – (Air Traffic Procedures [AJV-8], System Operations Security [AJR-2], Air Traffic Services [AJT-2])

4.1.4 Coordinate SSR divestiture plans through the DoD Policy Board on Federal Aviation (PBFA) to identify solutions that ensure the accommodation of DoD aircraft that will not be equipped with ADS-B Out, and the DoD aircraft that will be equipped with ADS-B Out, but may not transmit ADS-B data.

**Deliverable:** Consistent with the coordination identified above, the FAA will provide a proposed radar divestiture plan, updated on a semi-annual basis (Air Traffic Systems [AJM-2])

4.1.5 Continue to collaborate with DoD to identify OPSEC risks and to pursue options for DoD aircraft to maintain OPSEC by identifying and implementing options to provide relief from the requirement that all ADS-B-Out-equipped DoD aircraft operate at all times transmitting ADS-B data.
Deliverable: The FAA will identify to DoD its preferred option in this regard along with its proposed approach for DoD accommodation by June 2018 – (Airspace Services [AJV-1], System Operations Security [AJR-2])

4.1.6 Continue to collaborate with DoD in order to accelerate ADS-B Out equipage by assisting DoD to assess ADS-B Out equipage alternatives or find more cost-effective solutions (e.g., examination of alternatives that are not integrated with existing avionics on DoD aircraft). This would also include some ADS-B Out equipped DoD aircraft that may not meet required performance standards in all cases or at all times.

4.1.7 Ensure that facilities that control traffic from either DoD airfields or civil airfields with a DoD presence coordinate with DoD organizations to ensure that negative effects on local departure, enroute, and arrival procedures are safely minimized or, where possible, eliminated in order for the accommodation of DoD aircraft that are not broadcasting ADS-B Out (either equipped or non-equipped).

4.1.8 Ensure foreign State aircraft that are conducting operations in U.S. airspace, pursuant to an agreement or arrangement with DoD, are afforded the same ADS-B accommodation afforded DoD, consistent with the provisions outlined in this MOA.7

4.1.9 Provide DoD with guidance supporting the development of aircrew procedures for DoD aircraft that are not broadcasting ADS-B Out (either equipped or non-equipped), including, but not limited to operational elements listed in paragraphs 4.2.3.1 – 4.2.3.4.

Deliverable: The FAA will publish its National Procedural Guidance for its approach to accommodation of DoD needs by December 2018 – (Air Traffic Procedures [AJV-8], System Operations Security [AJR-2])

4.1.10 For those activities performed as FAA responsibilities, the FAA is responsible for all costs of its personnel, including pay and benefits, support, and travel, as well as for the supervision and management of its personnel.

4.2. DoD acknowledges the ADS-B Out requirements set forth in §§ 91.225 and 91.227. DoD will:

4.2.1 Coordinate with the FAA on all activities necessary pursuant to FAA responsibilities as listed in paragraphs 4.1.2 – 4.1.10.

4.2.2 Consistent with the accommodation described in paragraph 4.1, equip DoD aircraft with ADS-B Out, at the earliest dates practicable:

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7 This does not relieve foreign State aircraft from following current State Department requirements for operations to/from or transiting the United States (i.e., applying and obtaining Diplomatic Flight Clearance (DFC)).
4.2.2.1 Provide a list of airframes that DoD will not equip with ADS-B Out due to imminent retirement or mission requirements that do not align with the broadcast nature of ADS-B Out (e.g., when there are OPSEC risks);

4.2.2.2 Provide the FAA with annual updates, including any adjustments to equipage schedules;

4.2.2.3 Provide timelines for those aircraft, the equipage of which may extend beyond originally projected dates (adjustments and impacts will be assessed via currently chartered FAA/DoD ADS-B Out technical workgroups); and

4.2.2.4 Identify and assess in conjunction with the FAA alternatives to find more cost-effective solutions and conduct activities necessary for implementation.⁸

**Deliverable: DoD will deliver to the FAA an annual update to the equipage schedule**

4.2.3 Ensure that aircrews are trained and proper procedures exist for DoD aircraft that are not broadcasting ADS-B Out (either equipped or non-equipped), including, but not limited to:

4.2.3.1 Limitations to operations;
4.2.3.2 Pre-flight planning;
4.2.3.3 Flight plan filing; and
4.2.3.4 Notifications to ATC facilities.

**Deliverable: DoD will develop aircrew training by August 2019**

4.2.4 Coordinate with the FAA during SSR removal planning on potential opportunities for sustainment of targeted radars. Opportunities could include coordinated use of DoD radar feeds by FAA facilities to support ATC operations, as necessary, and development of associated outage coordination procedures. Identify to the FAA the radar feeds that DoD uses for ATC, Range Control, and North American Aerospace Defense Command (NORAD) surveillance/identification purposes, as well as the civil airports where DoD aircraft require ATC surveillance sufficient to support IFR operations. Assess if DoD facilities require ADS-B Out data feeds to support civil aircraft that are ADS-B Out equipped.

**Deliverable: DoD will (1) identify to the FAA all radar feeds used by DoD and (2) identify to the FAA civil airports where DoD aircraft conduct IFR operations by June 2018**

4.2.5 Continue to work with the FAA to identify OPSEC risks for DoD ADS-B-Out-equipped aircraft and correlate those risks to additional actions that may be necessary to mitigate OPSEC risks associated with ADS-B-Out-equipage.

4.2.6 Work with the FAA and the Department of State to ensure that personnel operating foreign State aircraft in U.S. airspace, under an agreement or arrangement with

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DoD, are informed of equipage and performance requirements in §91.225 and §91.227 and are appropriately trained to operate according to the provisions outlined in this MOA.

4.2.7 For those activities performed as DoD responsibilities, DoD is responsible for all costs of its personnel, including pay and benefits, support, and travel, as well as for the supervision and management of its personnel.

5. **GENERAL PROVISIONS:**

5.1 DoD will comply with the requirements of the DoD Information Security Program, (see DoD Instruction 5200.01), and the FAA will comply with the requirements of the FAA Information Security and Privacy Program & Policy, FAA Order 1370.121. The Parties will obtain the appropriate security reviews prior to the release of information to the public. Releases to the public may include, but are not limited to, news releases and public reports. All reports, work papers, background papers, graphic designs, and desktop publishing files generated by and for this effort will be considered property of the U.S. Government. DoD will comply with the requirements of the DoD Records Management Program, (see DoD Instruction 5015.02), and the FAA will comply with the requirements of the FAA Records Management Program, FAA Order 1350.14B.

5.2 **POINTS OF CONTACT:** The following points of contact (POCs) will be used by the Parties to communicate in the implementation of this MOA. Each Party may change its point of contact upon reasonable notice to the other Party.

5.2.1 For the FAA—

5.2.1.1 Teri Bristol, Chief Operating Office, Air Traffic Organization, AJO-0 (202-267-1240)
5.2.1.2 David Gray, Program Manager, Surveillance and Broadcast Services, AJM-232 (202-267-0513)

5.2.2 For DoD—

5.2.2.1 Rowayne Schatz, SES, Department of the Air Force Executive Director, DoD Policy Board on Federal Aviation, AF/AA3, Associate DCS, Operations (703-697-9783)
5.2.2.2 Allan Storm, Deputy, Civil-Military Integration Division, AF/A3OJ, NextGen Lead Service Office (703-695-2986)

5.3 **CORRESPONDENCE:** All correspondence to be sent and notices to be given pursuant to this MOA will be addressed, if to the FAA, to—

5.3.1 FAA National Headquarters
600 Independence Ave SW
Wilbur Wright Bldg (FOB10B)
AJM-232
and, if to DoD to—

5.3.2 Headquarters Air Force  
1480 Air Force Pentagon  
AF/A3OJ – Room 4D755  
Washington DC 20330-1480

or as may from time to time otherwise be directed by the Parties.

5.4 REVIEW OF MOA: This MOA will be reviewed upon request by either Party to facilitate coordination on any necessary modifications.

5.5 MODIFICATION OF MOA: This MOA may only be modified by the written agreement of the Parties, duly signed by their authorized representatives. No oral statement by any person will be interpreted as modifying or otherwise affecting the terms of this MOA.

5.6 DISPUTES: Any disputes relating to this MOA will, subject to any applicable law, Executive Order, Directive, or Instruction, be resolved by consultation between the Parties.

5.7 TERMINATION OF AGREEMENT: This MOA may be terminated by either Party by giving at least 30 days written notice to the other Party. The MOA may also be terminated at any time upon the mutual written consent of the Parties.

5.8 TRANSFERABILITY: This MOA is not transferable except with the written consent of the Parties.

5.9 APPLICABILITY. This MOA applies only to aircraft owned and operated by DoD\(^9\), or DoD-contracted operations that have been given public aircraft status by DoD, and civil aircraft operating on behalf of DoD which require accommodation for national security and defense mission requirements.

5.10 ENTIRE AGREEMENT: It is expressly understood and agreed that this MOA embodies the entire agreement between the Parties regarding the accommodation of DoD aircraft in their national security and defense mission requirements with regard to the ADS-B Out requirements.

5.11 EFFECTIVE DATE: This MOA takes effect beginning on the day after the day the last Party signs.

\(^9\) This includes foreign State aircraft supporting DoD contributions, training, exercises, security treaties, and agreements.
5.12 EXPIRATION DATE: This MOA expires on January 1, 2025, unless terminated earlier in accordance with paragraph 5.7 above.

6. FINANCIAL DETAILS:

6.1 AVAILABILITY OF FUNDS: This MOA does not require either Party to fund efforts by the other or in any fashion document the obligation of funds by or between the Parties. Any obligation of funds in support of this MOA by DoD will be accomplished by a separate agreement pursuant to this overarching MOA and will meet all legal and regulatory requirements for use and transfer of funds.

AGREED.

FOR

THE FEDERAL AVIATION ADMINISTRATION

[Signature]
Administrator
Federal Aviation Administration

DATE: JUL 26 2018

FOR

THE DEPARTMENT OF DEFENSE

[Signature]
Secretary of the Air Force

DATE: 17 JULY 2018