NOTICE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Air Traffic Organization Policy

N JO 7210.882

Effective Date:
July 11, 2015

Cancellation Date:
July 10, 2016

SUBJ: Unmanned Aircraft Operations in the National Airspace System (NAS)

1. Purpose of This Notice. This notice provides information and interim guidance on air traffic policies and prescribes procedures for the planning, coordination, and services involving the operation of unmanned aircraft systems (UAS) in the NAS. These policies and procedures reflect current written directives and regulations and do not reflect any major changes. The intent of this notice is to consolidate all current directives and regulations into one document to assist with understanding UAS operations in the NAS.

2. Audience. This notice applies to the following Air Traffic Organization (ATO) service units: Air Traffic Services, Mission Support, and System Operations; and all associated air traffic control facilities, the David J. Hurley Air Traffic Control System Command Center (ATCSCC); and the Flight Standards Service's divisions at Federal Aviation Administration (FAA) Washington headquarters.

3. Where Can I Find This Notice? This notice is available on the MyFAA employee Web site at https://employees.faa.gov/tools_resources/orders_notices/ and on the air traffic publications Web site at http://www.faa.gov/air_traffic/publications.

4. Explanation of Changes. This notice is a continuation of N JO 7210.873, Unmanned Aircraft Operations in the National Airspace System (NAS), effective July 10, 2013. There have been no technical changes to the content, a full revision of this Notice shall be issued no later than Oct 31,2015 to update technical, editorial and new processes in place concerning UAS operations in the NAS.

5. Action. Unmanned aircraft (UA) activities must be provided services following the policy, criteria, and procedures in this notice and other air traffic publications. When a conflict arises, supervisors must request a clarification from their respective service unit. Procedures/minima, applied jointly or otherwise, require the cooperation or concurrence of more than one facility/organization and must be documented in a letter of agreement (LOA). LOAs only supplement this notice. Any minima they specify must not be less than that specified in this notice unless appropriate military authority has authorized application of reduced separation between military aircraft. Additionally, the separation minima must not be less than authorized in the certificate of waiver or authorization (COA).

6. Certificate of Waiver or Authorization (COA). This section prescribes the policies, guidance, and procedures about COA applications for UAS operations.

a. Application Process. The ATO issues a COA to a public operator for a specific UA's activity. After a complete application is submitted, the FAA conducts a comprehensive operational and technical review. If necessary, provisions or limitations may be imposed as part of the approval to ensure the UA operates safely with other users.

b. Application Submission. Electronic applications should be submitted following the provisions provided on the following Web site:

http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/systemops/aaim/organizations/uas/.

c. Application Information. The FAA must obtain enough information to assess the proposed operations following current standards and procedures. Because of the dynamic changes in the development of UA technologies, the applicant is responsible for adequately describing the proposed operations so an appropriate safety assessment can be conducted by the FAA. For this purpose, the following information may be required in a COA application.

(1) Organizational and operational points of contact.

(2) Operational description (for example, method of navigation, see-and-avoid).

(3) Systems description (for example, airframe, control station, communications).

(4) Airframe performance characteristics.

(5) Airworthiness.

(6) Contingency procedures (for example, lost command/control link, lost communications, and emergency).

(7) Avionics equipment.

(8) Lighting.

(9) Frequency spectrum analysis.

(10) Method of air traffic control (ATC) communications.

(11) Surveillance capability (for example, electronic and visual).

(12) System monitoring/recording capability.

(13) Flightcrew qualifications.

(14) Flight operations description (flight plan).

(15) Special circumstances.

(16) Reports of past incidents or accidents (for those applicants who have previously held a COA).

d. Emergency and Urgent Applications. The FAA must ensure procedures are available to accommodate real-time applications that will directly support emergency and law enforcement-type operations. UA operations that reduce safety must not be approved in any case.

(1) An emergency UAS COA may be considered when all of the following conditions apply:

(a) There is a situation of such distress or urgency that the possibility of loss of life is great.

(b) Manned flight is not possible or practicable due to a hazard or the operation cannot be conducted safely with manned flight, or manned assets are not available.

(c) The proposed proponent and UAS are operating under a current approved COA.

NOTE-
Requests for UAS COAs that fall outside of these perimeters must be processed through the normal online COA application process.

(2) Emergency UAS COAs will not be considered for:

(a) Demonstration flights.

(b) Flights to test capabilities.

(c) Training.

(d) Flights in Class B airspace.

(e) Flights over populated areas.

7. Operations.

a. Types and Authority. Current FAA policy for UAS operations is that no person may operate a UAS in the NAS without specific authority.

(1) Public.

(a) FAA policy restricts COAs to public aircraft operations as defined in title 14, Code of Federal Regulations (CFR), Part 1, Definitions & Abbreviations.

(b) For UAS operating as public aircraft, the authority is the COA.

(2) Civil.

(a) Civil applicants must apply for a Special Airworthiness Certificate–Experimental Category.

(b) For UAS operating as civil aircraft, the authority is special airworthiness certificates.

(3) Hobbyist.

(a) Hobbyists should follow the guidance contained in Advisory Circular (AC) 91-57.

(b) For model aircraft, the authority is AC 91-57.

NOTE-
The FAA recognizes that people and companies other than modelers might be flying UAS with the mistaken understanding they are legally operating under the authority of AC 91–57. AC 91–57 only applies to modelers and specifically excludes its use by persons or companies for business purposes.

b. Operations. UAS operations should normally be conducted in the following areas:

(1) Within active restricted areas.

(2) Within active warning areas.

(3) Within active prohibited areas, when authorized.

NOTE-
1. *Procedures for nonjoint-use DOD airfield operations will be specified by the DOD and listed in the COA.*

2. *For those operations that cannot be conducted for private recreational use or cannot be contained wholly within active restricted areas or warning areas, the UAS operations must be conducted following procedures outlined in the issued COA or Special Airworthiness Certificate-Experimental Category.*

c. General Procedures. UAS operating outside of restricted areas and warning areas must comply with the following:

(1) At least 60 business days before the proposed start of UAS operations, the proponent must submit an application for a COA, using the online application system at:

http://oeusers.faa.gov/oeaaa/Welcome.jsp.

NOTE-
1. *Approvals for UAS operations require the proponent to provide the UAS with a method that provides an equivalent level of safety comparable to see-and-avoid requirements for manned aircraft. Methods to consider include, but are not limited to, radar observations, forward- or side-looking cameras, electronic detection systems, visual observation from one or more ground sites, monitoring by patrol or chase aircraft, or a combination thereof.*

2. *Risk mitigations that would depend on the establishment of new types and categories of airspace are not considered acceptable. The NAS is established and configured through a rigorous regulatory process. Risk mitigations that result in the prohibition of the public's right to transit airspace will not be considered.*

(2) COAs must have a termination date not more than 2 years from the effective date unless renewed or revalidated. The COA expires on the stated termination date unless sooner surrendered by the proponent or revoked by the issuing agency.

(3) UAs may be equipped with standard aircraft anticollision or navigation lights following criteria in 14 CFR, section 23.1401. If installed, these lights must be operating during all phases of flight to enhance flight safety.

(4) UAs required to be equipped with an altitude encoding transponder must meet the specifications of 14 CFR, section 91.215. If equipped, the transponder must be set to operate on a code assigned by ATC. Unless the use of a specific, special-use code is authorized, the UAS pilot-in-command must have the capability to reset the transponder code while the UA is airborne. If the transponder becomes inoperative, the mission may be canceled and/or recalled at the discretion of the affected service area or air traffic facility.

(5) The proponent and/or its representatives must be responsible at all times for collision avoidance maneuvers with nonparticipating aviation activities and the safety of persons or property on the surface.

(6) The proponent and/or its representatives are responsible for strict compliance with the Incident/Accident and Normal Reporting Provisions contained in the Special Provisions section of each COA. Further guidance can be found in FAA Order JO 7210.3, Facility Management, Chapter 18, Waivers, Authorizations, and Exemptions. The Certificate of Waiver or Authorization, FAA Form 7711-1, provides additional clarity regarding the strict observance of the terms and conditions set forth in the COA.

8. Procedures. UAS operations may occur within Class A, C, D, E, and/or G airspace. Current FAA policy does not allow UAS operations in Class B airspace; however, the FAA will consider exceptional circumstances. Nighttime operations, for all classes of terminal airspace, may be authorized if the proponent requests approval and a safety analysis for such operation is approved by the FAA.

a. Terminal.

(1) Class C airspace is to be used on a case-by-case basis only. When operating in Class C airspace, UA operators must comply with the following FAA requirements:

(a) Strict compliance with the provisions of the COA is required.

(b) Lost link procedures must be clearly defined. Lost link procedures will be pre-coordinated with the appropriate ATC facility and included in the COA. At a minimum, they will include: lost link route of flight, transponder use, lost link orbit points, communications procedures, and pre-planned flight termination points in the event recovery of the UAS is not feasible.

(c) In the event of lost link, the UA must squawk code 7600.

(d) Direct two-way radio communications with ATC and the UA pilot is required at all times.

(e) Compliance with ATC instructions for arrivals, departures, operations within, and through flight is required.

(f) Pilots/observers must have an appropriate FAA medical certificate or military/agency equivalent.

NOTE-
Pilots may not perform concurrent observer duties.

(g) Pilots must not conduct concurrent or simultaneous UAS operations in the presence of manned aircraft unless approved segregation procedures are written in a letter of agreement with the affected ATC facility and included in the COA.

(h) Use of visual separation by the UA pilot is not authorized.

(i) UA pilots and observers must be responsible for only one UA at a time.

(j) UA operations must not impede, delay, or divert manned operations (for example, excessive departure/arrival delays).

(k) UA operations must not be conducted over populated areas.

(l) Safety alerts will be issued in accordance with FAA Order JO 7110.65, paragraph 2-1-6.

(m) All operations must be conducted under visual meteorological conditions (VMC).

(n) Special VFR procedures are not authorized.

(o) A certified operating mode C/S transponder must be used.

(p) Compliance with mitigations identified in the FAA-approved safety analysis.

(q) A NOTAM issued by the proponent.

(2) UA operators using Class D airspace or operating with a control tower in Class E or G airspace must comply with the following FAA requirements:

NOTE-
All categories of Department of Defense (DOD) UAS operations that have a DOD Memorandum of Agreement (MOA) Class D COA will be conducted wholly within Class D airspace that has an associated DOD-controlled, non-joint-use airfield and must follow uniform air traffic control procedures at all locations. These procedures were developed in coordination with the FAA before implementation and a COA issued to the appropriate DOD air traffic facility.

(a) Strict compliance with the provisions of the COA is required.

(b) Lost link procedures must be clearly defined. Lost link procedures will be pre-coordinated with the appropriate ATC facility and included in the COA. At a minimum, they will

include: lost link route of flight, transponder use, lost link orbit points, communications procedures, and pre-planned flight termination points in the event recovery of the UAS is not feasible.

(c) In the event of lost link, the UA must squawk code 7600, if transponder equipped.

(d) Direct two-way radio communications with ATC and the UA pilot is required at all times.

(e) Compliance with all ATC instructions is required.

(f) Dedicated ground/chase aircraft observers are required for all UA flights.

NOTE-
Pilot may not perform concurrent observer duties.

(g) Pilots/observers must have an appropriate FAA medical certificate or military/agency equivalent.

(h) Pilots must not conduct concurrent or simultaneous UAS operations in the presence of manned aircraft unless approved segregation procedures are written in a Letter of Agreement with the affected ATC facility and included in the COA.

(i) Use of visual separation by the UA pilot is not authorized.

(j) UA pilots and observers must be responsible for only one UA at a time.

(k) UA operations must not impede, delay, or divert manned operations (for example, excessive departure/arrival delays).

(l) UA operations must not be conducted over populated areas.

(m) All UA operations must be conducted during daylight hours unless authorized in the COA.

(n) All UA operations must be conducted under VMC.

(o) Special VFR procedures are not authorized.

(p) A NOTAM issued by the proponent.

(3) UA operators using Class E and G airspace must comply with the following FAA requirements:

NOTE-
DOD UAS that have been authorized by the Class G section of the DOD/FAA MOA must remain within clear visual range of the pilot or a certified observer in ready contact with the pilot to ensure separation from other aircraft.

(a) Strict compliance with the provisions of the COA or DOD MOA is required.

(b) Lost link procedures must be clearly defined. Lost link procedures will be pre-coordinated with the appropriate ATC facility and included in the COA. At a minimum, they will include: lost link route of flight, transponder use, lost link orbit points, communications procedures, and pre-planned flight termination points in the event recovery of the UAS is not feasible.

(c) In the event of lost link, the UA must squawk code 7600, if transponder equipped.

(d) Maintain direct two-way radio communication with ATC, when required in the COA.

(e) Compliance with all ATC instructions, if issued, is required.

(f) Dedicated ground/chase aircraft observers are required for all UA flights.

NOTE-
Pilot may not perform concurrent observer duties.

(g) Pilots/observers must have an appropriate FAA medical certificate or military/agency equivalent.

(h) Pilots must not conduct concurrent or simultaneous UAS operations in the presence of manned aircraft unless approved segregation procedures are written in a Letter of Agreement with the affected ATC facility and included in the COA.

(i) In the airport traffic pattern, the UA pilot is not authorized to use visual separation.

(j) UA pilots and observers must be responsible for only one UA at a time.

(k) UA operations must not have an adverse impact on manned operations (for example, excessive departure/arrival delays).

(l) UA operations must not be conducted over populated areas.

(m) All UA operations must be conducted during daylight hours unless authorized in the COA.

(n) Safety alerts will be issued in accordance with FAA Order JO 7110.65, paragraph 2-1-6.

(o) Additional services will be provided as workload and other conditions permit.

(p) All operations must be conducted in VMC.

(q) A NOTAM issued by the proponent.

b. En Route/Terminal Radar Approach Control (TRACON). UA flights in en route and TRACON airspace must be divided into two segments:

(1) Flight below flight level (FL) 180, including Class E and G airspace without a control tower, must comply with the following FAA regulations:

(a) Strict compliance with the provisions of the COA is required.

(b) Lost link procedures must be clearly defined.

(c) In the event of lost link, the UA must squawk code 7600, if transponder equipped.

(d) Direct two-way communications with the UA pilot is required at all times, unless not required in the COA.

(e) Compliance with all ATC instructions is required.

(f) Observers are required. Depending on the altitude of the UA operation, ground observers may be used.

(g) Chase aircraft acting as observers may be required.

(h) A dedicated chase pilot is required when specified.

(i) A dedicated observer is required when specified.

NOTE-
Pilot may not perform concurrent observer duties.

(j) Pilots/observers must have an appropriate FAA medical certificate or military/agency equivalent.

(k) In the airport traffic pattern, the UA pilot is not authorized to use visual separation, accept a clearance for a visual approach, or accept clearance to follow another aircraft.

(l) UA operations must not be conducted over populated areas.

(m) If installed, lights must be operational; night operations must have operational lights including anticollision and navigation lights, at a minimum.

(n) Safety alerts will be issued in accordance with FAA Order JO 7110.65, paragraph 2-1-6.

(o) All operations must be conducted in VMC.

(p) Operations may be conducted on an IFR flight plan or VFR.

(q) If operating IFR, a flight plan must be filed and followed once clearance is received.

(r) An operating mode C/S transponder must be used unless exempted by the COA.

(s) The COA may limit the number of UAs operating in a specific area.

(t) Operations in military operating areas and restricted areas require approval from the using agency.

(u) A NOTAM issued by the proponent.

(2) Flight above 18,000 feet MSL to FL 600, Class A airspace:

(a) The UA pilot must have direct two-way communications with each air traffic controller working the aircraft.

(b) Pilots/observers must have an appropriate FAA medical certificate or military/agency equivalent.

(c) Standard IFR separation will be applied unless noted in the COA.

(d) UA operations must not impede, delay, or divert manned operations.

(e) UA operations must not be conducted over populated areas.

(f) Safety alerts will be issued in accordance with FAA Order JO 7110.65, paragraph 2-1-6.

(g) All operations will be conducted on an IFR flight plan.

(h) An operating mode C/S transponder must be used.

(i) The UA should operate below or above reduced vertical separation minimum (RVSM) altitudes unless it is RVSM-certified. Requests for military non-RVSM-equipped UA in RVSM airspace remains at the discretion of each air traffic controller.

(j) Descent below 18,000 feet MSL in Class D, E, and/or G airspace without visual observers is not authorized.

(k) The pilot must be qualified for manned IFR flight.

(l) Whenever possible, the UA must enter Class A airspace from active restricted airspace. If restricted airspace is not available, a chase aircraft with a dedicated observer must be used until the UA has reached Class A airspace.

(m) Lost link procedures must be clearly defined. Lost link procedures will be pre-coordinated with the appropriate ATC facility and included in the COA. At a minimum, they will include: lost link route of flight, transponder use, lost link orbit points, communications procedures, and pre-planned flight termination points in the event recovery of the UAS is not feasible.

NOTE-
In all classes of airspace, a COA is required for UA flights outside of active restricted or warning areas. The COA will contain additional requirements and compliance is mandatory.

c. Military Operations Interface Offices.

If military operations or facilities are involved, prior coordination by the following appropriate headquarters is required for subsequent interface with FAA.

Military Operations Interface Offices

Branch	Address
U.S. Navy / U.S. Marine Corps	Department of the Navy Chief of Naval Operations N980A 2000 Navy Pentagon Washington, DC 20350-2000
U.S. Air Force	HQ USAF/A30-B 1480 US Air Force Pentagon Washington, DC 20330-1480
U.S. Army	Headquarters USAASA 9325 Gunston Road, Suite N319 Fort Belvoir, VA 22060-5582

9. Distribution. This notice is distributed to the following ATO service units: En Route and Oceanic, Terminal, Mission Support, and System Operations; the ATO Office of Safety; the David J. Hurley ATCSCC; and the Flight Standards Service's divisions at FAA Washington headquarters and international field offices.

10. Background. During the past few years, UA technology has been developing rapidly, driving a profound increase in requested operations in the NAS. Traditionally, UA operations have been conducted by the DOD or other Government agencies within restricted and warning areas. In recent years, the combined increase in requests by Government agencies has tripled, and forecasts suggest the increase will continue for the next four years. This notice incorporates information from other publications and serves as a compilation of air traffic topics relating to unmanned aircraft. In many cases, the information contained in this notice is complemented by guidance and directives from the Unmanned Aircraft Program Office under Aviation Safety and other regulations.

11. Authority to Change this Notice. The contents of this notice will be periodically reviewed and updated as required. Exceptional or unusual requirements may dictate procedural deviations or supplementary procedures to this notice. If there are suggestions for revision or any procedural deviation that alters the level, quality, or degree of service, obtain approval from the Vice President, Mission Support Services, Attention: Airspace Services.

12. Definitions.

a. Airworthiness – the condition in which the UAS conforms to its type certification (or military equivalent) and is in condition for safe operation.

b. Altitude –

(1) Mean sea level, unless otherwise specified.

(2) Flight level when followed by "FL."

(3) Above ground level when followed by "AGL."

c. ATC Communications – the voice or data relay of instructions or information between the UAS pilot and the air traffic controller and other NAS users, normally conducted by radio.

d. Autonomous – not controlled by others or by outside forces; independent judgment.

e. Autonomy – the quality of being autonomous; self-determination.

f. Catastrophic – the loss of the UA, other aircraft and/or loss of life.

g. Certificate of Waiver or Authorization (COA) – an FAA grant for a specific UA operation.

h. Civil Aircraft – means aircraft other than public aircraft.

i. Command/Control Link – the systems supporting the exchange of information between the ground control station and the airframe of the flight control systems.

j. Communication Link – the systems supporting the communication between the pilot and ATC, other aircraft, observers, or NAS users.

k. Direct Visual Control – the means by which the UA is controlled and the pilot/observer exercises see-and-avoid responsibilities.

l. Equivalent Level of Safety – an evaluation of a system and/or operation to determine the acceptable risk to people and property.

m. Ground Control Station – the location and equipment used by a pilot.

n. Hobby – model aircraft used for sport and recreation only.

o. Latency – the time incurred between two particular interfaces (for example, data link/communications).

p. Lost Link – loss of command and control link between control station and aircraft. There are two types of link.

(1) Up link – transmits command instructions to the aircraft, and

(2) Down link – transmits the status of the aircraft and provides situational awareness to the pilot.

q. Observer – ground-based personnel or observers within a chase aircraft.

r. Proponent – the person or organization responsible for the COA and operation of the UA.

s. Public Aircraft – aircraft operations that are inherently governmental as defined in 14 CFR, Part 1, Definitions and Abbreviations, Section 1.1, General definitions.

t. Segregation – setting apart from other activities. Segregation is not synonymous with required ATC separation standards. Therefore, segregation does not prescribe or mandate criteria such as vertical, lateral, or longitudinal distances.

u. Unmanned Aircraft (UA) – an aircraft operated without the possibility of direct human intervention from within or on the aircraft.

v. Unmanned Aircraft System (UAS) – airframe, ground control station, command and control links, and crewmembers.

13. Word usage.

a. *May* (need not be followed by a verb) means a procedure is optional.

b. *Must* (followed by a verb or the use of an appropriate action verb in the imperative sense) means a procedure is mandatory.

c. *Should* (followed by a verb) means a procedure is recommended.

d. *Will* (followed by a verb) indicates futurity; not a requirement for application of a procedure.

e. Singular words include the plural and plural words include the singular.

14. Related Publications.

a. Title 14, Code of Federal Regulations, part 91, General Operating and Flight Rules

b. FAA Order JO 7110.65, Air Traffic Control

c. FAA Order JO 7210.3, Facility Operation and Administration

d. FAA Order JO 7610.4, Special Operations

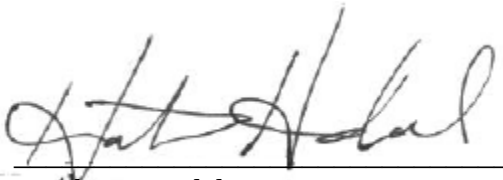
e. Obstruction/Evaluation/Airport/Airspace/Analysis (OEAAA), COA online

f. RTCA Special Committee SC-203 documents, Unmanned Aircraft Systems

g. Unmanned Aircraft Program Office Interim Operational Approval Guidance 08-01

h. FAA Air Traffic Organization Safety Management System Manual

i. FAA Order 1100.161, Air Traffic Safety Oversight



7-7-15

Heather Hemdal Date
Director, Air Traffic Standards and Procedures
Air Traffic Organization