Rules and Regulations

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 21

[Docket No. FAA–2019–1038]

Type Certification of Certain Unmanned Aircraft Systems

AGENCY: Federal Aviation Administration, DOT.

ACTION: Notice of policy.

SUMMARY: The Federal Aviation Administration announces its policy for the type certification of certain unmanned aircraft systems as a special class of aircraft.

DATES: This policy is effective September 18, 2020.

FOR FURTHER INFORMATION CONTACT: Andrew Guion, Programs and Procedures Section, AIR–694, Small Airplane Standards Branch, Policy and Innovation Division, Aircraft Certification Service, Federal Aviation Administration, 901 Locust St., Room 301, Kansas City, MO 64106, telephone (816) 329–4141, facsimile (816) 329–4090.

SUPPLEMENTARY INFORMATION:

Background

In 2012, Congress passed the FAA Modernization and Reform Act of 2012 (Pub. L. 112–95), Section 332 of Public Law 112–95 (codified at 49 U.S.C. 448001(11); 14 CFR 1.1. Unmanned aircraft include all classes of airplanes, rotorcraft, and powered-lift aircraft. Many UAS elements, while essential for safe operation, are part of the UAS system but are not permanent features of the unmanned aircraft. For example, instead of traditional landing gear with wheels and brakes, many UAS have a launch and recovery system. Additionally, because the pilot is not situated within the aircraft, unique configurations and applications of airframes, powerplants, fuels, and materials are possible and can result in flight characteristics different from those of conventional aircraft. These features specific to UAS are the very unique, novel, and/or unusual features the special class category was designed to accommodate.

A notice of policy and request for comments regarding the type certification of certain UAS was published in the Federal Register on February 13, 2018 (83 FR 4095). The public comment period for the notice closed on March 4, 2018. The notice proposed that some UAS with no occupants onboard may be type certificated as a special class of aircraft under § 21.17(b). The notice also proposed that for airplane and rotorcraft for which certification standards do not exist due to their unique, novel, or unusual design features.

Part 107 sets forth rules for the operation of small UAS 1 that do not require FAA airworthiness certification. Under part 107, operations may not occur over persons, 2 at night, generally above an altitude of 400 feet above ground level, or beyond visual line-of-sight, without a waiver issued by the FAA. UAS weighing 55 pounds or more and small UAS operating outside the limitations imposed by part 107 must receive airworthiness certification, a waiver, or an exemption as appropriate.

The FAA establishes airworthiness criteria and issues type certificates to ensure the safe operation of aircraft in accordance with 49 U.S.C. 44701(a) and 44704. Section 44704 requires the Administrator to find an aircraft, aircraft engine, propeller, or appliance is properly designed and manufactured, performs properly, and meets the regulations and minimum standards prescribed under section 44701(a) before issuing a type certificate for it. 14 CFR part 21 contains the FAA’s procedural requirements for airworthiness and type certification. When the FAA promulgated part 21 as part of its recodification to combine and streamline the Civil Air Regulations, it originally required applicants for a type certificate to show that the product met existing airworthiness standards (29 FR 14562, October 24, 1964). Existing airworthiness standards for aircraft and other products, issued as a separate part of the FAA’s regulations, are: Normal category airplanes under 14 CFR part 23, transport category airplanes under 14 CFR part 25, normal category rotorcraft under 14 CFR part 27, transport category rotorcraft under 14 CFR part 29, manned free balloons under 14 CFR part 31, aircraft engines under 14 CFR part 33, and propellers under 14 CFR part 35.

The FAA subsequently amended part 21 to add procedural requirements for the issuance of type certificates for special classes of aircraft (52 FR 8040, March 13, 1987). In the final rule (amendment 21–60), the FAA explained that it intended the special class category to include, in part, those aircraft that would be eligible for a standard airworthiness certificate but

1 See 14 CFR 107.3.
2 But see the FAA’s proposed amendment to part 107 to allow operations of small UAS over people in certain conditions (84 FR 3856, February 13, 2019).
entities may qualify as public aircraft, as defined by statute under 49 U.S.C. 40102(a)(41) and 40125. This policy for type certification of certain UAS only applies to civil aircraft. Aéro Systems West requested the FAA provide an accelerated process for small UAS with parachute safety systems installed. The commenter stated that controlling descent rate is the most important contributor to decreasing the probability of human injury during a UAS flight mishap. The FAA disagrees that a different process is appropriate for designs that incorporate a parachute system. While a parachute recovery system may mitigate some risks for a UAS, it is, by itself, unlikely to provide comprehensive mitigation of all potential risks such that an accelerated type certification process would be suitable.

Another individual questioned how the public could provide meaningful comments on the particularized airworthiness criteria for each applicant when the applicant’s proprietary operational and design data are normally withheld by the FAA. Under the process for certification as a special class of aircraft, the FAA will publish a notice for public comment on the particularized airworthiness criteria for each applicant. The commenter is correct that the FAA cannot disclose proprietary or confidential design data from manufacturers in these notices because such disclosure is prohibited by the Trade Secrets Act, 18 U.S.C. 1905 (1979). Instead, the FAA will provide a general description of the product, similar to what will be shown on the type certificate data sheet (TCDS). This is the same process the FAA has followed for the certification of special class aircraft such as gliders, airships, and very light airplanes.

The CNO and the CDA requested that the FAA clarify the effect of this policy on other rules. This request was specific to a statement in the proposed policy that the policy would apply only to the procedures for the type certification of UAS and is not intended to establish or impact other FAA rules (operations, pilot certification, or maintenance) regarding UAS. These commenters agreed that a type certificate will not provide a UAS operator with operational authority, but stated the FAA should clarify that the operating limitations in the TCDS will address, and therefore impact, issues such as operations, pilot certification, or maintenance. The FAA agrees that type certification of individual UAS may include operating limitations that impact operations, pilot certification, or maintenance. The purpose of the statement in the proposal was to advise the public that the FAA does not intend for this policy to overrule FAA regulations regarding UAS, particularly other FAA rules outside of part 21.

B. Applicability of This Policy

An individual and AOPA requested that the FAA exempt model aircraft from this policy, and fifteen individual commenters objected to the policy, contending that it would have a negative impact on hobbyists. The CNO and the CDA stated the policy should apply to all UAS regardless of weight. Several commenters requested that the FAA clarify the types of advanced operations, in addition to package delivery, affected by the policy and which UAS may require type certification. This policy addresses the process the FAA will use to establish airworthiness standards for type certification of some UAS with no occupants onboard, when a UAS manufacturer requests type certification. Whether a UAS requires a type certificate depends upon the weight of the UAS, the purpose of the operations, and the particular operating rules under which the UAS is expected to operate. This policy does not apply to UAS that are operated under the exception for limited recreational operations, as they are not required to meet airworthiness requirements or apply for type certification. Small UAS operating under part 107 do not require a type certificate. UAS weighing 55 pounds or more and small UAS operating under the requirements of 14 C.F.R. parts 91 or 135 require either a type certificate, a waiver, an exemption, or a special airworthiness certificate, as appropriate. Package delivery, for example, and other complex operations such as agricultural, inspection, monitoring, infrastructure surveillance, pseudo-satellites, or those involving carriage of other property for compensation or hire may be affected by this policy.

One commenter requested the policy not apply to UAS carrying occupants, as logistics, when appropriate, the FAA may still issue type certificates under § 21.17(a).

Discussion of Comments

The FAA received 66 comments. The majority of the commenters were individual UAS operators. The remaining commenters included UAS manufacturers, the Choctaw Nation of Oklahoma (CNO), the People’s Republic of China (PRC), and organizations such as the Aerospace Industries Association (AIA), the Aircraft Owners and Pilots Association (AOPA), Airlines for America (A4A), the Air Line Pilots Association (ALPA), the Association for Unmanned Vehicle Systems International (AUVSI), the Commercial Drone Alliance (CDA), the National Agricultural Aviation Association (NAAA), SAE International (SAE), and the Small UAV Coalition. The following summarizes the comments received and the FAA’s response.

A. Certification Process

An anonymous commenter requested the FAA publish a timeline for the certification process. FAA Order 8110.4C, Type Certification, dated March 28, 2007, contains procedures and policy for the type certification of products. This order describes the FAA and applicant responsibilities in establishing a project schedule. The certification timeline for each project will vary significantly depending on the project details, scope, and complexity. Due to these many variables, the FAA is unable to publish a timeline specific to the type certification of UAS that would be widely applicable.

An individual requested that the FAA establish a less restrictive process for UAS type certification for first responders and emergency management operators for State agencies and subdivisions. The commenter suggested that because the primary job of emergency responders is public safety, the type certification process was burdensome and unwarranted. Certain FAA civil certification and safety oversight regulations do not apply to public aircraft. Aircraft that do not meet the qualifications for public aircraft status are civil aircraft. UAS operated by government agencies, law enforcement, and State public safety

3 You can find this order at http://www.faa.gov/regulations_policies/orders_notices.


5 Title 49 U.S.C. 40102(a)(41) provides the definition of “public aircraft” and § 40125 provides the qualifications for public aircraft status. Additional information on public aircraft is provided in Advisory Circular (AC) 90–1.1B, Public Aircraft Operations—Manned and Unmanned. This AC is available at https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_00-1.1B.pdf.

6 Additional information about the rules for each type of UAS user can be found at https://www.faa.gov/uas/.

7 See 49 U.S.C. 44809.

any occupant-carrying UAS should be certificated under the same process as manned aircraft. The FAA agrees. This policy addresses type certification of some UAS with no occupants onboard.

AIA requested that the scope of the policy also include optionally piloted aircraft. The commenter stated that optionally piloted aircraft are becoming increasingly possible as technology continues to mature. The FAA disagrees. An optionally piloted aircraft (OPA) is a manned aircraft that can be flown or controlled by the onboard pilot in command or by another individual from a location not onboard the aircraft.⁹ Although the method of controlling the aircraft is optional, in either case the pilot in command always remains onboard the aircraft. Thus, OPA are beyond the scope of this policy because they are not unmanned aircraft as defined by 49 U.S.C. 44801(11) and 14 CFR 1.1.

D. Requests for Changes to the Policy

The CNO and the CDA requested that the type certification policy be streamlined, flexible, and account for changing technologies. The commenters stated that the type certification process should take months instead of years and should accommodate innovation. The FAA responds that this policy provides a flexible type certification process that allows particularized airworthiness criteria for each product design. Under this policy, as technologies change and applicants propose innovative and unique type designs, so too may the airworthiness criteria evolve. The FAA further notes that the pace of any certification program is driven by many factors, including the complexity of the project and the applicant’s development and testing timelines.

Joby Aviation requested the FAA prioritize using existing airworthiness standards under the process in § 21.17(a) when a product closely matches the characteristics of the airplane or rotocraft class and where special conditions (under § 21.16) can be reasonably used to address differences. The commenter stated the approach of using the flexibility of the special class process in § 21.17(b) makes sense for certain UAS or products where it is not reasonable to apply existing airworthiness standards. The purpose of this policy is to use the flexibility provided in the § 21.17(b) certification process to address the unique configurations and innovative applications of airframes, powerplants, fuels, and materials found in most UAS designs. For unmanned airplane and unmanned rotocraft designs where the airworthiness standards in part 23 or 27, respectively, are appropriate for the certification basis, the FAA may still issue type certificates under the processes in §§ 21.16 and 21.17(a). The certification path for each individual UAS project will be based on applicability, relevance, appropriateness, and suitability.

Joby Aviation also requested that the FAA certificate passenger-carrying UAS under the existing, proven standards in part 23 or part 27, as appropriate to the individual aircraft design, under the process in § 21.17(a). Kilroy Aviation suggested a multi-tiered certification approach for UAS, with a tier for passenger-carrying UAS. These comments are beyond the scope of this policy, which does not apply to UAS that carry occupants.

Another commenter requested that the FAA define the certification types, methods, and timeline more thoroughly before issuing this policy. This commenter stated that the policy provides a flexible type certification process that allows particularized airworthiness criteria for each product design. Under this policy, as technologies change and applicants propose innovative and unique type designs, so too may the airworthiness criteria evolve. The FAA further notes that the pace of any certification program is driven by many factors, including the complexity of the project and the applicant’s development and testing timelines.

Kilroy Aviation, the CNO, and the CDA commented on FAA resources for UAS certification projects. The CNO and the CDA requested the FAA allocate sufficient personnel to support the exponential increase in UAS certification projects. Kilroy Aviation requested the FAA delegate UAS compliance findings to designees. The FAA is committed to the safe and efficient integration of UAS into the NAS, and type certification of UAS is an important step in that process. The FAA will continue to assess its resources and make any necessary adjustments to process certification projects of UAS and other aircraft. However, comments regarding the delegation of UAS certification findings to designees are beyond the scope of this policy.

One commenter requested the policy prohibit UAS manufacturers from self-certifying their designs. This comment is beyond the scope of this policy. This policy outlines only the process for how the FAA will establish airworthiness standards for the type certification of certain UAS. FAA Order 8110.4C contains procedures and policy for the type certification of products, including how an applicant for a type certificate demonstrates compliance.

The CNO and the CDA requested that the FAA ensure early and frequent coordination among FAA offices. These commenters stated that inter-office coordination between those responsible for issuing the type certificate and those responsible for issuing operational authority was critical, so that applicants have the authority to operate the UAS when its type certificate is issued. The FAA agrees. A type certificate is a design approval and only one of several


requirements (airworthiness, pilot certification, registration, air traffic control authorization, air carrier certification, etc.) that must be met for an aircraft to operate in the NAS. The FAA established the UAS Integration Office to facilitate coordination amongst FAA offices on UAS activities.

ALPA requested the FAA limit the duration of the policy to not more than two years, as the process should only be interim until the FAA develops certification regulations specifically designed for UAS. The FAA does not agree. At this time, it is not possible to foresee when generally applicable airworthiness standards for UAS would be established or what form they may take. The FAA may supersed this policy at any time by issuing generally applicable standards through rulemaking.

An individual requested the policy define unmanned aircraft using consistent taxonomy. This commenter noted that many common UAS designs are not easy to categorize as an airplane, rotorcraft, or hybrid lift. This commenter also requested that the policy define the term “unmanned aircraft system,” as that term is not defined in 14 CFR 1.1. The FAA agrees that UAS designs are diverse. However, this policy only addresses the process for how the FAA will establish airworthiness standards for the type certification of certain UAS as a special class. Although there is no corresponding definition in 14 CFR part 1, the term “unmanned aircraft system” is defined by statute at 49 U.S.C. 44801(12) as an unmanned aircraft and its associated elements (including communication links and the components that control the unmanned aircraft) that are required for the operator to operate safely and efficiently in the NAS.\(^{13}\)

\(^{13}\)See also 14 CFR 107.3.

\* E. Airworthiness Criteria for UAS \* 

ALPA, the CNO, the CDA, NAAA, Wing Aviation LLC (Wing Aviation), Kilroy Aviation, Valqari LLC, and six individual commenters requested the FAA adopt specific airworthiness criteria for UAS. These criteria included subjects such as weather, collision avoidance, marking and coloring, strobe lighting, system safety assessments, payload, weight, software, propeller shrouds and other safety equipment, noise, batteries, public safety, and control stations. Kilroy Aviation requested the FAA consider using the certification criteria for “small category VTOL aircraft” adopted by EASA. Amazon Prime Air requested that, while the FAA uses the process under § 21.17(b) for type certification, the agency also form a working group to evaluate and create new rules for UAS airworthiness standards. These comments are beyond the scope of this policy. This policy outlines only the procedures for how the FAA will establish airworthiness standards for the type certification of certain UAS. The particularized airworthiness criteria for each applicant will vary as appropriate and applicable to the specific UAS design. The FAA will announce and seek public comment on the airworthiness criteria for each applicant. The FAA will also continue to work with the public, industry, other civil aviation authorities, and standards development organizations to create and refine standards and policy for UAS.

Wing Aviation and other commenters requested the airworthiness criteria for UAS be performance-based. The FAA agrees and anticipates issuing performance-based airworthiness criteria based on each applicant’s design when possible. The FAA will announce and seek public comment on these criteria for each applicant.

Kilroy Aviation, the CNO, and the CDA requested the FAA harmonize UAS certification standards with EASA and other foreign civil aviation authorities. The FAA agrees that having harmonization and consistency on UAS policy and requirements with foreign authorities is prudent; however, the implementation of this comment is beyond the scope of this policy.

\* F. Operational Rules for UAS \* 

The CNO, the CDA, Valqari LLC, and three individual commenters requested the FAA adopt specific criteria and rules for UAS based on operational factors. These factors included beyond visual line of sight (BVLOS) operations (especially in rural areas), designated airspace below 400 feet for agricultural drone use, night operations, and location of the UAS operation. Operational considerations, such as BVLOS and detect and avoid requirements, are beyond the scope of this policy.

Several commenters also requested that the policy be risk-based and account for the specific risks encountered by each UAS within its operating environment. The FAA agrees and plans to use a risk-based approach for UAS type certification. The FAA anticipates issuing performance-based airworthiness criteria for each individual applicant’s design. For example, the FAA will demonstrate compliance with the criteria by durability and reliability (D&R) testing at a level tailored for the design based on its risk. The D&R testing would result in an acceptable number of successful flight hours, representative of mission cycles to substantiate the overall reliability of the UAS.

Several commenters requested that the FAA restrict UAS operations over residential areas and schools and provide protections for citizens’ right to privacy. The operational issues raised by these comments are beyond the scope of this policy, which is limited to the process for establishing airworthiness standards for type certification.

The CNO, the CDA, and an individual requested that the FAA combine operational authority with the issuance of the type certificate. These commenters suggested that since the airworthiness criteria for each type-certificated UAS will go through the public notice and comment process, that process should include any exemptions from parts 91 and 61 (general operating and flight rules and flight crew certification requirements) necessary to operate. These commenters further suggested that the conditions and limitations typically included in the grant of an exemption could then be incorporated on the TCDS as operating limitations. This policy outlines the process for how the FAA will establish airworthiness standards for the type certification of certain UAS. The process for granting relief from operational and airmen certification rules is addressed in 14 CFR part 11.

\* G. Request for Generally Applicable Standards \* 

Kilroy Aviation, the CNO, the CDA, and an individual requested that the FAA issue additional guidance or rulemaking or recognize standards for UAS certification in a timely manner. The FAA is committed to developing the regulations, policy, procedures, guidance material, and training requirements necessary to support the safe and efficient integration of UAS into the NAS. The implementation of these activities is beyond the scope of this policy.

\* H. Comments Regarding Airmen \* 

Droneport Texas LLC requested the FAA update remote pilot training requirements and study aids so pilots are aware of the distinctions for type-certificated UAS. This commenter also requested the FAA create specialized training for maintainers, operators, and remote pilots of UAS type certified as a special class of aircraft. One individual requested the FAA develop
different classes of recreational UAS pilots. Another individual requested the FAA create specific aircraft type ratings for remote pilots. However, the airmen training and certification issues raised by these comments are beyond the scope of this policy, which is limited to the process for type certification.

I. Requests for the FAA To Withdraw the Policy

An anonymous commenter opposed the policy and stated it will stifle innovation, limit recreation, and unnecessarily intrude on personal freedoms. Fifteen individual commenters opposed the policy based on concerns it would overburden hobbyists and negatively impact the model aircraft community. The FAA infers that these commenters would like the FAA to withdraw the policy. This policy will not burden or negatively impact a person conducting limited recreational operations with a small unmanned aircraft under 49 U.S.C. 44809, because type certification is not required for these operations. For other UAS, type certification may be required, depending on the weight of the UAS, the purpose of the operations, and the operating rules to which the UAS is subject. This policy provides a timely and flexible type certification process to ensure that a UAS design complies with appropriate safety standards.

J. Requests for an Extension of the Comment Period

Two individual commenters requested that the FAA extend the comment period in order to solicit additional input and define additional requirements. These comments noted that the comment period for this notice overlapped with the comment period for the FAA’s proposed rulemaking on remote identification of UAS (84 FR 72438, December 31, 2019). The FAA has considered the request and determined that 30 days provided an appropriate time for comment on the proposed policy, as sufficient feedback on the policy was provided by the public during the comment period.

K. Comments on Other FAA Rules

Some commenters expressed concerns about the FAA’s proposed remote identification rule. Other commenters stated opposition to FAA’s rules for small UAS in part 107. DJI Technology, Inc., commented on operations and associated waivers under part 107. Because these comments concern FAA rulemakings on other issues, they are outside the scope of this policy.

L. Other Out of Scope Comments

Two commenters requested the FAA address UAS-related products (3-D printed parts, test benches). DJI Technology, Inc., requested that the FAA revise its regulations to allow American companies to manufacture UAS at facilities outside the United States. An individual commenter requested that the FAA revise 14 CFR 21.25(a)(1) to allow UAS as a special purpose operation for issuance of a restricted category type certificate. These comments are outside the scope of this policy, which specifies a process for establishing airworthiness standards for type certification of certain UAS.

The FAA also received and reviewed several comments that were very general, stated the commenter’s viewpoint without a suggestion specific to the policy, or did not make a request the FAA can act on. These comments are outside the scope of this policy.

Policy

The FAA has determined that some UAS may be type certified as a “special class” of aircraft under § 21.17(b). The FAA will issue type certificates for UAS with no occupants onboard under the process in § 21.17(b). However, the FAA may still issue type certificates under § 21.17(a) for airplane and rotorcraft UAS designs where the airworthiness standards in part 23, 25, 27 or 29, respectively, are appropriate for the certification basis. This policy applies only to the procedures for the type certification of UAS, and is not intended to establish policy impacting other FAA rules pertaining to unmanned aircraft, such as operations, pilot certification, or maintenance.

The FAA will seek public comment on the particularized airworthiness criteria for each applicant as certification standards for this new special class evolve. Once generally applicable standards are identified, the FAA may conduct rulemaking.

The FAA’s part 107 rulemaking on small UAS was only the first step in the FAA’s plan to integrate UAS into the NAS. Many long-term activities are required for full integration of present and future UAS operations, which will include the delivery of packages and transportation of people. The UAS affected by this policy will include those used for package delivery. Future FAA activity, through either further policy or rulemaking, will address type certification for UAS carrying occupants.

The contents of this document do not have the force and effect of law and are not meant to bind the public in any way. This document is intended only to provide clarity to the public regarding existing requirements under the law or agency policies.

Issued in Kansas City, Missouri, on August 11, 2020.

Pat Mullen.
Manager, Small Airplane Standards Branch, Policy and Innovation Division, Aircraft Certification Service.

DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration

14 CFR Part 93
[Docket No.: FAA–2006–25755]

Operating Limitations at New York
Laguardia Airport

AGENCY: Department of Transportation, Federal Aviation Administration (FAA).

ACTION: Extension to order.

SUMMARY: This action extends the Order Limiting Operations at New York LaGuardia Airport (LGA) published on December 27, 2006, as most recently extended September 18, 2018. The Order remains effective until October 29, 2022.

DATES: This action is effective on September 18, 2020.

ADDRESSES: Requests may be submitted by mail to the Slot Administration Office, System Operations Services, AJR–0, Room 300W, 800 Independence Avenue SW, Washington, DC 20591, or by email to: 7-awa-slotadmin@faa.gov.

FOR FURTHER INFORMATION CONTACT: For questions concerning this Order contact: Bonnie Dragotto, Regulations Division, FAA Office of the Chief Counsel, AGC–250, Room 916N, Federal Aviation Administration, 800 Independence Avenue SW, Washington, DC 20591; telephone (202) 267–3808; email Bonnie.Dragotto@faa.gov.

SUPPLEMENTARY INFORMATION:
Availability of Rulemaking Documents

You may obtain an electronic copy using the internet by:
(1) Searching the Federal eRulemaking Portal (http://www.regulations.gov);
(2) Visiting the FAA’s Regulations and Policies web page at http://www.faa.gov/regulations_policies/; or

You also may obtain a copy by sending a request to the Federal