



Federal Aviation
Administration



FAA UAS Regulation

Alaska UAS Workshop

May 10, 2022



UAS: *new territory*





Federal Aviation Administration

DRONE FACTS + FIGURES



563
Emergency Authorizations for Hurricanes



271,000+
REMOTE PILOTS

TRUST
CERTIFICATES ISSUED BY TEST ADMINISTRATORS
230,000+

DRONE
Type Certification Projects Ongoing

44



106,000+
Manual Airspace Authorizations



854,000+
DRONE
REGISTRATIONS

321,000+
REGISTERED
COMMERCIAL DRONES



8 BEYOND
Program Lead Participants



1,078,000+
LAANC Airspace Authorizations



62 Certified Agricultural Operators



201 Waivers for Operations Beyond Line of Sight

ADDITIONAL
PARTNERSHIPS **9**

RULES
NEW

- Remote Identification
- Routine ops over people and at night

FUTURE

- Critical infrastructure protection

AS OF APRIL, 2022



May 2022



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UAS INDUSTRY TRENDS

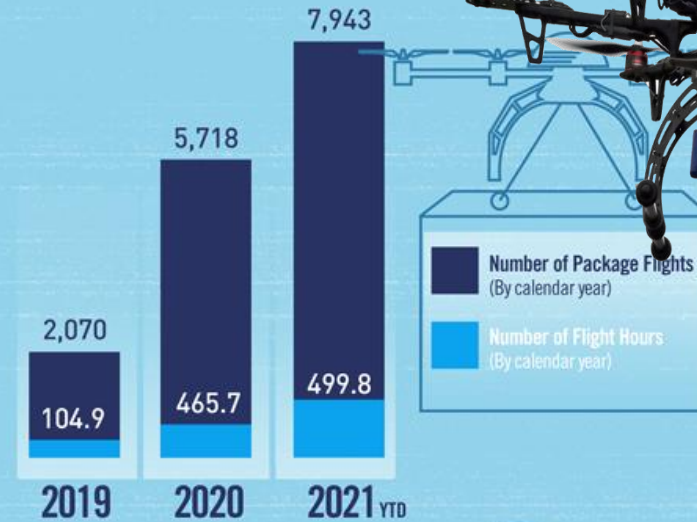
Collegiate Training Initiative Schools **84**

Certified Remote Pilots



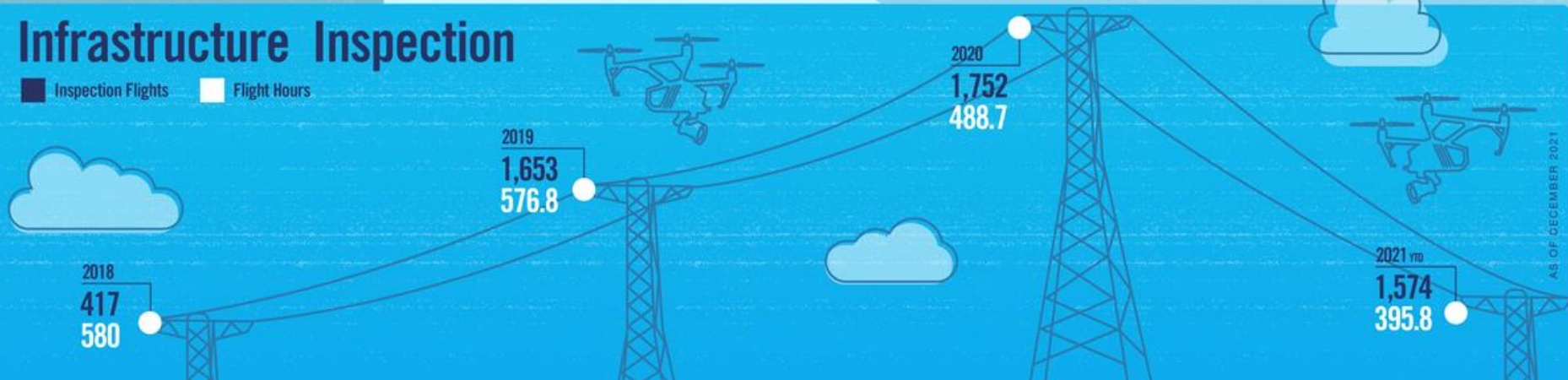
327,047 COMMERCIAL DRONE REGISTRATIONS

DELIVERY FLIGHTS



Infrastructure Inspection

■ Inspection Flights ■ Flight Hours



Recreational Visual Line-of-sight



Commercial Visual Line-of-sight



Commercial Beyond Visual Line-of-sight



Commercial Cargo



Passenger Carriage (Advanced Air Mobility)



COMPLETE ACTIVITIES

- Section 44809 Operations
- sUAS Registration
- Security Sensitive Flight Restrictions
- Recreational User Test

- Section 333 Operations
- Part 107 Operations
- Part 137 Agricultural Operations
- Low Altitude Authorization & Notification Capability (LAANC)
- Part 107 up to 55 mph: Ops Over People

- Partnership for Safe Flight Operations & Integration
- Partnership Agreement
- Integration Pilot Program

- Air Carrier Certifications (by exemption)

- Initial Regulatory Path Identified

Increased vehicle and operational complexity + increased Federal regulatory oversight

INCOMPLETE ACTIVITIES

Community Based Organization Process and Requirements

Remote ID Rule & Implementation

- Fixed Base Facility
- Aircraft Restrictions
- Implementation of Specific UTM Services
- BVLOS Operational Rules
- Updated Minimum Airworthiness Criteria
- Quality Assurance Program

- Routine Small Cargo Delivery Operations
- Implementation of Specific UTM Services
- Certified Aircraft

- Vertiport Requirements
- Certified Aircraft
- Automated Flight Deck
- Routine Operations

Aeronautical Information Infrastructure

Examples of Drone Operations

**Examples represent operations that have happened or are possible*

Part 91 + Section 44807

Example Scenario:

Surveying for
producing 3D imagery

Part 91 + Experimental

Example Scenario:

Testing or use of
electric vertical
takeoff and landing
aircraft vehicles (not
carrying property for
compensation or hire)

Part 107

Example Scenario:

Flying for work or
business, recreation,
education, or for
public safety missions

Public Aircraft Operations

Example Scenario:

Certain government
operations, which may
include law enforcement,
firefighting, border
patrol, disaster relief,
search and rescue, etc.

Section 44809 Exception

Example Scenario:

Flying at fixed sites,
such as AMA flying
fields, or not above
400' AGL in class G

Part 135 + Section 44807

Example Scenario:

Delivery of food and
over-the-counter
pharmaceuticals
directly to consumers'
homes



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Part 91 + Section 44807



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Part 91 + Experimental



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14 CFR Part 107



First rule for
small UAS
(<55 pounds)

Commercial,
hobby,
governmental
operators can
operate under
Part 107

Effective
August 29,
2016

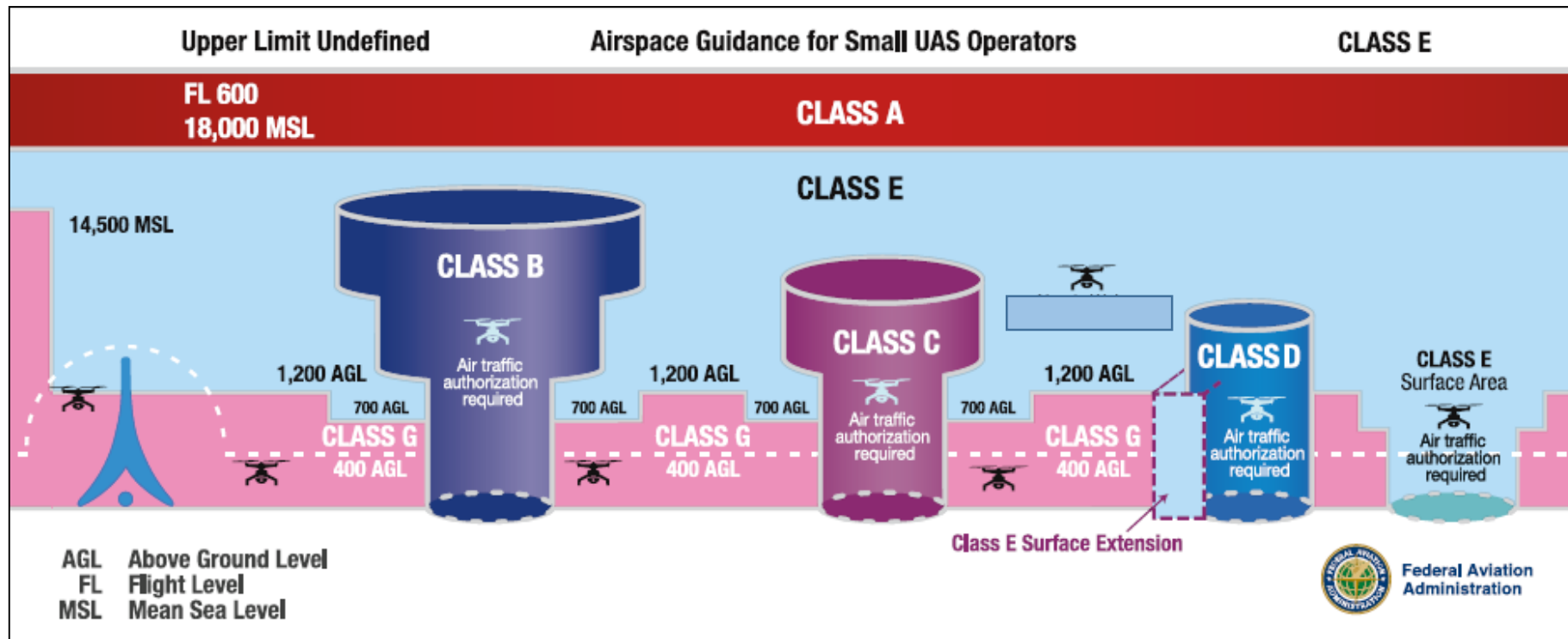


Recent **Part 107 amendment** permits routine operations

- over people;
- over moving vehicles;
- at night—all under certain conditions



Part 107 Airspace Requirements



- Operations in Class G (< 400' AGL, & within 400' of structures) do not require ATC authorization
- Operations in Class B, C, D & Class E surface areas require ATC authorization
- Online authorization portal available at the FAA DroneZone and through LAANC



Part 107 Remote Pilot *Initial Qualification*

- First-time pilots
 - Pass the **Initial Aeronautical Knowledge Test** covering the areas of knowledge in 14 CFR Part 107, §107.73
- Current Part 61 pilots
 - If a person holds a pilot certificate (other than a Student Pilot Certificate) issued under 14 CFR Part 61, and meets the flight review requirements specified in §61.56, complete **online training** covering the areas in 14 CFR Part 107, §107.74(a).



Part 107 Remote Pilot *Re-currency*

- **PART 107 UAS Initial (ALC-451)**
- Successful completion of ALC-451 provides the aeronautical knowledge requirements for certification of a remote pilot with a small UAS rating for existing part 61 pilots who also meet the requirements of § 107.65. This constitutes original certification for part 107, but is based in part on an existing part 61 certification.
- **PART 107 UAS Recurrent (ALC-515)**
- Successful completion of ALC-515 provides the aeronautical knowledge recency requirements for remote pilots with a small UAS rating for existing and current part 61 pilots. This does not constitute a certification or recertification, rather, it provides compliance with the aeronautical knowledge recency requirements stipulated in § 107.65.
- **Part 107 UAS Recurrent Non-Part 61 Pilots (ALC-677)**
- Successful completion of ALC-677 provides the aeronautical knowledge recency requirements for remote pilots with a small UAS rating who do not hold a part 61 certificate, or part 61 pilots who do not meet § 61.56 . This does not constitute a certification or recertification, rather, it provides compliance with the aeronautical knowledge recency requirements stipulated in § 107.65.



Public Aircraft Operations (vs. Part 107)

Refer to FAA Advisory Circular 00.1-1B



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Section 44809 (*The Exception...*)



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Part 135 + Section 44807



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Part 137 (Agricultural) Operations



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Some FAA-Led or -Supported Programs, Research, & Activities

- BEYOND (post-IPP)
- Drone Safety Team (DST)
- UAS Center of Excellence
- UAS Collegiate Training Initiative (UAS-CTI)
- UAS Test Sites
- Limited English Proficiency (LEP) Initiative
- The Recreational UAS Safety Test (TRUST)
- Advanced Air Mobility Advisory Committee (AAAC)
- UTM Pilot Program (UPP)
- International Collaboration
- Partnership for Safety Plans (PSP)
- Additional Partnerships



UAS Traffic Management (UTM)

- Ecosystem for **uncontrolled operations** that is **separate from, but complementary to, the FAA's Air Traffic Management system.**
- How airspace will be managed to enable multiple drone operations conducted BVLOS, where air traffic services are *not* provided.



Advanced Air Mobility (AAM) & Urban Air Mobility (UAM)

- **Includes urban & non-urban use cases & environments**
 - UAM (intra-city)
 - Commercial inter-city (Longer Range/Thin Haul)
 - Cargo Delivery
 - Public Services
 - Private / Recreational Vehicles
- **AAM concepts possess common characteristics**
 - Similar technologies (automation, electrified/hybrid vehicles)
 - UTM-inspired Air Traffic Management (ATM) systems
 - Many of the same challenges



Remote ID (Part 89)



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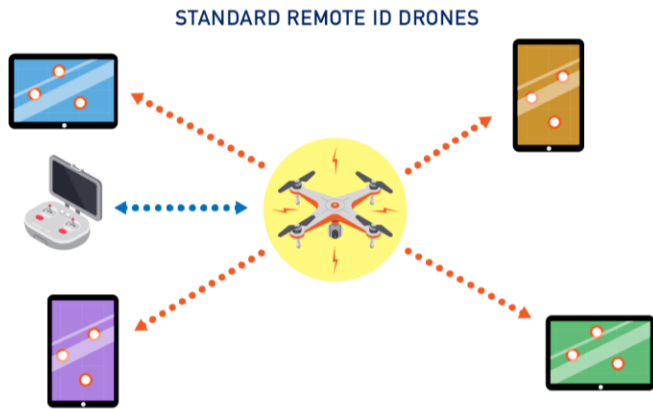
Remote ID--*Rule Objectives*

1. Most unmanned aircraft broadcast a signal that includes the unmanned aircraft “license plate” and operator’s location
2. Areas designated by the FAA, FAA-recognized identification areas (FRIAs), are the only place unmanned aircraft systems (UAS) may be operated without broadcasting (unless authorized)
3. Authorized individuals can look up unmanned aircraft “license plate” to find the unmanned aircraft owner
4. Compliance is easy for the UAS operator, with costs reduced from the NPRM to the minimum necessary to meet security needs
5. Non-compliance stands out clearly, without requiring security and law enforcement partners to have unique infrastructure or technology expertise

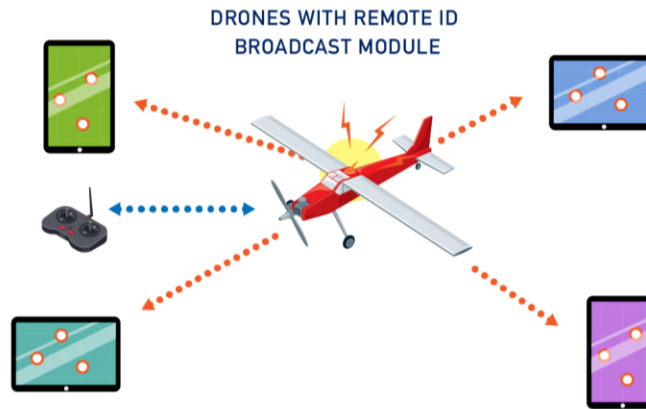


3 WAYS DRONE PILOTS CAN MEET REMOTE ID RULE

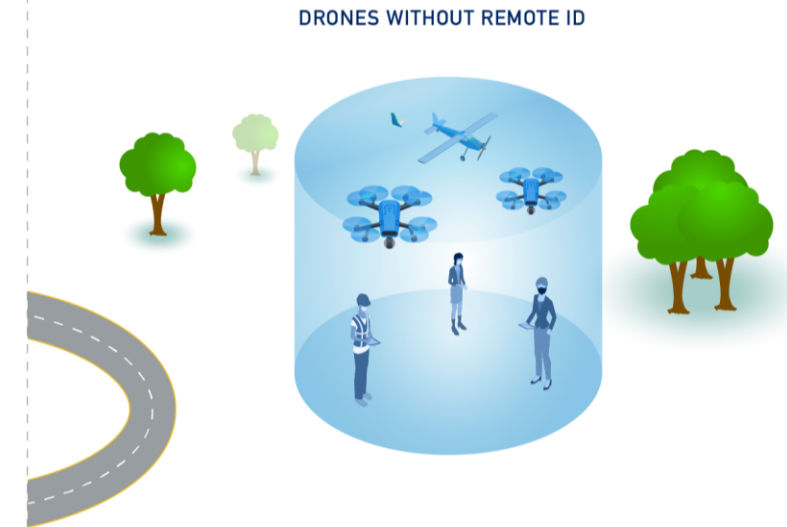
DRONE REMOTE IDENTIFICATION



DRONE REMOTE IDENTIFICATION



FAA-RECOGNIZED IDENTIFICATION AREA [FRIA]



Standard Remote ID – *default compliance path*

- Remote identification built into the unmanned aircraft
- Unmanned aircraft manufactured after production deadline must be standard

Remote ID Broadcast Module – *compliance path for pre-existing fleet and home-built unmanned aircraft only*

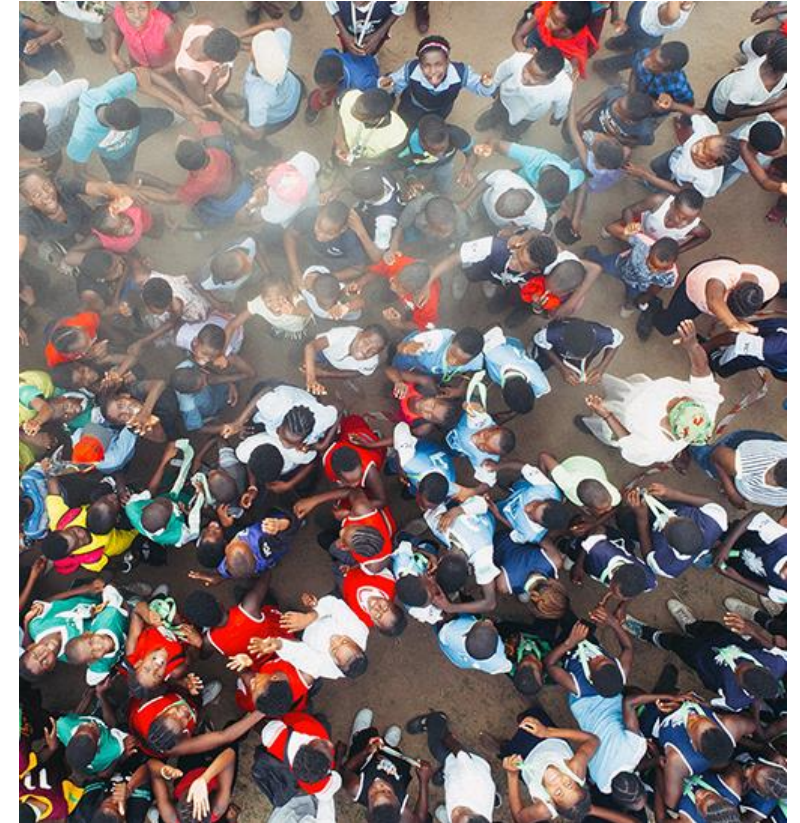
- Allows for retro-fit of existing fleet
- Home-built unmanned aircraft have option to equip

FAA Recognized Identification Areas

- Compliance path for operators of unmanned aircraft that are not equipped

Operations over People amendment--*Overview*

- Small UAS Operations over People NPRM published February 13, 2019
- Final rule published on January 15 and went into effect on **April 21, 2021**:
 - Creates (4) categories of operations that permit small UAS to operate over people
 - Allows small UAS operations over moving vehicles
 - Allows routine night operations
 - Updates initial testing and recurrent training requirements



Operations over People Overview, cont'd

- Permits Category **1, 2, & 3** small UA to **operate over moving vehicles**
 - May not maintain sustained flight unless in a closed- or restricted-access site
- Category **4** may also **operate over moving vehicles**, if the operating limitations permit
- Allow **routine night operations**, *if*
 - the small UA is equipped with anti-collision lights
 - the remote pilot has completed updated testing or training to cover night operations
- Allows remote pilots (non-Part 61) to take **recurrent training online** rather than go to a testing center



Operations Over People - Categories 2 & 3

- Category 2

- Aircraft cannot cause an injury equivalent to or greater than an injury resulting from an impact kinetic energy of **11 ft-lbs** from a rigid object
- No exposed rotating parts that would lacerate human skin
- Requires remote identification to operate over open-air assemblies



- Category 3

- Aircraft cannot cause an injury equivalent to or greater than an injury resulting from an impact kinetic energy of **25 ft-lbs** from a rigid object.
- No exposed rotating parts that would lacerate human skin
- Operating restrictions: closed/restricted sites or transiting only



Category 4 Operations

- Allow small UA **with airworthiness certification** to **fly over people**
 - Allows manufacturers to address safety through aircraft reliability, established through airworthiness certification
 - Includes maintenance and inspection requirements
 - Requires remote identification to operate over open-air assemblies

UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION—FEDERAL AVIATION ADMINISTRATION STANDARD AIRWORTHINESS CERTIFICATE			
1. NATIONALITY AND REGISTRATION MARKS	2. MANUFACTURER AND MODEL	3. AIRCRAFT SERIAL NUMBER	4. CATEGORY
N907CU	Boeing 737-222	19951	Transport
5. AUTHORITY AND BASIS FOR ISSUANCE This airworthiness certificate is issued pursuant to the Federal Aviation Act of 1958 and certifies that, as of the date of issuance, the aircraft to which issued has been inspected and found to conform to the type certificate thereto, to be in condition for safe operation, and to have shown to meet the requirements of the applicable comprehensive and detailed airworthiness code as provided by Annex 8 to the Convention on International Civil Aviation, except as noted herein. Exemption from FAR 25.101 - No. 575 - Exemption from 25.1001 - allow takeoff weight 115% of maximum landing weight.			
6. TERMS AND CONDITIONS Unless sooner surrendered, suspended, revoked, or its issuance, date is otherwise established by the Administrator, this airworthiness certificate is effective as long as the maintenance, progressive maintenance, and alterations are performed in accordance with Parts 43, 45, and 47 of the Federal Aviation Regulations, as appropriate, and the aircraft is registered in the United States.			
DATE OF ISSUANCE 8-27-69	FAA REPRESENTATIVE "Replacement" F. G. Felt	REGISTRATION NUMBER DMIR No. 4032	
Any alteration, reproduction, or misuse of this certificate may be punishable by a fine not exceeding \$1,000, or imprisonment not exceeding 3 years, or both. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE FEDERAL AVIATION REGULATIONS.			
FAA Form 8100-2 (7-67) FORMERLY FAA FORM 1382			90-101-0-275-011

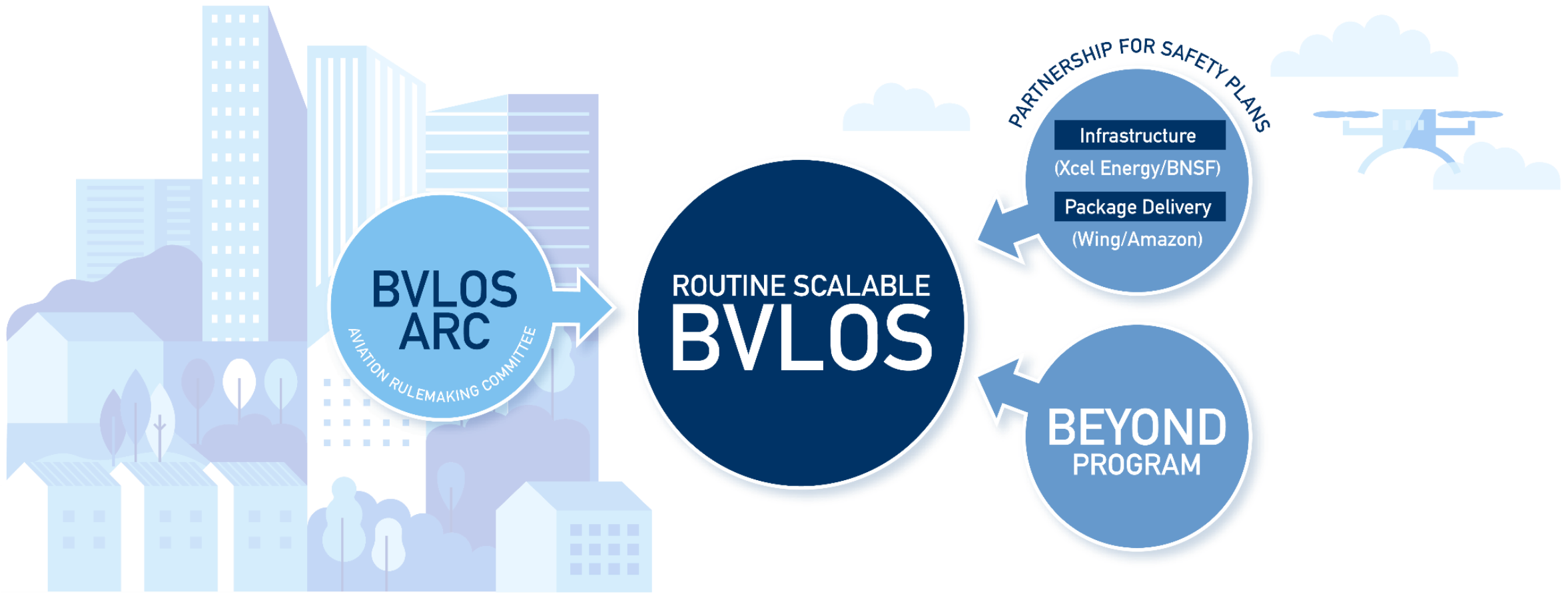


Part 89 and Part 107 Amendment Schedule

Final Rules posted on FAA.gov	December 28, 2020
Final Rules published in Federal Register	January 15, 2021
Remote Identification (RID) and Operations Over People (OOP) Final Rules Effective Date	April 21, 2021
RID Production (Mfrs) Compliance Date	September 16, 2022
RID Operational Compliance Date	September 16, 2023



The BVLOS Aviation Rulemaking Committee



Status of Rulemaking Efforts

Name of Rule	Stage	Status
Operation and Certification of Small Unmanned Aircraft Systems (Part 107) https://www.ecfr.gov/current/title-14/chapter-I/subchapter-F/part-107	Final Rule	In effect August 29, 2016
External Marking Requirement for Small Unmanned Aircraft https://www.ecfr.gov/current/title-14/chapter-I/subchapter-C/part-48/subpart-C/section-48.205	Interim Final Rule	In effect February 25, 2019
Operations of sUAS Over People https://www.ecfr.gov/current/title-14/chapter-I/subchapter-F/part-107/subpart-D	Final Rule	In effect April 21, 2021
Safe and Secure Operations of Small UAS https://www.federalregister.gov/documents/2019/02/13/2019-00758/safe-and-secure-operations-of-small-unmanned-aircraft-systems	ANPRM	1842 comments
Remote Identification https://www.ecfr.gov/current/title-14/chapter-I/subchapter-F/part-89	Final Rule	In effect April 21, 2021
Type Certification of Unmanned Aircraft Systems https://www.federalregister.gov/documents/2020/09/18/2020-17882/type-certification-of-certain-unmanned-aircraft-systems	Notice of policy	In effect September 18, 2020
UAS Flight Restrictions Near Critical Infrastructure	Draft NPRM	Development is underway
Modernization of the Special Airworthiness Certification (MOSAIC)	Draft NPRM	Development is underway



Safety Risk Management (SRM)

UAS SRM Order 8040.6

- The high number of drone registrations amplifies the need for speed in setting up Safety Risk Management (SRM) measures to ensure safety risk associated with drone operations is carefully evaluated.
- The FAA developed and published the 8040.6 Unmanned Aircraft Systems SRM Policy on October 4, 2019. This policy defines the scope, roles and responsibilities, triage, governance, and triggers for SRM activities on drones.
- The goal of the new SRM Order is to provide FAA employees with more specific guidance, a template, and an example to more easily assess safety risks for drone operations.
- The Order also drives early internal FAA coordination so stakeholder petitioning for exemptions or requesting waivers can work with “one FAA” rather than multiple offices.
- SRM can inform applicants on ways to make their proposed operations safer.
- Google Wing, UPS Flight Forward and Xcel Energy have already served as pilot projects for the new UAS SRM Order.



Drone registration (DroneZone)

- Part 47 (legacy paper system); Part 48 (online)
- Register through **FAA DroneZone**
- Applies to all small drones flown in the NAS
 - Recreational: aircraft weighing < 0.55 lbs do *not* need to be registered. Aircraft between 0.55 lbs and < 55 lbs must be registered.
 - Commercial: *all* aircraft



The screenshot shows the FAA DroneZone website. At the top left is the FAA logo and the text "Federal Aviation Administration". To the right are links for "LOGIN", "CONTACT", and "GLOSSARY". The main heading is "FAADroneZone" with a horizontal line underneath. Below this is the text "Welcome to the FAADroneZone" and a stylized orange drone icon. There are two main registration options, each with a "Register" button and a help icon (question mark):

- I fly under Part 107 or as a Public Aircraft**: "I need to register a drone that is less than 55 lbs, apply for a waiver/authorization under [Part 107](#), or report a UAS/drone accident."
- I fly under The Exception for Recreational Flyers**: "I need to register a drone under [The Exception for Recreational Flyers](#)."

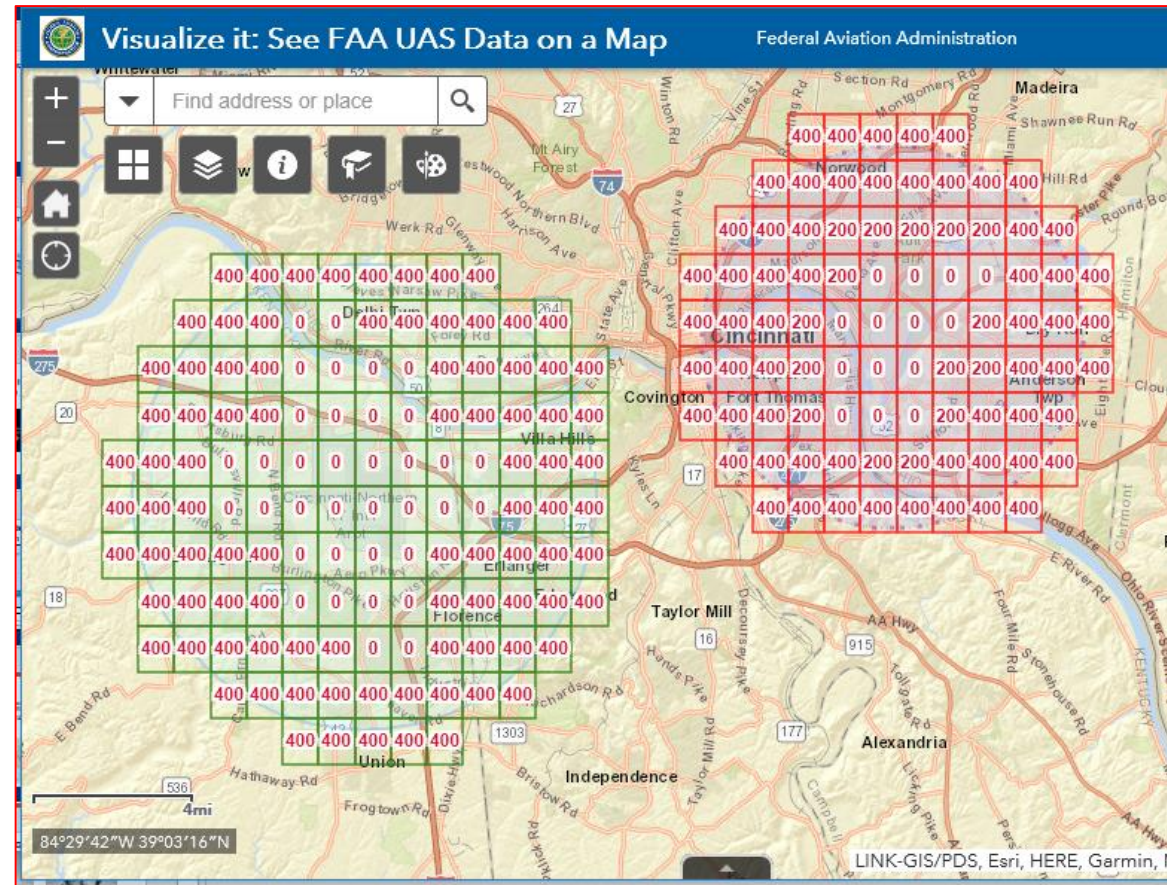
Below these options is a link: [Register a drone that weighs 55 lbs. or more.](#)

At the bottom, it says: "Already registered? [Log In](#) to your existing account." and "For general information about drones, [rules for flying](#), and how to [become a drone pilot](#), visit the [FAA website](#)."



LAANC (Low-altitude authorization and notification capability)

- Facility Maps
- **500+** ATC facilities, currently (700 airports)
- For Part 107 and **recreational UAS**

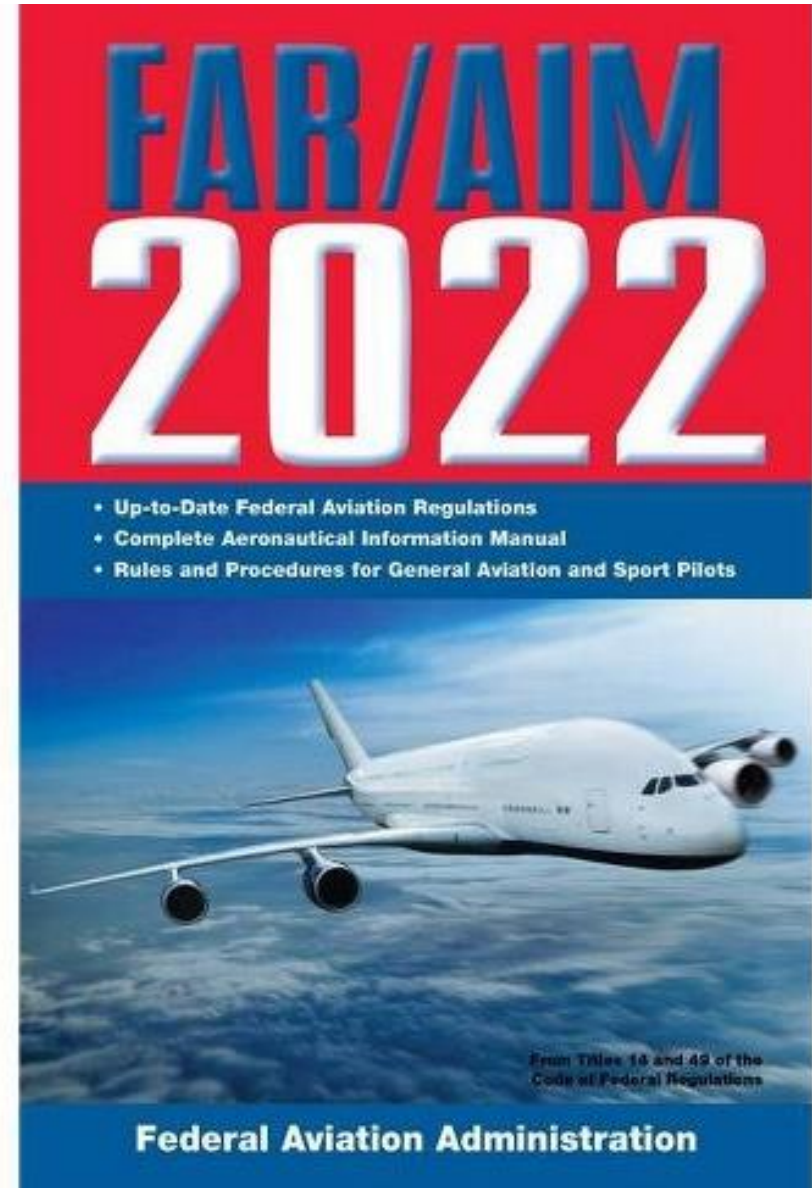


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Coming soon!
**Aeronautical
Information
Manual (AIM)
Chapter 11 (UAS)**



AIM Chap 11 Sections (draft)



- ✓ 11-1 General introduction
- ✓ 11-2 Small UAS
- ✓ 11-3 Large UAS
- ✓ 11-4 Airspace Access for UAS
- ✓ 11-5 UAS Pilot Testing, Certification & Responsibilities
- ✓ 11-6 (Reserved for future use/FAA certified schools, etc.)
- ✓ 11-7 Urban Air Mobility (UAM)
- ✓ 11-8 (Reserved for future use/TBA)
- ✓ 11-9 On-airport operations
- ✓ 11-10 Other information & Best practices

Emergency Situations—The Special Government Interest (SGI) process

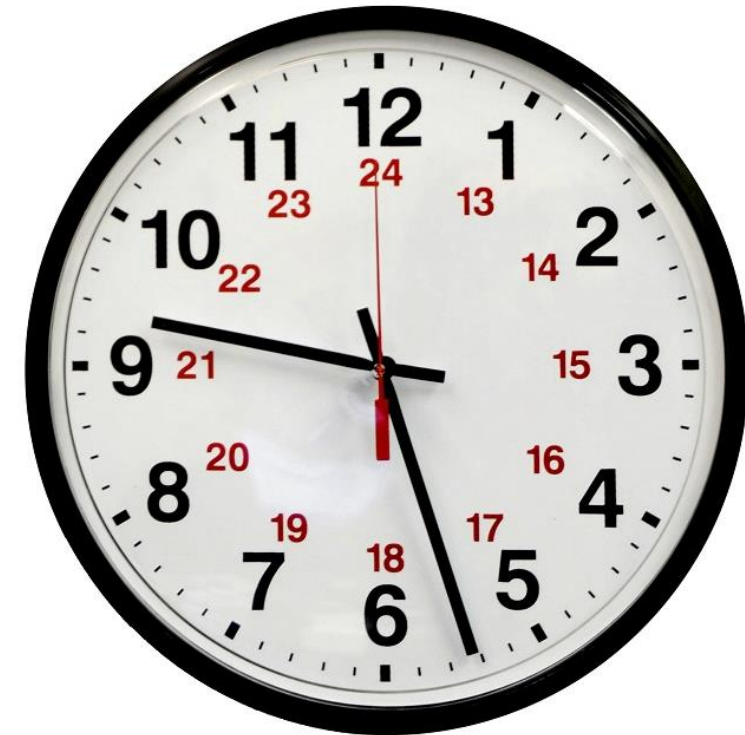
Operations that may be considered include:

- Firefighting
- Search and Rescue
- Law Enforcement
- Utility or Other Critical Infrastructure Restoration
- Damage Assessments Supporting Disaster Recovery Related Insurance Claims
- Media Coverage Providing Crucial Information to the Public



SGI Process, continued

- To apply for a **waiver** through the SGI process you must be an existing Part 107 Remote Pilot with a current certificate OR you must have an existing Certificate of Waiver or Authorization (COA).
- To submit a waiver through this process, fill out the [Emergency Operation Request Form](#) and send to the FAA's System Operations Support Center (SOSC) at 9-ator-hq-sosc@faa.gov



SGI Process, continued

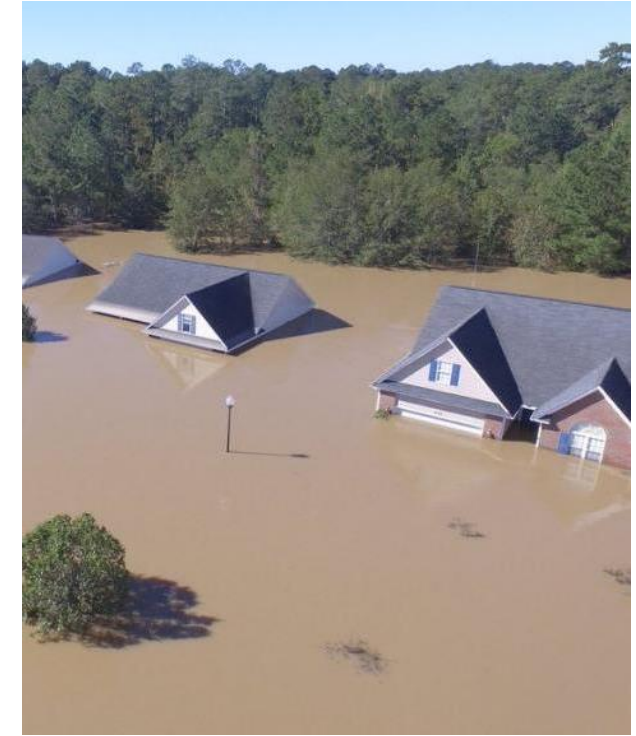
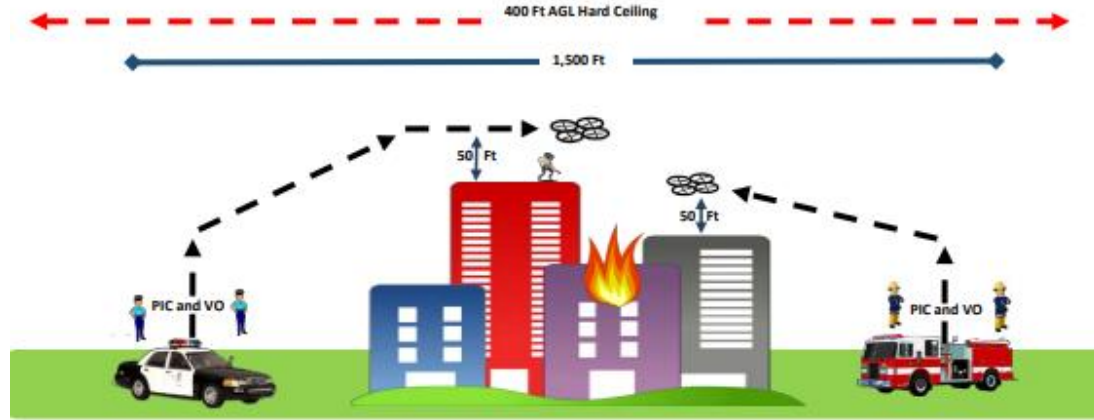
- (If approved) the FAA will add an amendment to your existing COA or Remote Pilot Certificate that authorizes you to fly under certain conditions for the specified operation.
- (If denied) operators should NOT fly outside the provisions of their existing COA or part 107. Operators have the option to amend* their requests.

**This process is called the Special Government Interest (SGI) amendment process and is outlined in [JO 7200.23C](#).*



Tactical Beyond Visual Line of Sight Waiver

9-UAS-91.113Waivers@faa.gov

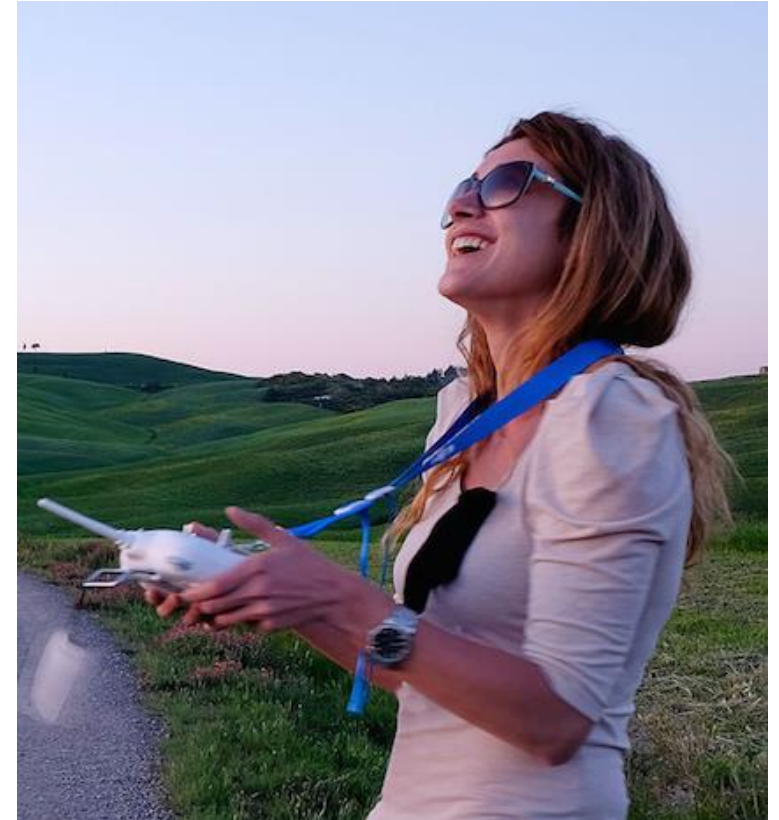


TBVLOS waiver: permission to fly BVLOS when it counts.



The Recreational UAS Safety Test (TRUST)

- TRUST is a free, on-line aeronautical knowledge and safety test developed by the FAA for recreational drone flyers.
- All recreational flyers must take and past TRUST. (REALLY!)



Good stuff, cheap! *Drone-Related Apps, Campaigns, Resources, Videos, Events, & Social Media*

- [FAA's Drone Webpage](#)
- [FAA Drone Zone](#)
- [Know Before You Fly campaign](#)
- [B4UFLY app](#)
- [No Drone Zone \(NDZ\) outreach campaign](#)
- [Stadium Managers Association NDZ safety campaign](#)
- [Public Safety Small Drone Playbook](#)
- [Buzzy the Drone videos](#)
- [FAA videos available on YouTube](#)
- [FAA Drone Symposium](#)
- [Drone Safety Day](#)
- [FAA Inclusive Language Summit](#)
- [FAA Drone Zone Twitter](#)
- [FAA Drone Zone Facebook](#)
- [FAA UAS Support Center](#)



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Questions?

