



# The need for Category 4 small Unmanned Aircraft (sUA)

With the exception of Category 4 sUA,

- None of the small Unmanned Aircraft (sUA) models in the marketplace have gone through any FAA tests for reliability, controllability, or safety.
- Part 107 regulations grant the privilege to fly sUA in the National Airspace System (NAS), but do not provide the protections (airworthiness, maintenance, & inspections) of manned aircraft.

**FEMA & NC Government Sector UAS Working Group**  
**Tuesday, 25 July 2023**

**Curt D. Johnson,**  
**FIMAN Tech & Remote Pilot**



# Why do we need Category 4 sUA?

We need sUA that the FAA has determined to be **reliable, controllable, and safe**, because **we are responsible** if our sUA is **not reliable, controllable, and safe**

A. [§ 107.19 Remote pilot in command.](#)

- (b) The **remote pilot in command** is **directly responsible** for and is the **final authority** as to the **operation of the small unmanned aircraft system**.
- (c) The remote pilot in command must ensure that the **small unmanned aircraft will pose no undue hazard to other people, other aircraft, or other property in the event of a loss of control of the aircraft** for **any reason**.

B. [§ 107.15 Condition for safe operation.](#)

- (a) **No person may operate a civil small unmanned aircraft system unless it is in a condition for safe operation**. Prior to each flight, the remote pilot in command must check the small unmanned aircraft system to determine whether it is in a condition for safe operation.
- (b) **No person may continue flight** of the small unmanned aircraft **when he or she knows or has reason to know** that the small unmanned aircraft system is **no longer in a condition for safe operation**.

C. [§ 107.23 Hazardous operation.](#)

No person may:

- (a) Operate a small unmanned aircraft system in a **careless or reckless manner** so as to endanger the life or property of another;  
<https://psflight.org/8726/your-public-safety-drone-may-not-be-safe-for-flight-and-attorneys-might-just-eat-you-for-lunch/>



# Operation of Small Unmanned Aircraft Systems Over People final rule

The FAA established **Category 4 Aircraft** as part of the **Operation of Small Unmanned Aircraft Systems over People** final rule.

## 1. What is the Operation of Small Unmanned Aircraft Systems over People final rule?

- a. *“...the next incremental step towards further integration of unmanned aircraft (UA) in the National Airspace System [NAS].”*
- b. Allows under certain circumstances:
  - Routine operations over people
  - Routine operations at night
- c. Will eliminate the need for Part 107 waivers for typical operations
- d. Established four categories of aircraft
- e. Effective date: April 21, 2021

[https://www.faa.gov/uas/commercial\\_operators/operations\\_over\\_people/](https://www.faa.gov/uas/commercial_operators/operations_over_people/)

[https://www.faa.gov/sites/faa.gov/files/2021-08/OOP\\_Final%20Rule.pdf](https://www.faa.gov/sites/faa.gov/files/2021-08/OOP_Final%20Rule.pdf)



# Operation of Small Unmanned Aircraft Systems Over People final rule

## 2. What are the operations over people categories?

The FAA realized that the ability to fly a small Unmanned Aircraft (sUA) **over people** varies depending on the level of risk that an operation presents to people on the ground. Consequently, they established the following requirements as categories:

### a. Category 1 eligible aircraft:

- **Weigh  $\leq$  0.55 lbs**, including everything that is attached to the aircraft throughout each flight
- Contain no exposed rotating parts that would lacerate human skin
- No FAA-accepted Means of Compliance (MOC) or Declaration of Compliance (DOC) required.
- Cannot conduct **sustained flight** over **open air assemblies** unless the operation is compliant with Remote ID.

[https://www.faa.gov/uas/commercial\\_operators/operations\\_over\\_people/](https://www.faa.gov/uas/commercial_operators/operations_over_people/)

[https://www.faa.gov/sites/faa.gov/files/2021-08/OOP\\_Final%20Rule.pdf](https://www.faa.gov/sites/faa.gov/files/2021-08/OOP_Final%20Rule.pdf)



# Definitions

## Operations Over Human Beings: What does “over” mean?

“**Over**” refers to the flight of the small unmanned aircraft directly over any part of a person.

- a. For example, a small UAS that hovers directly over a person's head, shoulders, or extended arms or legs would be an operation over people.
- b. Similarly, if a person is lying down, for example at a beach, an operation over that person's torso or toes would also constitute an operation over people.
- c. A flight where a small UAS flies over any part of any person, regardless of how long the flight is over the person, would be considered an operation over people.



# Definitions

## Operations Over Human Beings (Open-Air Assemblies): What does “sustained flight” mean?

“**Sustained flight**” over an open-air assembly includes:

- **Hovering** above the heads of persons gathered in an open-air assembly,
- **Flying back and forth** over an open-air assembly, or
- **Circling** above the assembly in such a way that the small unmanned aircraft remains above some part the assembly.

Sustained flight over an open-air assembly of people does **not** include a **brief, one-time transiting over a portion of the assembled gathering**, where the flight is unrelated to the assembly.



# Definitions

## Operations Over Human Beings: What is an “open-air assembly”?

The **FAA employs a case-by-case approach** in determining how to apply the term “**open-air assembly**.” Whether an operational area is an open-air assembly is evaluated by considering the density of people who are not directly participating in the operation of the small unmanned aircraft and the size of the operational area.

- a. Potential examples of open-air assemblies **may include** sporting events, concerts, parades, protests, political rallies, community festivals, or parks and beaches during certain events.
- b. Some potential examples that **are less likely to be considered** open-air assemblies **include individual persons or families** exiting a shopping center, athletes participating in friendly sports in an open area without spectators, **individuals or small groups** taking leisure in a park or on a beach, or **individuals** walking or riding a bike along a bike path.

Whether an open-air assembly exists depends on a case-by-case determination based on the facts and circumstances of each case. Legal interpretations and opinions regarding open-air assemblies may be found on the FAA “[Interpretations Search](https://www.faa.gov/uas/commercial_operators/part_107_waivers)” website.

[https://www.faa.gov/uas/commercial\\_operators/part\\_107\\_waivers](https://www.faa.gov/uas/commercial_operators/part_107_waivers)

[https://www.faa.gov/sites/faa.gov/files/2021-08/OOP\\_Final%20Rule.pdf](https://www.faa.gov/sites/faa.gov/files/2021-08/OOP_Final%20Rule.pdf) (p. 128 - 129)

[https://www.faa.gov/about/office\\_org/headquarters\\_offices/agc/practice\\_areas/regulations/interpretations](https://www.faa.gov/about/office_org/headquarters_offices/agc/practice_areas/regulations/interpretations)



# Operation of Small Unmanned Aircraft Systems Over People final rule

## 2. What are the operations over people categories?

### b. Category 2 eligible aircraft:

- Must **not** cause injury to a human being that is equivalent to or greater than the severity of injury caused by a transfer of **11 foot-pounds of kinetic energy** upon impact from a rigid object

**Disclaimer:** This formula does **not** take into account air resistance.

**Kinetic energy:** Energy which a body possesses by virtue of being in motion

**Kinetic energy of a falling object** =  $(\text{Mass} * \text{Velocity}_{\text{final}}^2)/2$       Where:  $\text{Velocity}_{\text{final}} = \sqrt{[2 * (9.8 \text{ m/s}^2) * \text{Height}]}$

- Does not contain any exposed rotating parts that could lacerate human skin upon impact with a human being,
- Does not contain any safety defects.
- Cannot conduct sustained flight over open air assemblies unless the operation is compliant with Remote ID.
- Requires FAA-accepted **means of compliance** and FAA-accepted **declaration of compliance**.

[https://www.faa.gov/uas/commercial\\_operators/operations\\_over\\_people/](https://www.faa.gov/uas/commercial_operators/operations_over_people/)

[https://www.faa.gov/sites/faa.gov/files/2021-08/OOP\\_Final%20Rule.pdf](https://www.faa.gov/sites/faa.gov/files/2021-08/OOP_Final%20Rule.pdf)

[https://www.school-for-champions.com/science/gravity\\_energy\\_falling.htm#.YjRvPurMJpl](https://www.school-for-champions.com/science/gravity_energy_falling.htm#.YjRvPurMJpl)





# Operation of Small Unmanned Aircraft Systems Over People final rule

## 2. What are the operations over people categories?

### c. Category 3 eligible aircraft:

- Must **not** cause injury to a human being that is equivalent to or greater than the severity of injury caused by a transfer of **25 foot-pounds of kinetic energy** upon impact from a rigid object
- Does not contain any exposed rotating parts that could lacerate human skin upon impact with a human being,
- Does not contain any safety defects.
- Requires FAA-accepted **means of compliance** and FAA-accepted **declaration of compliance**.

\*\*\*\*\* continued on the next page \*\*\*\*\*

[https://www.faa.gov/uas/commercial\\_operators/operations\\_over\\_people/](https://www.faa.gov/uas/commercial_operators/operations_over_people/)

[https://www.faa.gov/sites/faa.gov/files/2021-08/OOP\\_Final%20Rule.pdf](https://www.faa.gov/sites/faa.gov/files/2021-08/OOP_Final%20Rule.pdf)



# Operation of Small Unmanned Aircraft Systems Over People final rule

## 2. What are the operations over people categories?

### c. Category 3 eligible aircraft:

- Must **not** cause injury to a human being that is equivalent to or greater than the severity of injury caused by a transfer of **25 foot-pounds of kinetic energy** upon impact from a rigid object
- Must **not** operate the small unmanned aircraft over **open-air assemblies** of human beings.
- May only operate the small unmanned aircraft above any human being if operation meets **one** of the following conditions:
  - The operation is within or over a **closed- or restricted-access site** and **all human beings** located within the closed- or restricted-access site **must be on notice that a small unmanned aircraft may fly over them**; or
  - The small unmanned aircraft does not maintain sustained flight over any human being unless that human being is
    - **Directly participating in the operation** of the small unmanned aircraft; or
    - **Located under a covered structure or inside a stationary vehicle** that can provide reasonable protection from a falling small unmanned aircraft.

[https://www.faa.gov/uas/commercial\\_operators/operations\\_over\\_people/](https://www.faa.gov/uas/commercial_operators/operations_over_people/)

[https://www.faa.gov/sites/faa.gov/files/2021-08/OOP\\_Final%20Rule.pdf](https://www.faa.gov/sites/faa.gov/files/2021-08/OOP_Final%20Rule.pdf)



# Operation of Small Unmanned Aircraft Systems Over People final rule

## 2. What are the operations over people categories?

### d. Category 4 eligible aircraft:

- Must have an **airworthiness certificate** issued under Part 21 of FAA regulations.
- Must be operated in accordance with the operating limitations specified in the approved Flight Manual or as otherwise specified by the Administrator [FAA].
- The operating limitations must not prohibit operations over human beings.
- Must have **maintenance, preventive maintenance, alterations, or inspections performed in accordance with specific requirements** in the final rule.
- Cannot conduct sustained flight over open air assemblies unless the operation is compliant with Remote ID.

[https://www.faa.gov/uas/commercial\\_operators/operations\\_over\\_people/](https://www.faa.gov/uas/commercial_operators/operations_over_people/)

[https://www.faa.gov/sites/faa.gov/files/2021-08/OOP\\_Final%20Rule.pdf](https://www.faa.gov/sites/faa.gov/files/2021-08/OOP_Final%20Rule.pdf)



# Operation of Small Unmanned Aircraft Systems Over People final rule

3. If kinetic energy is the energy that an object has by being in motion, then wouldn't an sUA's potential kinetic energy increase with its elevation until it reaches its terminal velocity from air resistance?

sUA model	Mass (kg)	Elevation (ft) that the sUA's potential KE = 11 ft-lbs	Elevation (ft) that the sUA's potential KE = 25 ft-lbs	URL for the aircraft's mass
0.55 lbs	0.25	20.0	45.4	
Mavic Pro	0.7	7.1	16.2	<a href="https://www.dji.com/mavic/info#specs">https://www.dji.com/mavic/info#specs</a>
Phantom 4 Pro	1.4	3.6	8.1	<a href="https://www.dji.com/phantom-4-pro/info#specs">https://www.dji.com/phantom-4-pro/info#specs</a>
Matrice 600 Pro	10.2	0.5	1.1	<a href="https://www.dji.com/matrice600-pro/info#specs">https://www.dji.com/matrice600-pro/info#specs</a>

**Easy check:** Visit the Drops calculator (<https://www.dropsonline.org/resources-and-guidance/drops-calculator/e-drops-calculator/>), which gives results in Joules, and then convert from Joules to Foot-Pounds by multiplying by 0.737562.

**Disclaimer:** Since the KE formula does **not** take into account **air resistance**, then the actual elevation needed to deliver 11 or 25 ft-lbs of KE would be higher.

[https://www.school-for-champions.com/science/gravity\\_energy\\_falling.htm#.YjRvPurMJpl](https://www.school-for-champions.com/science/gravity_energy_falling.htm#.YjRvPurMJpl)  
<https://www.metric-conversions.org/energy-and-power/joules-to-foot-pounds.htm>



# Operation of Small Unmanned Aircraft Systems Over People final rule

3. If kinetic energy is the energy that an object has by being in motion, then wouldn't an sUA's potential kinetic energy increase with its elevation until it reaches its terminal velocity from air resistance?

sUA model	Mass (kg)	Elevation (ft) that the sUA's potential KE = 11 ft-lbs	Elevation (ft) that the sUA's potential KE = 25 ft-lbs	URL for the aircraft's mass
<a href="https://www.diu.mil/blue-uas-cleared-list">Blue UAS cleared list (https://www.diu.mil/blue-uas-cleared-list)</a>				
Teal Golden Eagle	1.0	5.0	11.3	<a href="https://tealdrones.com/suas-golden-eagle/">https://tealdrones.com/suas-golden-eagle/</a> <a href="https://influentialdrones.com/products/golden-eagle">https://influentialdrones.com/products/golden-eagle</a>
Skydio X2D	1.3	3.8	8.7	<a href="https://pages.skydio.com/rs/784-TUF-591/images/skydio-x2d-datasheet-defense-pg.pdf">https://pages.skydio.com/rs/784-TUF-591/images/skydio-x2d-datasheet-defense-pg.pdf</a>
Sensefly eBee TAC	1.6	3.1	7.1	<a href="https://www.diu.mil/blue-suas-2#eBeeTAC">https://www.diu.mil/blue-suas-2#eBeeTAC</a>

Are there any parameter values that could be changed in the “Kinetic energy of a falling object” formula  $[Mass * Velocity_{final}^2]/2$  Where:  $V_{final} = \sqrt{2 * (9.8 \text{ m/s}^2) * H}$ ?

- The acceleration due to gravity (9.8 m/s<sup>2</sup>) is a constant. Each sUA model's mass is essentially a constant.
- The only parameter value that could be changed is **Velocity<sub>final</sub>** with a **parachute** or **wings**.



# Operation of Small Unmanned Aircraft Systems Over People final rule

## 4. How can an sUAS manufacturer determine if its model(s) meets Category 2 and/or 3 requirements?

### a. Virginia Tech Mid-Atlantic Aviation Partnership (MAAP)

- So far, MAAP is the only FAA-approved Operation of Small UAS Over People Means of Compliance (MOC)
- MAAP's evaluation process:
  - Failure mode and safety defect assessment
    - Original Equipment Manufacture (OEM) provides data on UAS
    - Test site conducts design review to identify likely failure modes and potential safety defects.
  - Supplemental testing
    - In the absence of sufficient OEM failure data, supplemental testing may be performed to characterize failure modes (e.g., wind tunnel testing to determine terminal velocity.)
    - The scope of this phase is dependent on the level of data provided by the OEM.
  - Impact (11 ft-lbf and 25 ft-lbf) and laceration (skin surrogate and impact characteristics) testing
  - Safety and compliance review

<https://uasdoc.faa.gov/listMOC>

<https://maap.ictas.vt.edu/capabilities/test-evaluation/OOP-MOC.html>

Because the relevant industry consensus standards are not yet available, **aircraft utilizing parachute systems** to reduce kinetic energy are **not** eligible at this time.



# Operation of Small Unmanned Aircraft Systems Over People final rule

3. If kinetic energy is the energy that an object has by being in motion, then wouldn't an sUA's potential kinetic energy increase with its elevation until it reaches its terminal velocity from air resistance?

sUA model	Mass (kg)	Elevation (ft) that the sUA's potential KE = 11 ft-lbs	Elevation (ft) that the sUA's potential KE = 25 ft-lbs	URL for the aircraft's mass
<a href="https://www.diu.mil/blue-uas-cleared-list">Blue UAS cleared list (https://www.diu.mil/blue-uas-cleared-list)</a>				
Teal Golden Eagle	1.0	5.0	11.3	<a href="https://tealdrones.com/suas-golden-eagle/">https://tealdrones.com/suas-golden-eagle/</a> <a href="https://influentialdrones.com/products/golden-eagle">https://influentialdrones.com/products/golden-eagle</a>
Skydio X2D	1.3	3.8	8.7	<a href="https://pages.skydio.com/rs/784-TUF-591/images/skydio-x2d-datasheet-defense-pg.pdf">https://pages.skydio.com/rs/784-TUF-591/images/skydio-x2d-datasheet-defense-pg.pdf</a>
Sensefly eBee TAC	1.6	3.1	7.1	<a href="https://www.diu.mil/blue-suas-2#eBeeTAC">https://www.diu.mil/blue-suas-2#eBeeTAC</a>

Are there any parameter values that could be changed in the “Kinetic energy of a falling object” formula  $[Mass * Velocity_{final}^2]/2$  Where:  $V_{final} = \sqrt{2 * (9.8 \text{ m/s}^2) * H}$ ?

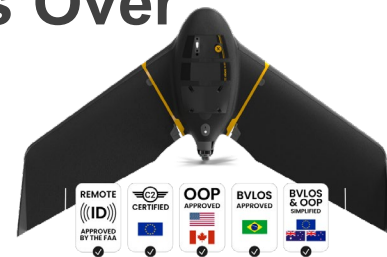
- The acceleration due to gravity (9.8 m/s<sup>2</sup>) is a constant. Each sUA model's mass is essentially a constant.
- The only parameter value that could be changed is **Velocity<sub>final</sub>** with a **parachute** or **wings**.

# Operation of Small Unmanned Aircraft Systems Over People final rule

## 5. Which sUAS models have passed MAAP's Category 2 and/or 3 testing?

### a. AgEagle (formerly known as Sensefly) eBee X, eBee GEO, and eBee TAC

So far, AgEagle's eBee X, eBee GEO, and eBee TAC are the first and only sUA models to be approved by the FAA for **Category 3** Operations Over People (OOP) in the United States



**Problem:**  
Many sites do **not** have the necessary room to launch and land a fixed-wing sUA.

[eBee X](#): Lightweight regulatory compliant mapping drone that is compatible with a range of cameras

[eBee Geo](#): Mapping drone with a built-in camera

[eBee TAC Government](#): Blue certified mapping drone (military) compatible with photogrammetry cameras

[eBee TAC Public Safety](#): Blue certified mapping drone (public safety) compatible with photogrammetry cameras

AgEagle is working on a surveillance sUA, the [eBee Vision](#), that will have 4K RGB and IR video and 32x zoom

<https://uasdoc.faa.gov/listDocs>

<https://ageagle.com/ageagles-eebe-x-series-drones-are-the-first-and-only-uavs-to-be-approved-by-the-faa-for-operations-over-people-oop-in-the-united-states/>





# Operation of Small Unmanned Aircraft Systems Over People final rule

## 2. What are the operations over people categories?

### c. Category 3 eligible aircraft:

- Must **not** cause injury to a human being that is equivalent to or greater than the severity of injury caused by a transfer of **25 foot-pounds of kinetic energy** upon impact from a rigid object
- Must **not** operate the small unmanned aircraft over **open-air assemblies** of human beings.
- May only operate the small unmanned aircraft above any human being if operation meets **one** of the following conditions:
  - The operation is within or over a **closed- or restricted-access site** and **all human beings** located within the closed- or restricted-access site **must be on notice that a small unmanned aircraft may fly over them**; or
  - The small unmanned aircraft does not maintain sustained flight over any human being unless that human being is
    - **Directly participating in the operation** of the small unmanned aircraft; or
    - **Located under a covered structure or inside a stationary vehicle** that can provide reasonable protection from a falling small unmanned aircraft.

[https://www.faa.gov/uas/commercial\\_operators/operations\\_over\\_people/](https://www.faa.gov/uas/commercial_operators/operations_over_people/)

[https://www.faa.gov/sites/faa.gov/files/2021-08/OOP\\_Final%20Rule.pdf](https://www.faa.gov/sites/faa.gov/files/2021-08/OOP_Final%20Rule.pdf)



# Operation of Small Unmanned Aircraft Systems Over People final rule

## 2. What are the operations over people categories?

### d. Category 4 eligible aircraft:

- Must have an **airworthiness certificate** issued under Part 21 of FAA regulations.
- Must be operated in accordance with the operating limitations specified in the approved Flight Manual or as otherwise specified by the Administrator [FAA].
- The operating limitations must not prohibit operations over human beings.
- Must have **maintenance, preventive maintenance, alterations, or inspections performed in accordance with specific requirements** in the final rule.
- Cannot conduct sustained flight over open air assemblies unless the operation is compliant with Remote ID.

[https://www.faa.gov/uas/commercial\\_operators/operations\\_over\\_people/](https://www.faa.gov/uas/commercial_operators/operations_over_people/)

[https://www.faa.gov/sites/faa.gov/files/2021-08/OOP\\_Final%20Rule.pdf](https://www.faa.gov/sites/faa.gov/files/2021-08/OOP_Final%20Rule.pdf)



# Operation of Small Unmanned Aircraft Systems Over People final rule

## 6. What is an airworthiness certification?

### a. How does the FAA certify aircraft?

- The FAA Certification Service includes more than 1,300 engineers, scientists, test pilots, & other safety professionals.
- They are responsible for oversight of design, production, airworthiness certification, and continued airworthiness programs for nearly all U.S. civil aviation products

### b. **The certification processes are well established and have consistently assured safe aircraft designs.**

As part of the any certification project, they conduct the following:

- **Review any proposed design** and the **methods that will be used to show that the design and the overall airplane complies with FAA regs**
- **Ground tests and flight tests to demonstrate that the airplane operates safely**
- **Evaluate the airplane's required maintenance & operational suitability for introduction into service**
- **Collaborate with other civil aviation authorities** (i.e., foreign) on their approval of the aircraft for import



# Operation of Small Unmanned Aircraft Systems Over People final rule

## 7. Airworthiness criteria for special classes of UASs

- a. The FAA is publishing proposed airworthiness criteria that will be used to issue type certificates for UAS as special classes of aircraft.
  - Each notice identifies the individual applicant's proposed UAS design and contains the airworthiness criteria for type certification proposed by the FAA.
  - The airworthiness criteria are developed to provide a **level of safety equivalent to that provided by existing airworthiness standards applicable to other categories of aircraft** but that are not appropriate for this special class of UAS



# Operation of Small Unmanned Aircraft Systems Over People final rule

## 7. Airworthiness criteria for special classes of UASs

### b. Durability and reliability (D&R) process

- The FAA has developed a "**durability and reliability**" (**D&R**) process to establish criteria as an element of the proposed certification basis for these aircraft.
- This special class process establishes a defined path to type certification of UAS, and is the first of its kind developed worldwide.
- Through the D&R process, applicants:
  - Demonstrate that their UAS are **reliable**, **controllable**, and **safe**
  - Provide the FAA **basic assurance** that the **aircraft will operate as intended**



# Operation of Small Unmanned Aircraft Systems Over People final rule

## 8. Airworthiness criteria for special classes of UASs

C. The FAA has issued Special Class Airworthiness Criteria to only twelve different sUA manufacturers:

- **Mapping:** 3DRobotics H520-G, but its not a Blue UAS model and the company does not exist anymore
- **Drone-in-a-box inspection, surveillance, & mapping:** Airbotics Optimus 1-EX & Percepto Robotics Percepto System
- **Surveillance:** Insitu ScanEagle3 (very large fixed-wing)
- **Delivery:** Amazon, Flirtey, Flytrex, Matternet, Telegrid, Wing Aviation, Wingcopter, and Zipline



# Why do we need Category 4 sUA?

We need sUA that the FAA has determined to be **reliable, controllable, and safe**, because **we are responsible** if our sUA is **not reliable, controllable, and safe**

A. [§ 107.19 Remote pilot in command.](#)

- (b) The **remote pilot in command** is **directly responsible** for and is the **final authority** as to the **operation of the small unmanned aircraft system**.
- (c) The **remote pilot in command must ensure** that the **small unmanned aircraft will pose no undue hazard to other people, other aircraft, or other property** **in the event of a loss of control of the aircraft** for **any reason**.

B. [§ 107.15 Condition for safe operation.](#)

- (a) **No person may operate a civil small unmanned aircraft system unless it is in a condition for safe operation**. Prior to each flight, the remote pilot in command must check the small unmanned aircraft system to determine whether it is in a condition for safe operation.
- (b) **No person may continue flight** of the small unmanned aircraft **when he or she knows or has reason to know** that the small unmanned aircraft system is **no longer in a condition for safe operation**.

C. [§ 107.23 Hazardous operation.](#)

No person may:

- (a) Operate a small unmanned aircraft system in a **careless or reckless manner** so as to endanger the life or property of another;  
<https://psflight.org/8726/your-public-safety-drone-may-not-be-safe-for-flight-and-attorneys-might-just-eat-you-for-lunch/>



# Operation of Small Unmanned Aircraft Systems Over People final rule

## 10. There are not any Blue UAS Category 4 sUA models in the marketplace

- a. If you want to use Blue UAS Category 4 sUA models for government applications, then you need to advocate that you need these models
  - sUA manufacturers who went through the **Defense Innovation Unit's Blue UAS** program demonstrated that there are companies that are willing to jump through **DOD security requirement hoops** in order to build **cyber-secure** sUA models, because they realized that there is already a market for these models.
  - Likewise, sUA manufacturers who went through the **FAA's durability and reliability (D&R)** process demonstrated that there are companies that are willing to jump through **FAA D&R requirement hoops** in order to build **reliable, controllable**, and **safe** sUA models, because they realized that there is already a market for these models.
  - But, sUA manufacturers are **not** going to jump through both **DOD security requirement hoops** and **FAA D&R requirement hoops** if they do **not** think that there is a market for these models.

<https://www.diu.mil/blue-uas-cleared-list>

[https://www.faa.gov/uas/advanced\\_operations/certification/criteria\\_special\\_classes/](https://www.faa.gov/uas/advanced_operations/certification/criteria_special_classes/)





# Operation of Small Unmanned Aircraft Systems Over People final rule

## 10. There are not any Blue UAS Category 4 sUA models in the marketplace

b. How can government agencies advocate for products to be developed without partiality towards specific companies?: Request aircraft advocacy organizations to make a broad appeal.

- Association for Uncrewed Vehicle Systems International (AUVSI)

[“AUVSI PUBLISHES ‘BLUEPRINT FOR AUTONOMY’ TO GUIDE ADVANCEMENT OF UNCREWED AIRCRAFT SYSTEMS AND ADVANCED AIR MOBILITY”](#)

which considers “**Airworthiness**” as one of the five key foundational themes

- Aircraft Owners and Pilots Association (AOPA)

[“DRONE REGULATION OVERHAULS PUBLISHED: AOPA WELCOMES FAA ADJUSTMENTS”](#)

<https://www.auvsi.org/auvsi-publishes-%E2%80%98blueprint-autonomy%E2%80%99-guide-advancement-uncrewed-aircraft-systems-and-advanced-air>

<https://www.aopa.org/news-and-media/all-news/2021/january/15/drone-regulation-overhauls-published>



# Operation of Small Unmanned Aircraft Systems Over People final rule

## 10. There are not any Blue UAS Category 4 sUA models in the marketplace

### c. But, government agencies cannot afford to pay for higher priced sUA models

- What is the cost of a lawsuit against your agency worth?
- What is the cost of a lawsuit against you, the remote pilot, worth?
- What is the cost of a fatality, an injured bystander, or a damaged property/infrastructure worth?
- What is the cost of having to replace your agency's sUA fleet every two years worth?
- Eventually, the cost for Category 4 sUA models will go down as manufacturers realize that customers will only purchase sUA models that meet Category 4 requirements of being safe, reliable, and controllable



Emergency Management  
NC DEPARTMENT OF PUBLIC SAFETY



# Questions

**Curt D. Johnson**  
[curt.johnson@ncdps.gov](mailto:curt.johnson@ncdps.gov)