

# 1. Regulations

## *1.4 - Operating Around People, From Moving Vehicles & At Night*



# Structure & Formatting Reminder

This presentation is provided as a reference to help you prepare for the your exam. It seeks to go beyond memorization and provide explanation and rationale.

While this reference considers many of the points covered in the exam, given the breadth it is in no way exhaustive. It is suggested to consult a variety of resources when preparing for the exam.

Text that is marked in **YELLOW** has a high probability of being referenced directly in one of the exam's nearly 400 possible questions.

Take the quiz at the end to gauge your understanding.



## 1.4a - Recent Changes

Until 2021 sUAS operations were not permitted over people, from a moving vehicle, and at night without a waiver.

Currently, routine operations are now permitted under certain circumstances.



The Drive



Why might the FAA have banned flights over people? What has changed?



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## 1.4b - Limitations

In order to fly over people the pilot must:

1. Ensure that any **non-participants** are under a **covered structure** or in a **stationary vehicle**.
2. Ensure that the sUAS will **not pose an undue hazard** to other aircraft, people, or property in the event of a loss of control for any reason.
3. The sUAS is **not operating in a careless or reckless** manner.
4. The sUAS is **compliant with Remote ID** requirements.



# 1.4c - Category Operations

## Category 1 - Requirements

- The UAV weighs **under 0.55 pounds** including everything on board.
- The UAV contains **no exposed rotating parts** that could cause lacerations.



# 1.4c - Category Operations

## Category 2 - Requirements

- The UAV can weigh more than 0.55 pounds
  - but
- The UAV must meet performance-based eligibility and operating requirements.





What is the difference between a category 1 and category 2 operation?



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# 1.4c - Category Operations

## Category 3 - Requirements

- The operation site is **closed or restricted-access** and **all people on site are on notice** that a UAV may fly over them.
  - or
- The UAV **does not maintain sustained flight** unless they are participating directly in the operation. Operations can proceed if people are under covered structures or inside a stationary vehicle.



What is an example of a category 3 operation?



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## 1.4c - Category Operations

“Sustained Flight” Includes:

- **Hovering** above the heads of persons gathered in an open-air assembly.
- Flight **back and forth** over an open-air assembly.
- **Circling** above the assembly in such a way that the UAV remains over some part of the assembly.

NOTE:

A **brief, one-time transit** over a portion of the gathering is **not considered** “sustained flight.”



# 1.4c - Category Operations

## Category 4 - Requirements

- UAVs that have a **airworthiness certificate** under Part 21 can operate over people so long as the limitations specified in the Flight Manual don't prohibit operations over people.

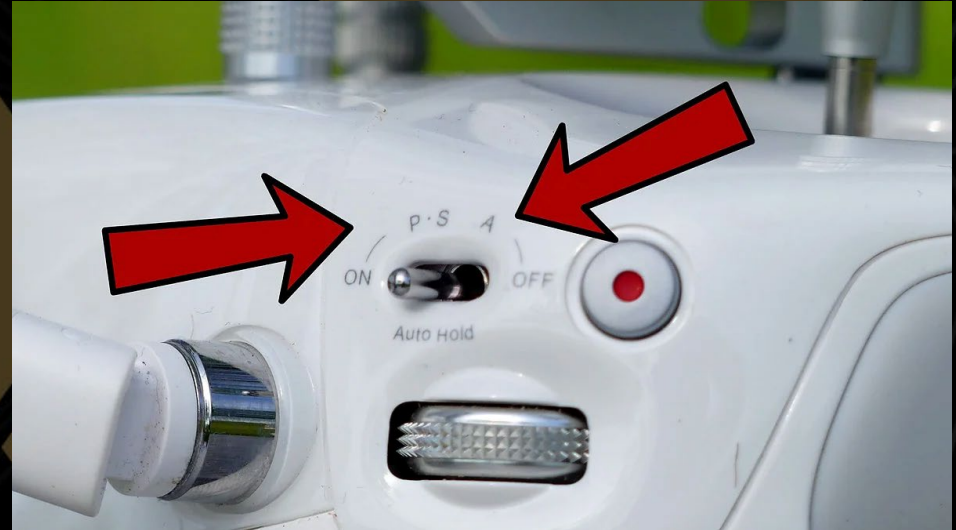


# 1.4c - Category Operations

## Variable Modes

Pilots need to be aware that some UAVs have multiple “mode” settings that can **change the speed** of the drone.

This is important because the **weight and the speed are directly related to the kinetic energy**.



YouTube – Tom's Tech Time



Propwash Drone Solutions LLC

## 1.4c - Category Operations

**Declaration of Compliance** - If operating over people (OOP) you must fly a drone that is compliant.

**Category 1** UAVs that meet compliance **do not require** a separate declaration of compliance.

**Category 2 and 3** UAVs can not be self certified and must be done by the manufacturer.



# 1.4c - Category Operations

**Record Retention** - For all **category 2, 3, & 4** operations records must:

- Be **retained for two years** after the UAV is no longer being produced.
- If a UAV is modified to be complaint, records must be retained for two years after the declaration is submitted.



Fierce Pharma





Why is it important to keep records?



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## 1.4d - Operating Over Moving Vehicles

Flying over **moving vehicles is permitted** if using a Category 1, 2, 3, or 4 UAV.

### *Requirements:*

- Within or over a closed or restricted access site.
- All people in moving vehicle must be on notice that a UAV may fly over them.
- The UAV does not maintain sustained flight over them.



TechNexion



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## 1.4e - Operating At Night



Boldmethod

Until 2021 sUAS operations were not permitted at night. **To be eligible today:**

1. The RPIC must have complete an **updated initial knowledge test** (or pass the **initial test after 2021**).
2. The sUAS must have **anti-collision lights** visible for at least **3 statute miles** that flash.



What are some potential issues with nighttime operations?





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Unit 1 Regulations – 1.4 Review Quiz will follow the presentation for 1.5.

