Regulations

Module 1

Ground Lesson 1

Lesson Objective

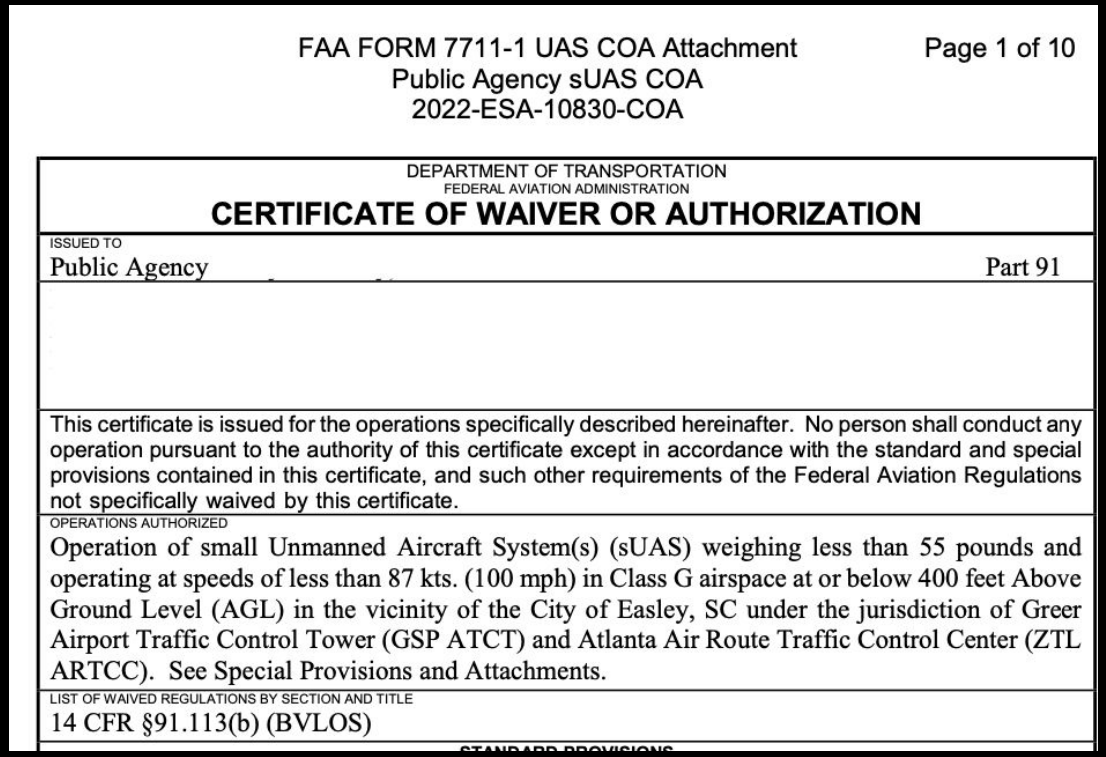
- The student shall gain knowledge of Federal Aviation Administration regulations that apply to the Operator’s operations.
  - Public aircraft operations
  - 14 CFR Part 1
  - 14 CFR Part 48
  - 14 CFR Part 89
  - 14 CFR Part 91
  - 14 CFR Part 830 – NTSB Accident Reporting

Public Aircraft Operations

An overview

Drone Regulation Frameworks

- Drone operations are federally regulated by the Federal Aviation Administration
- Public safety agencies can operate under two regulatory frameworks:
  1. Part 91 regulations as a Public Aircraft Operator with a Certificate of Waiver and/or Authorization
  2. Part 107 regulations



FAA FORM 7711-1 UAS COA Attachment
Public Agency sUAS COA
2022-ESA-10830-COA

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DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

CERTIFICATE OF WAIVER OR AUTHORIZATION

ISSUED TO
Public Agency

Part 91

This certificate is issued for the operations specifically described hereinafter. No person shall conduct any operation pursuant to the authority of this certificate except in accordance with the standard and special provisions contained in this certificate, and such other requirements of the Federal Aviation Regulations not specifically waived by this certificate.

OPERATIONS AUTHORIZED

Operation of small Unmanned Aircraft System(s) (sUAS) weighing less than 55 pounds and operating at speeds of less than 87 kts. (100 mph) in Class G airspace at or below 400 feet Above Ground Level (AGL) in the vicinity of the City of Easley, SC under the jurisdiction of Greer Airport Traffic Control Tower (GSP ATCT) and Atlanta Air Route Traffic Control Center (ZTL ARTCC). See Special Provisions and Attachments.

LIST OF WAIVED REGULATIONS BY SECTION AND TITLE

14 CFR §91.113(b) (BVLOS)

Public Aircraft Operations

- A public aircraft operation has two requirements:

Requirement	How the Operator meets this requirement
The aircraft must be owned or leased by the government of a State (Title 49 U.S.C. § 40102)	OTI is a political subdivision of the State of New York and owns the aircraft being flown
Flights must not be conducted for a commercial purpose	OTI must not be receiving compensation for the flights. Public safety & emergency management operations are providing a public service.

Aircraft airworthiness and crewmember self-certification

- The Operator must self-certify aircraft airworthiness and crewmembers
  - Small unmanned aircraft do not typically have FAA Airworthiness Certificates (like a Boeing 737 would)
    - The Operator must implement a program that ensures aircraft are in an airworthy condition before flight
  - Crewmembers are not required to hold FAA Pilot Certificates
    - But similarly, the Operator must implement a training program that ensures crewmembers are appropriately qualified and trained

Examples

1. OTI staff deploys an Agency-owned Skydio X10 for disaster response in the city

2. OTI staff deploys an Agency-owned Skydio X10 for training or a maintenance functional check flight

3. OTI staff deploys his/her personal drone to conduct an inspection

4. OTI staff deploys an Agency-owned Skydio X10 for emergency response where FEMA is reimbursing the operations

14 CFR Part 1

General definitions

General Definitions

- 14 CFR Part 1 is a list of definitions used by the FAA. For example, the term “small unmanned aircraft” is defined:

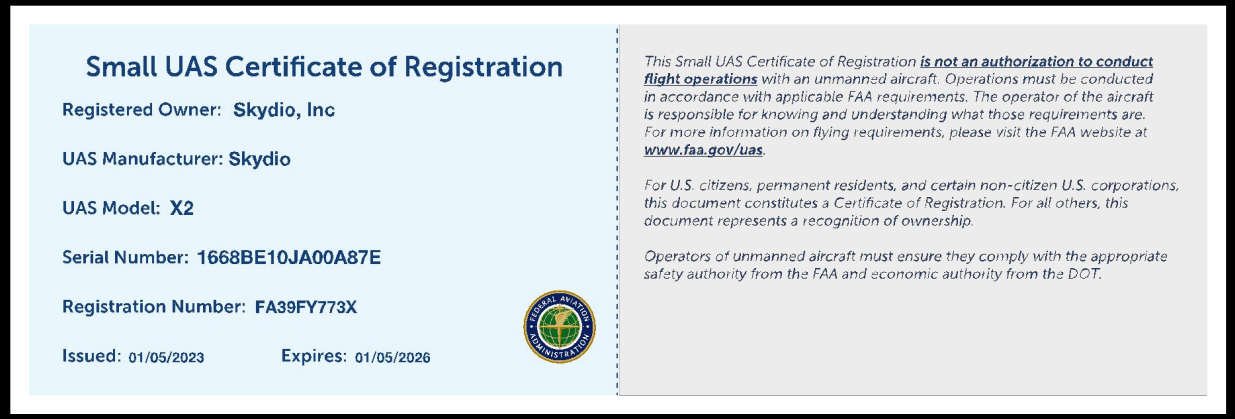
Small unmanned aircraft - An unmanned aircraft weighing less than 55 pounds on takeoff	
Small unmanned aircraft system - A small unmanned aircraft and its associated elements	

14 CFR Part 48

Small unmanned aircraft registration

Small unmanned aircraft registration

- Must be registered with the FAA in accordance with Part 48
- Each small unmanned aircraft (sUA) must have its registration number marked on the external surface so that it is legible
- Operators should have the registration card readily accessible when operating the sUA



Small UAS Certificate of Registration

Registered Owner: **Skydio, Inc**

UAS Manufacturer: **Skydio**

UAS Model: **X2**

Serial Number: **1668BE10JA00A87E**

Registration Number: **FA39FY773X**

Issued: 01/05/2023 Expires: 01/05/2026

*This Small UAS Certificate of Registration **is not an authorization to conduct flight operations** with an unmanned aircraft. Operations must be conducted in accordance with applicable FAA requirements. The operator of the aircraft is responsible for knowing and understanding what those requirements are. For more information on flying requirements, please visit the FAA website at **www.faa.gov/uas**.*

For U.S. citizens, permanent residents, and certain non-citizen U.S. corporations, this document constitutes a Certificate of Registration. For all others, this document represents a recognition of ownership.

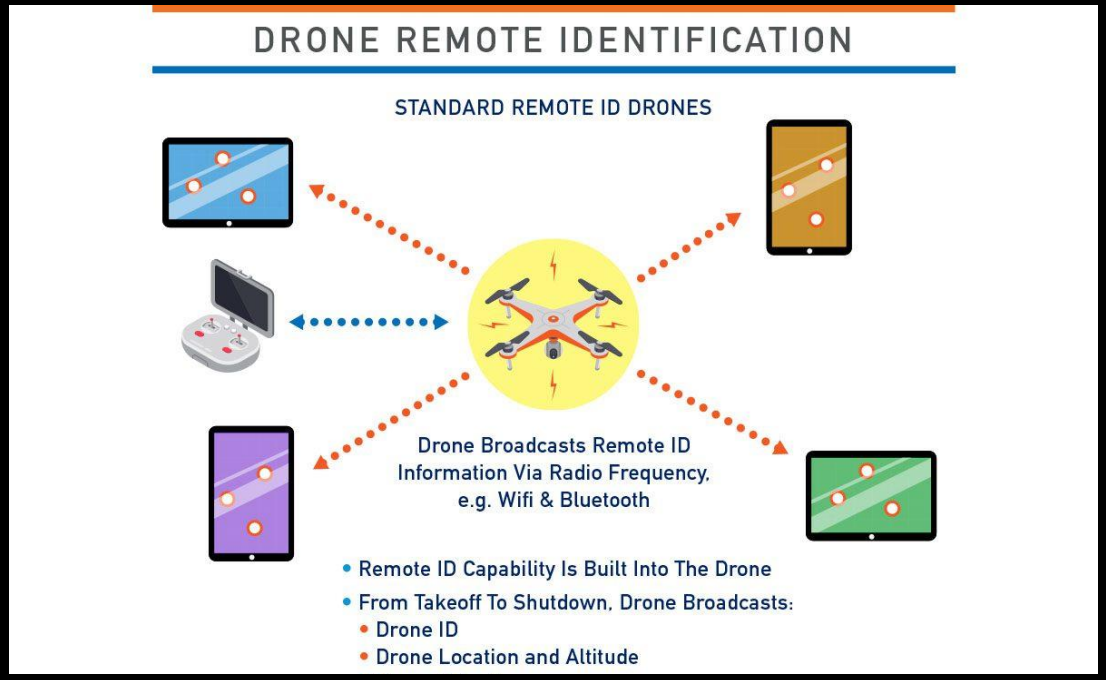
Operators of unmanned aircraft must ensure they comply with the appropriate safety authority from the FAA and economic authority from the DOT.

14 CFR Part 89

Remote identification

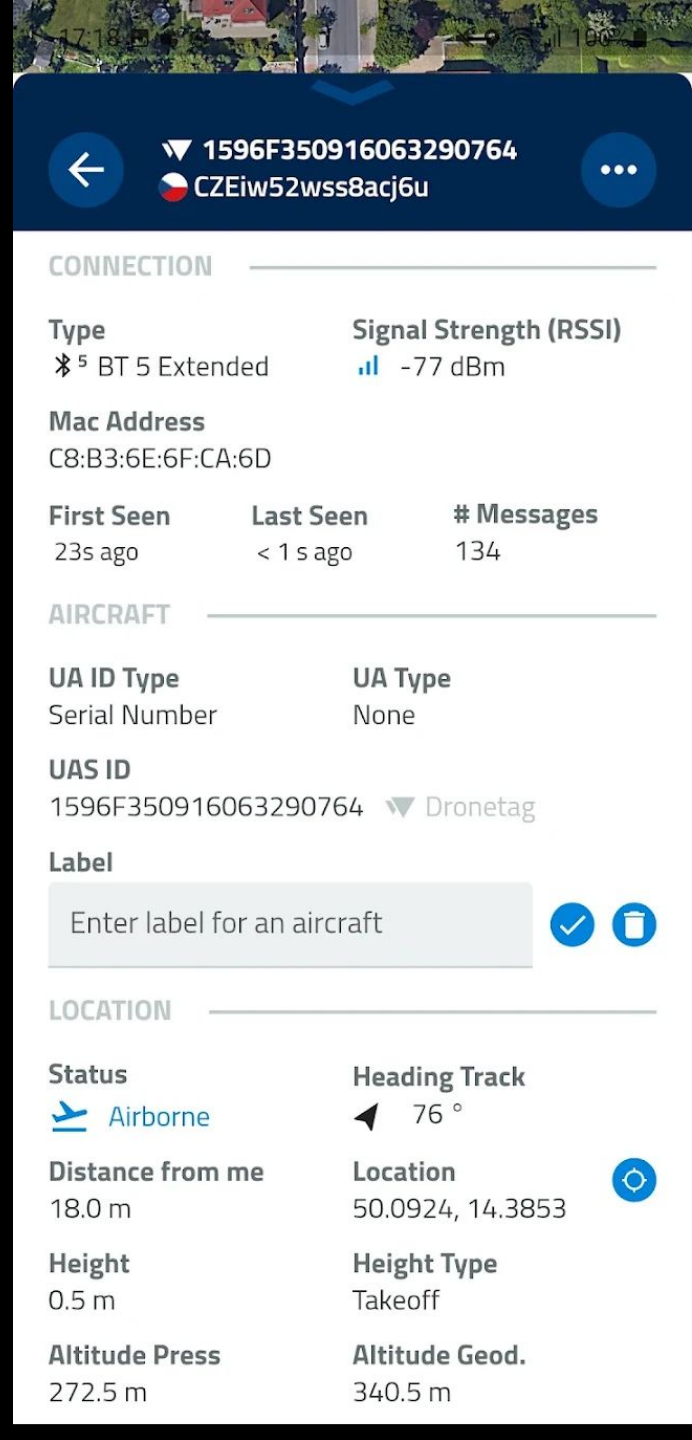
Remote ID Overview

- Remote ID refers to the ability of a drone to broadcast identification and location information that can be received by other parties.
- The Operator must use Standard Remote ID equipped drones
- To verify a drone has remote ID, go to the FAA's website: https://uasdoc.faa.gov/listDocs



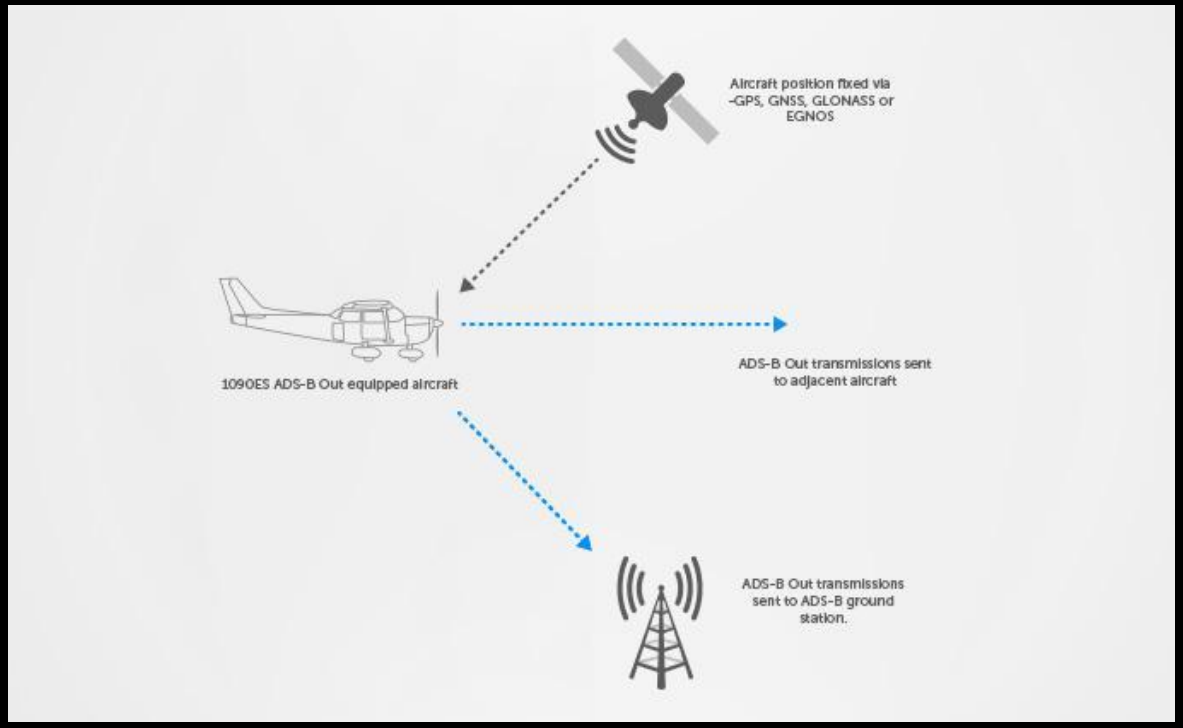
Remote ID Broadcast Information

- Standard Remote ID drones broadcast the following information from takeoff to shutdown:
  - ID (serial number)
  - Location and altitude
  - Velocity
  - Control station location and elevation
  - Time mark
  - Emergency status



ADS-B Out Prohibition

- ADS-B Out is a technology used by crewed aircraft to broadcast their position and other information (sort of like Remote ID)
- Drone pilots can **receive** this data and use it to avoid crewed aircraft (required for BVLOS operations)
- Part 89 prohibits sUA from **broadcasting** ADS-B



14 CFR Part 91

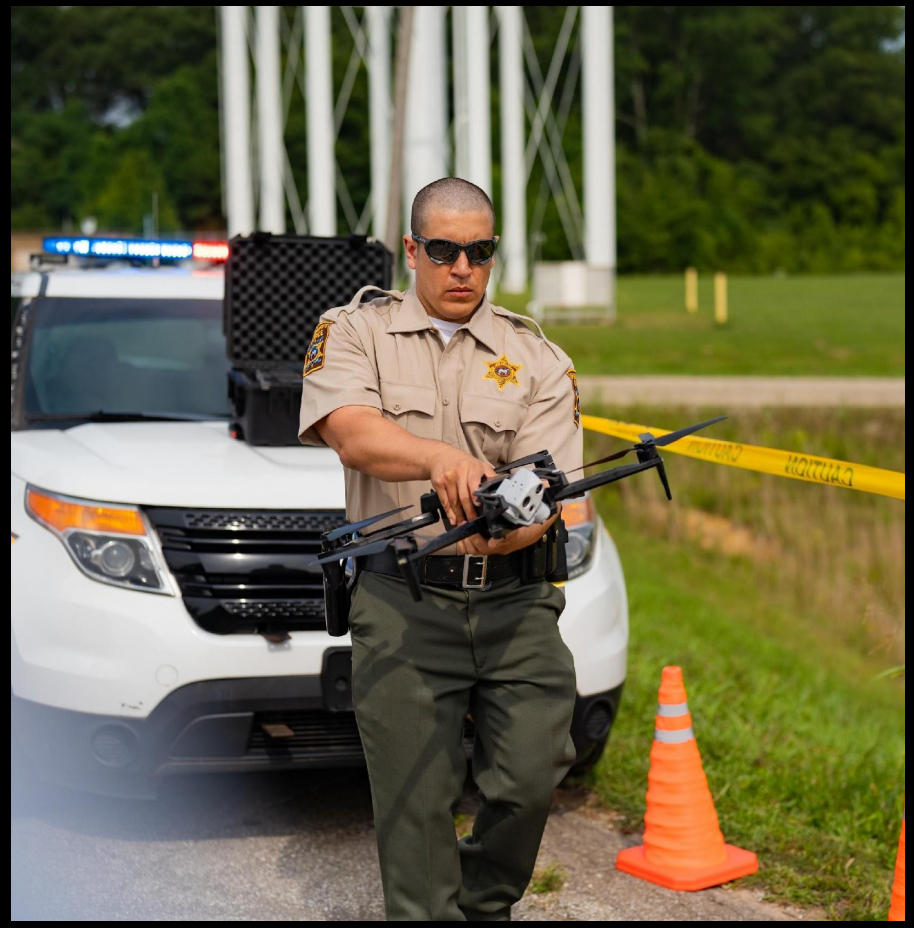
General operating rules

§ 91.3 – Responsibility and Authority of PIC

(a) The pilot in command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft.

(b) In an in-flight emergency requiring immediate action, the pilot in command may deviate from any rule of this part to the extent required to meet that emergency.

(c) Each pilot in command who deviates from a rule shall, upon the request of the Administrator, send a written report of that deviation to the Administrator.



§ 91.13 – Careless or reckless operation

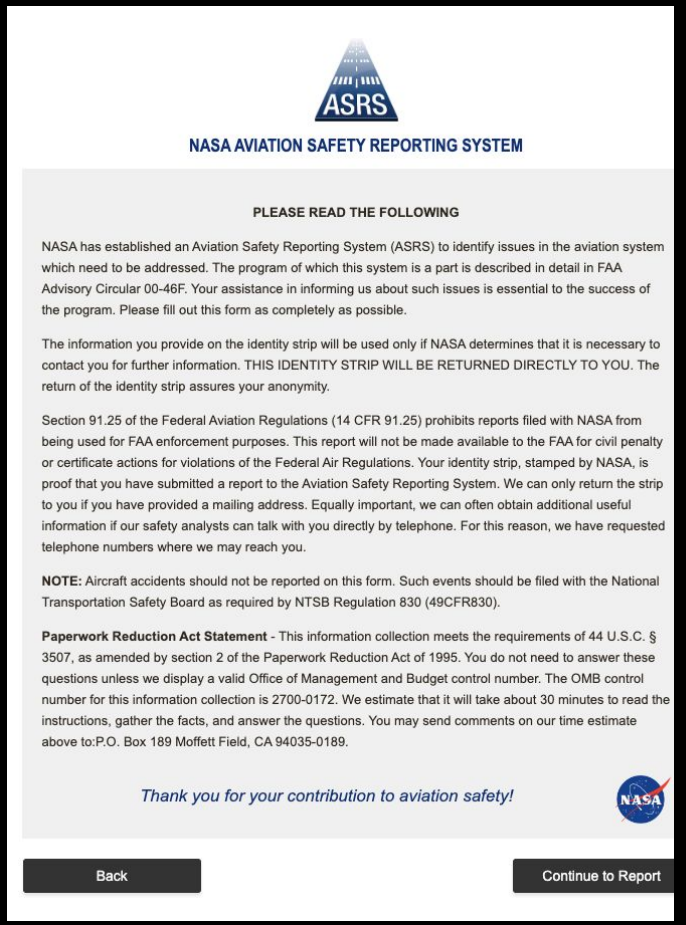
- No person may operate an aircraft in a careless or reckless manner so as to endanger the life or property of another.

Aviation Safety Reporting Program

- The Aviation Safety Reporting System is managed by NASA and captures voluntary submitted aviation safey incidents and situations from aviation stakeholders.
- These reports are used to identify identify deficiencies in the NAS, support policy formulation, and strength aviation safety research.

https://asrs.arc.nasa.gov/report/caveat.html?formType=uas

- § 91.25 - The Administrator of the FAA will not submitted reports in any enforcement action except information concerning accidents or criminal offenses which are wholly excluded from the Program.



§ 91.103 Preflight action

- Each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight.

§ 91.111 Operating Near Other Aircraft

- No person may operate an aircraft so close to another aircraft as to create a collision hazard.

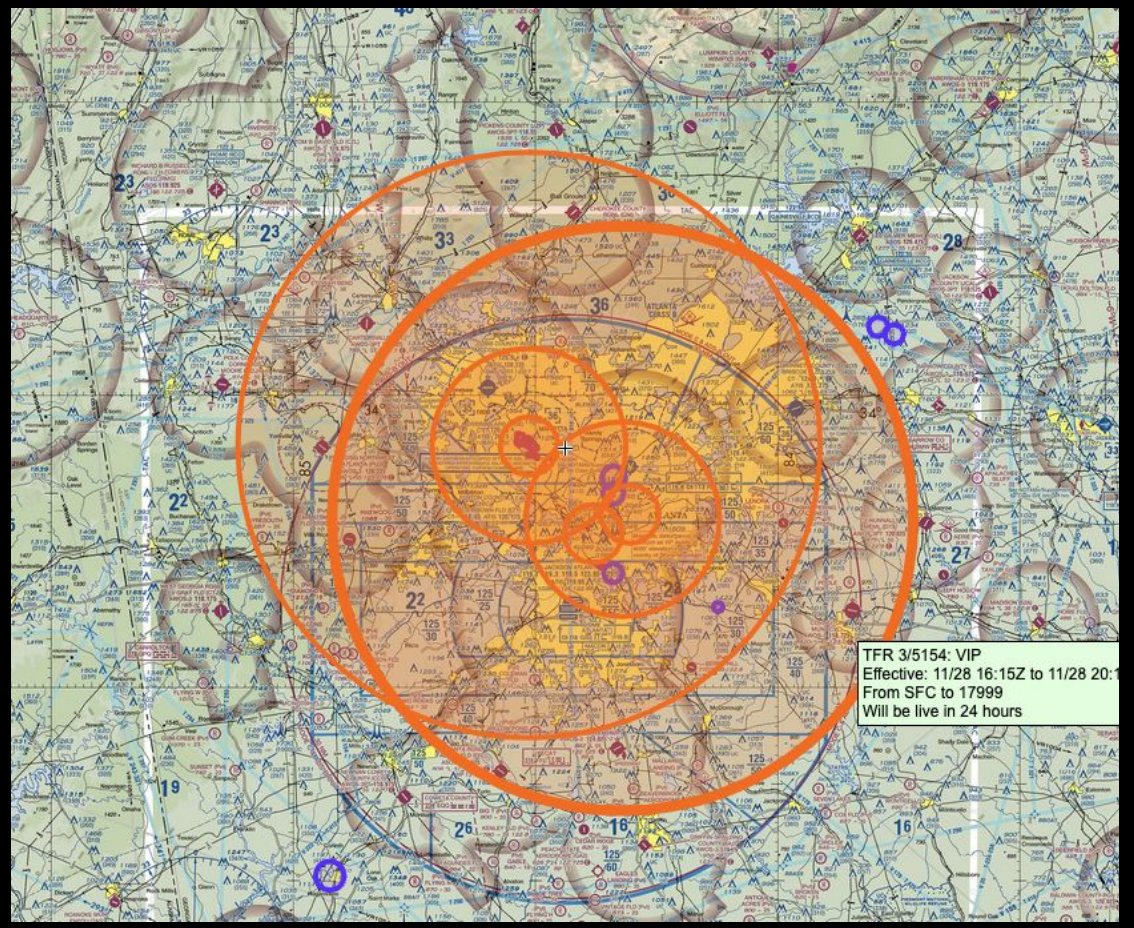
§ 91.113 Right of way rules

- Unmanned aircraft must yield right of way to all other aircraft.
- We'll discuss this further when we review waivers

Temporary Flight Restrictions

- The FAA can issue Temporary Flight Restrictions (TFRs) for several reasons:
  - Disaster/hazard areas
  - Emergencies
  - VIPs (President, VP, other)
  - Major sporting events and aerial demonstrations
  - Special Security Instructions (SSI)

Ref: § 99.7, §§ 91.137 – 91.144



14 CFR Part 830

NTSB Accident Reporting

Accident Report

- An unmanned aircraft accident is defined in 49 CFR section 830.2 as an occurrence associated with the operation of any public or civil unmanned aircraft system that takes place between the time that the system is activated with the purpose of flight and the time that the system is deactivated at the conclusion of its mission, in which:
  - (1) any person suffers death or serious injury

Incident Report

Operators must consider that the rest of the reporting requirements for serious incidents listed in section 830.5. Serious incidents include:

- Flight control system malfunction or failure:
- Inability of any required flight crewmember to perform normal flight duties as a result of injury or illness.
- Inflight fire, which is expected to be generally associated with batteries.
- Aircraft collision in flight.
- More than $25,000 in damage to objects other than the aircraft.
- Release of all or a portion of a propeller blade from an aircraft, excluding release caused solely by ground contact.
- An aircraft is overdue and is believed to have been involved in an accident.