Introduction to Part 107

and Practical Advice

Operations from a Moving Vehicles

- Operating from moving land- or water-borne vehicle
  - Permitted by Part 107 in sparsely-populated areas.
- Operations from moving aircraft is prohibited.
- Small UA transporting another person’s property for compensation or hire may not be operated from any moving vehicle.

Alcohol or drugs and the provisions on prohibition of use.

- It is the remote PIC/s responsibility to ensure that all crew members are not participating in the operation while impaired.
- Consumed any alcoholic beverage within the preceding 8 hours
- Is under the influence of alcohol
- Has a blood alcohol concentration of .04 percent or greater; and/or
- Is using a drug that affects the person’s mental or physical capabilities.
    - THIS INCLUDES OVER THE COUNTER MEDICATIONS AND/OR PRECRIPITON MEDICATIONS (CHECK LABLE AND CONSULT WITH YOUR DOCTOR).

Daylight Operations

- Night operations are prohibited
  - Night Operations defined as the time between the end of evening civil twilight and the beginning of morning twilight
    - Published in The Air Almanac
    - Evening twilight is the period of sunset until 30 minutes after sunset and morning civil twilight is the period of 30 min prior to sunrise until sunrise
    - Alaska is different, published in The Air Almanac
  - Civil Twilight Operations
    - UA must be equipped with an anti-collision lights visible for at least 3nm
    - Can be reduced by PIC if it is the interest of safety (night vision)
  - Anti-collision lights are not required for daylight operations

Visual Observer Requirements

- VO is optional
- VO must be able to effectively communicate:
  - Small UA location, attitude, altitude, and direction of flight
  - Position of other aircraft or hazard in the airspace
  - Determination that UA does not endanger the life or property of another.
- The remote PIC is responsible to ensure the VO is in the proper location and is fully briefed to preform his/her duties.
- An effective from of communications between the PIC and VO is required and is the responsibility of the remote PIC.

The prohibition of operating multiple sUAS

- No person may act as a remote pilot in command or VO for more than one unmanned aircraft operation at one time.

The prohibition of carrying hazardous materials

- No carriage of hazardous materials.
- Chemicals, etc.
  - Example: NO crop dusting

Visual line of sight (VLOS) aircraft operations

- Remote PIC and person manipulating the controls must be able to see the aircraft at all time during flight.
- VLOS requirement would not prohibit actions such as scanning the airspace or briefly looking down at the small UA CS
- If VLOS is lost it must be regained as soon as possible. i.e. smoke rooftop, tree etc.
- Remote PIC is still responsible for see and avoid during these periods.
- VLOS must be accomplished with unaided vision.

Right-of-Way Rules

- Short answer – UAS **MUST** get out of the way of all other airspace users.
- A remote PIC has a responsibility to operate the small UA so it remain clear of and yields to all other aircraft.
- Must yield right of way to other aircraft.
  - Basically the other aircraft should not alter or delay their flight unless you have a waiver (another section).
- Remote PIC must be aware of other aircraft, persons, and property in the vicinity of the operating area. Maneuvering the UA so it doesn’t pose a hazard.

Operations over human beings

- UA will not fly over a person who is not under a safe cover, such as a protective structure, or a stationary vehicle.
  - Person who is directly participating in the operations PIC, VO, etc. is permitted.
    - Selecting an operational site the is clearly unpopulated/uninhabited.
    - Establish an operating area in which PIC has taken reasonable precautions to keep free persons not directly participating in the operation.
    - Having a plan of action that ensures the UA remains clear of person who my enter operating area.
    - Adopt an appropriate operating distance from persons not directly participating in the operations.

Prior authorization required for operations in certain airspace

- Remote PIC is required to know what type of airspace the operations are being conducted.
- Operations in Class B, C, D and E airspace are allowed with the required ATC permission (Airspace Wavier).
- Operations in Class G airspace are allowed without ATC permission.

Operations in the vicinity of airports

- When operating in the vicinity of an airport, the PIC must be aware of all traffic patterns and approach corridors to runway and landing areas.
  - Must not interfere with airport operations
  - Avoid operations in a traffic pattern!

NOTAM restrictions

- Prior authorization is required for class B, C, D or E airspace.
- Areas covered by a Notice to Airman (NOTAM) can also restrict sUAS operations.
- Several websites available to check for NOTAMs
- Check 1-800-WX-BRIEF to check for latest NOTAM

Preflight

- Part 107 requires preflight inspection by the remote pilot in command.
- Preflight inspection should include a visual or functional check of the UA
  - UA airframe
  - UA GCS
  - Communications Check
  - Batteries
  - Control Check
  - **See page 7-3 AC 107-2**

Operating Limitations

- Maximum groundspeed of 100 mph (87 knots).
- Maximum altitude of 400 feet above ground level (AGL) or, if higher than 400 feet AGL, remain within 400 feet of a structure.
- Minimum weather visibility of 3 miles from control station.
- 500 feet below and 2000 feet horizontally from clouds.

Taking the Test

- Test is taken in person at local FAA-certified testing center
- 60 questions, with 3 responses for each question
- Minimum score is 70% (42 questions right)
- Two hours to complete the test
- $150 fee to take the test
- Many commercial options for test preparation.
- Free information online.

Question Breakdown

Topic	Percentage of Questions
Regulations	15 – 25%
Airspace & Requirements	15 – 20%
Weather	11 – 16%
Loading and Performance	7 – 11%
Operations	35 – 45%
Total Number of Questions	**60**

Part 107 Study Guide

- Introductions
- Regulations
- Airspace Classification, Operation Requirements, and Flight Restrictions
- Aviation Weather Sources
- Effects of Weather on Small Unmanned Aircraft Performance
- Small Unmanned Aircraft Loading
- Emergency Procedures
- Crew Resource Management
- Radio Communication Procedures
- Determining the Performance of Small Unmanned Aircraft
- Physiological Factors (including Drugs and Alcohol) affecting Pilot Performance
- Aeronautical decision-Making and Judgments
- Maintenance and Preflight Inspection Procedures
- Airport Operations (Reading Charts)
- https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/remote_pilot_study_guide.pdf

Tips and Tricks

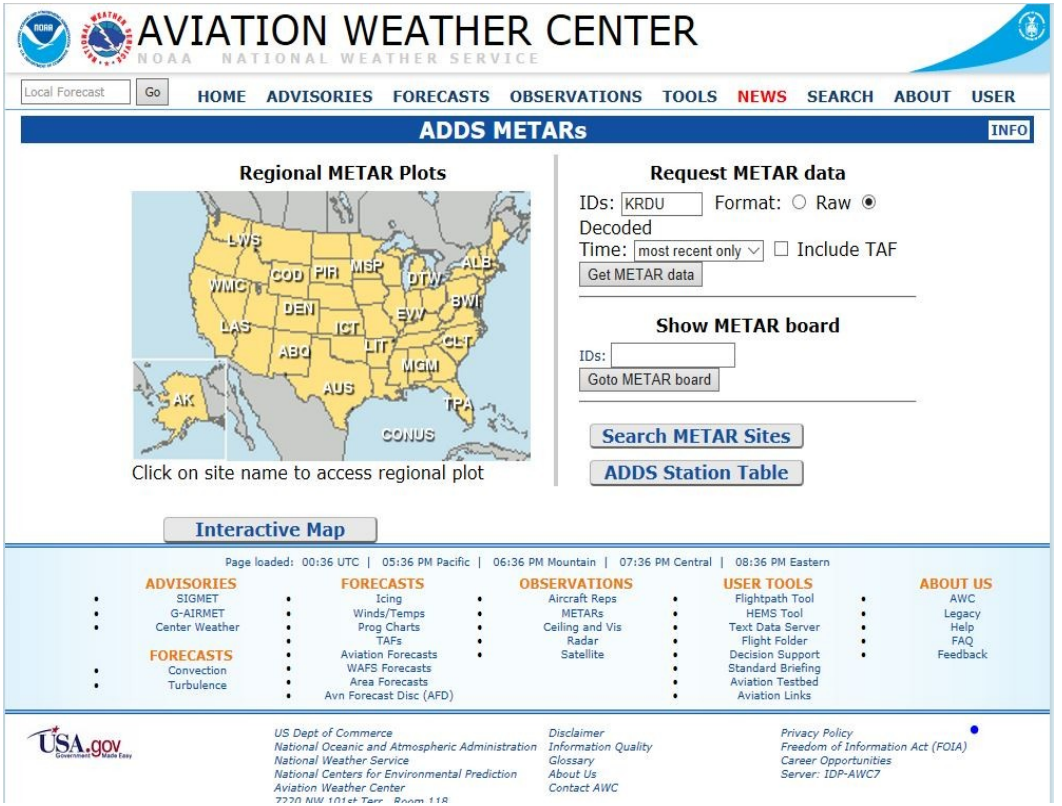
- There are practice tests with explanations online
- It’s almost always the PIC Responsibility
- There will be at least one question on alcohol consumption.
- Be careful to make the distinction between
  - AGL Above Ground Level
  - MSL Mean Sea Level
  - True North
  - Magnetic North

Tips and Tricks

- To learn how to read METARs and TAF

http://www.aviationweather.gov/metar?gis=off

- Do this for a everyday while you are studying.



ADDS METAR Data

INFO

METAR Home | Plot | Data | Board

IDs: KRDU Format: ○ Raw ◉ Decoded most recent only ☑ Include TAF Print Update

Data at: 0038 UTC 04 Oct 2017

METAR for: KRDU (Raleigh-Durham Intl, NC, US)
Text: **KRDU 032351Z 06005KT 10SM CLR 17/11 A3048 RMK AO2 SLP320 T01720106 10250 20172 53003**
Temperature: 17.2°C (63°F)
Dewpoint: 10.6°C (51°F) [RH = 65%]
Pressure (altimeter): 30.48 inches Hg (1032.3 mb) [Sea level pressure: 1032.0 mb]
Winds: from the ENE (60 degrees) at 6 MPH (5 knots; 2.6 m/s)
Visibility: 10 or more sm (16+ km)
Ceiling: at least 12,000 feet AGL
Clouds: sky clear below 12,000 feet AGL

TAF for: KRDU (Raleigh-Durham Intl, NC, US) issued at 2326 UTC 03 Oct 2017
Text: **KRDU 032326Z 0400/0424 VRB02KT P6SM SKC**
Forecast period: 0000 to 1300 UTC 04 October 2017
Forecast type: FROM: standard forecast or significant change
Winds: variable direction winds at 2 MPH (2 knots; 1.0 m/s)
Visibility: 6 or more sm (10+ km)
Ceiling: at least 12,000 feet AGL
Clouds: clear skies
Text: **TEMPO 0410/0413 4SM BR FEW250**
Forecast period: 1000 to 1300 UTC 04 October 2017
Forecast type: TEMPORARY: The following changes expected for less than half the time period
Visibility: 4 sm (6 km)
Ceiling: at least 12,000 feet AGL
Clouds: few clouds at 25000 feet AGL
Weather: BR (mist)
Text: **FM041300 05002KT P6SM FEW250**
Forecast period: 1300 UTC 04 October 2017 to 0000 UTC 05 October 2017
Forecast type: FROM: standard forecast or significant change
Winds: from the NE (50 degrees) at 2 MPH (2 knots; 1.0 m/s)
Visibility: 6 or more sm (10+ km)
Ceiling: at least 12,000 feet AGL
Clouds: few clouds at 25000 feet AGL

Part 107 Waiver Process

- The FAA may issue a certificate of waiver authorizing a deviation from any regulation specified in §107.205 if the Administrator finds that a proposed small UAS operation can safely be conducted under the terms of that certificate of waiver.
- A request for a certificate of waiver must contain a complete description of the proposed operation and justification that establishes that the operation can safely be conducted under the terms of a certificate of waiver.
- The FAA may prescribe additional limitations that the Administrator considers necessary.
- https://www.faa.gov/uas/request_waiver/

Part 107 Waivers

- Section 107.25—Operation from a moving vehicle or aircraft. However, no waiver of this provision will be issued to allow the carriage of property of another by aircraft for compensation or hire.
- Section 107.29—Daylight operation.
- Section 107.31—Visual line of sight aircraft operation. However, no waiver of this provision will be issued to allow the carriage of property of another by aircraft for compensation or hire.
- Section 107.33—Visual observer.
- Section 107.35—Operation of multiple small unmanned aircraft systems.
- Section 107.37(a)—Yielding the right of way.
- Section 107.39—Operation over people.
- Section 107.41—Operation in certain airspace.
- Section 107.51—Operating limitations for small unmanned aircraft.

FAA Waiver Website

https://www.faa.gov/uas/request_waiver/