



FAA UAS SYMPOSIUM

How To: Navigate Airspace

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How To...



- Get around the skies safely
- Get access to controlled airspace
- Stay clear of airspace you need to avoid



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Overlapping Types of Airspace

- “Controlled” versus “uncontrolled” airspace
- Classes of airspace
- Special-use airspace
 - “Regulatory” versus “non-regulatory”
- Military training routes
- Temporary flight restrictions
- The “Special Flight Rules Area”

Controlled and Uncontrolled Airspace



- Controlled airspace
 - Class A, Class B, Class C, Class D, Class E
- Uncontrolled airspace
 - Class G
- Neither has anything to do with the presence of an airport
- Let's take a deeper dive into each



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Class G (“uncontrolled”) Airspace

- Mostly aircraft operating under visual flight rules (VFR)
- “See and avoid” means different things to manned and unmanned aircraft pilots
 - §91.113: “When weather conditions permit, regardless of whether an operation is conducted under instrument flight rules or visual flight rules, vigilance shall be maintained by each person operating an aircraft so as to see and avoid other aircraft.”
 - §107.37: “Each small unmanned aircraft must yield the right of way to all aircraft, airborne vehicles, and launch and reentry vehicles...”

Class E Airspace

- “Controlled” airspace
- Usually starts at either 700 or 1200 feet above the ground or from the top of other classes of airspace
- Extends up to 18,000 feet MSL
 - May start from the surface in the vicinity of airports
- Pretty much fills up most of the controlled airspace throughout the country that isn’t designated differently

Why Is Class E “Controlled”?

- Use by aircraft on instrument flight plans
- Need for better visibility and clearance from clouds than in uncontrolled airspace
 - Part 107 visibility and cloud clearance requirements essentially mirror those of Class C airspace
- Knowing the weather around you, regardless of the class of airspace you’re in, is a Part 107 responsibility

Airports in Class E Airspace

- May have control towers or be uncontrolled airfields
 - Part 107 doesn't care which of the above is in play
 - §107.43: “No person may operate a small unmanned aircraft in a manner that interferes with operations and traffic patterns at any airport, heliport, or seaplane base.”
- The lack of an ATC facility makes it impossible (at present) to obtain authorization to fly small UAS in the vicinity of uncontrolled airports
 - We're working on it...

Class D Airspace

- Requires manned aircraft to have two-way communications with ATC facility
- Least complex kind of airspace where §107.41 authorization is required to operate close to the airport
- Has been an administrative challenge from the beginning
 - Requires “ATC authorization,” not waiver of the rule itself

Class C Airspace

- Busier, more complex airspace
- Airspace around military airfields often is designated Class C
 - ATC facility responsible for operations may be military as well, meaning “ATC authorization” can’t be granted by FAA
- Same radio requirements as Class D plus requirement for altitude encoding transponder

Class B Airspace

- The biggest and busiest class of airspace
- Same equipage requirements as Class C, plus manned aircraft must be specifically cleared to enter
 - Requirement exists for all IFR and VFR aircraft
- Usually has at least one or two smaller airports underlying the Class B airspace, often with their own Class D airspace and control towers
- “Upside-down wedding cake” structure usually means VFR aircraft circumvent entry requirements by flying low and as close as possible

Special Use Airspace (SUA)

- Regulatory SUA
 - Restricted areas (e.g., R-2308)
 - Prohibited areas (e.g., P-56)
- Nonregulatory SUA
 - Military Operating Areas (e.g., “Warrior 3 Low MOA”)
 - Alert Areas (e.g., “Alert Area A-211”)
 - Warning Areas
 - Controlled Firing Areas
 - “National Security Areas”

MTRs and TFRs

- Military training routes
 - Normal airspeed limitations (250 knots maximum below 10,000 feet) do not apply
 - VR (VFR) routes with four-digit designators indicate routes where the highest the aircraft will be is 1,500 feet AGL
- Temporary flight restrictions
 - Apply to UAS as well as manned aircraft
 - Designated in response to certain criteria in Parts 91 and 99
 - Check Notices to Airmen (NOTAM) to be sure one hasn't popped up

The “Special Flight Rules Area”

- Consists of an outer ring (30 NM diameter) and an inner core (15 nm in diameter) centered on DCA
 - UAS may be flown in outer ring provided Part 107 is rigidly adhered to
 - The inner core – the “Flight Restricted Zone” – is considered extremely security-sensitive; don’t expect to get a waiver to operate, let alone an “ATC authorization”

Access to Airspace around Airports



- Per paragraph 2-1-1 of the “Controller’s Handbook” (Order JO 7110.65), ATC services are not provided to model aircraft or to any UAS operating at or below 400ft AGL
 - Good news: no equipage requirements imposed on small UAS
 - Bad news: they’re hard to see, but somehow everyone is watching...
- For controlled airports, an “ATC authorization” per §107.41 is a must



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Applying for “ATC Authorization”



- Process for simplifying application for and approval of authorizations for Part 107 operations has been refined over the past 3 years
 - Low Altitude Authorization and Notification Capability (LAANC) – partnership between FAA and UAS Service Suppliers (USS)
 - Details at https://www.faa.gov/uas/programs_partnerships/data_exchange/
- *LAANC is not ready for recreational pilots yet, but we're actively working on it*



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What About Uncontrolled Airports?



- FAA responsible for the airspace around them
 - No vehicle for creating “UAS Facility Maps” to designate safe areas and altitudes for sUAS operations or advising transient aircraft of UAS operations
 - §107.43: “No person may operate a small unmanned aircraft in a manner that interferes with operations and traffic patterns at any airport, heliport, or seaplane base.”
- Plenty of interest in being approved to operate in such locations, but must be looked at on case-by-case basis for now



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Summing Up



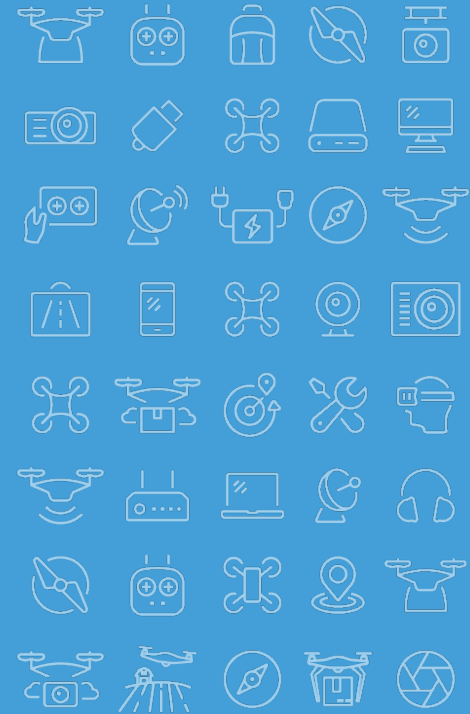
- We know there's interest in getting as close as possible to airports
 - We're working in it
 - The small UAS hazard to manned aircraft goes up significantly in that environment



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Questions?



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