

Small Unmanned Aircraft Systems (sUAS) & Airports

Presented to: ASW Airports Conference

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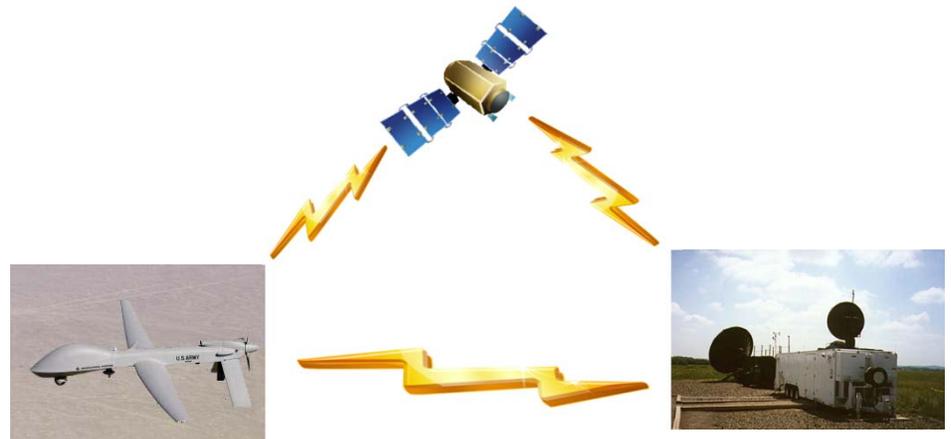
Overview

- Unmanned Aircraft Systems
- Model Operations
- Small UAS Rule (Part 107)
- Airspace Authorizations
- Next Steps in Integration
 - Focus Area Pathfinders
 - Drone Zone
- Outreach Efforts
- Airport Specific Concerns



What is a UAS?

- **A UAS is a *system*:**
 1. Unmanned Aircraft
 2. Ground Control Station
 3. Command & Control Link(s)
- **Also known as:**
 - Unmanned Aerial Vehicle (UAV)
 - Remotely Piloted Aircraft System (RPAS)
 - RC Model Aircraft
 - Drone



Why Use a UAS?

- **UAS operations are particularly effective for missions that are dangerous or dull**
 - Humans are not put at risk
 - Continuous operations are possible
- **Operations with UAS often cost less than using manned aircraft**



Authorization for Model Aircraft

- **PL 112-95 §336 → Part 101**
 - Hobby/recreation only,
 - Must maintain visual line of sight,
 - Community based organization safety standards,
 - ≤55lbs*, & yields to manned flights,
 - Notify all airports and ATC facility (if present) within 5 miles
- **Doesn't limit FAA authority to pursue enforcement action against modelers who endanger the safety of the NAS**
- **FAA registration required (w/2017 NDAA law)**
- **AC 91-57A guidance for modelers**
 - 400ft AGL “*best practices*”
- **Interpretive Rule**



Authorization for Model Aircraft

- **Interpretation of the Special Rule for Model Aircraft (Docket No. FAA-2014-0396) – Interim interpretation (June 2014)**
 - FAA may make rules affecting *all* aircraft or airspace which include models
 - Community-based org = membership association that provides its membership with safety guidelines
 - Visual Line of Sight of the **operator**, no binoculars/ no night vision goggles/
no first person view
 - Incidental to business = commercial operations = not model ops
 - *Maximum* gross weight ≤55 lbs*.
 - Ref operations near airports, 5 miles is *statue* miles
 - Notification ⇔ conversation. Only ATC may “deny” operations i.e. Class B.
 - Objection of ATC or Airport Mgr ≈ NAS endangerment
- **FAA evaluating comments to determine where clarification or changes are needed**

The Small UAS Rule (Part 107)

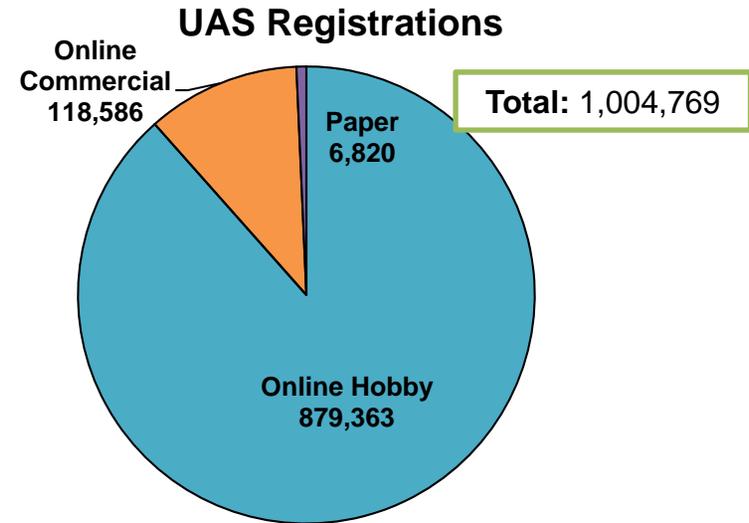
- **First rules for routine operation of small UAS (<55 pounds); effective August 29, 2016**
- **Recreational operators may fly under Part 107 or Public Law 112-95 Section 336/Part 101**
- **333 exemptions are valid until expired**



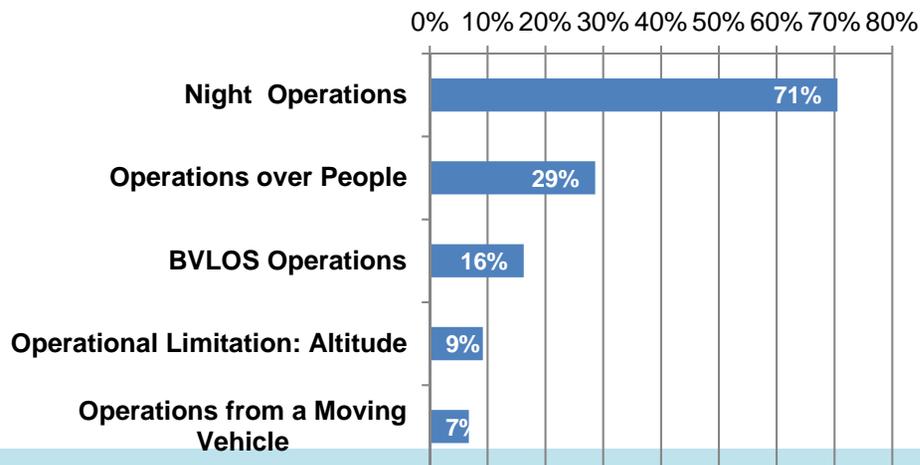
Part 107 by the Numbers as of 12 Jan18



Total Remote Pilot Certificates Issued: 74,862
Total Knowledge Exams Passed: 53,575
Knowledge Exam Success Rate: 92%



Top 5 Waiver Requests



Airspace Waivers/ Authorizations Approved	
Class B	1,934
Class C	2,909
Class D	7,372
Class E	1,447
TOTAL	13,662

The Basics

- UAS operators must obtain a Remote Pilot Certificate
- Visual line-of-sight, daylight operations
- 400ft or below and within 400ft of structures
- UAS must weigh less than 55 lbs, be registered and marked per Part 47/48



General Rules

KNOW THE RULES!



- **Not applicable to**
 - Air carrier operations
 - Part 101 operations
 - 333 exemptions
- **No falsification, reproduction, alteration**
- **Inspection, testing, & demo of compliance**
 - Gives very broad authority; includes airman abilities
- **Accident reporting – FAA & NTSB (Part 830)**
 - FAA: *Serious injury* or property damage >\$500

Operating Rules

- **Remote Pilot in Command**
 - Foreign UAS can fly per Part 107 if they meet Part 375 (ICAO SARPs)
 - No *undue hazard* to persons or property for any reason
- **Condition for Safe ops**
- **No medical conditions that would interfere with safe ops**
- **Inflight emergency**
- **No careless or reckless ops**
- **No ops from an aircraft or moving vehicle; OK if in *sparsely populated* area**



Operating Rules Con't

- **Drug & alcohol restrictions apply to UAS Part 107**
- **Daylight or civil twilight (with anti-collision light vis 3mi)**
- **Visual line-of-sight only**
 - Location, attitude, altitude, & flt path
- **Visual Observer responsibilities**
- **One UA per operator (RPIC)**
- **No hazardous cargo**
- **Must yield right-of-way to manned aircraft & may not interfere w/ Arpt Tfc Pat ops**

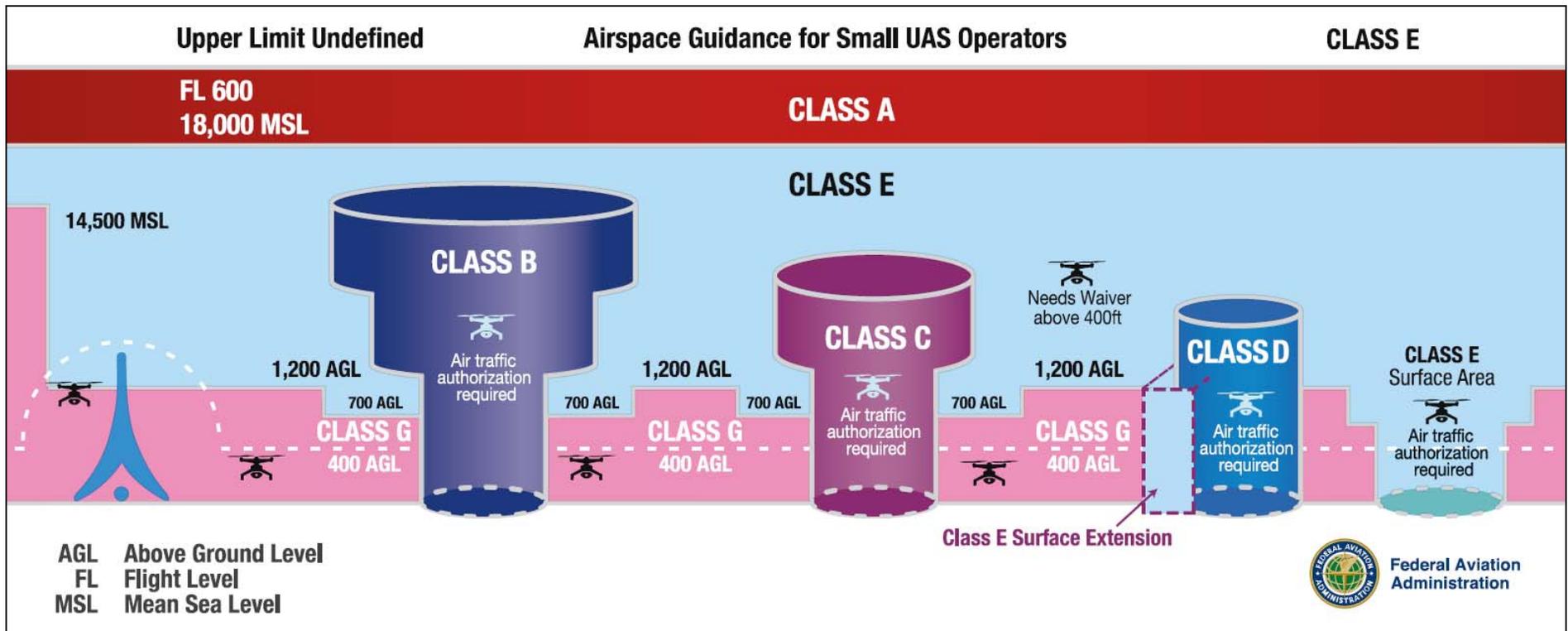


Operating Rules Con't

- No operations *over* people not *directly participating* in ops
- Ops in P, R, TFR airspace
- Preflight inspection required
- External load operation OK*
 - Load is secure & not adversely affect flight controls or flight characteristics
- Ops limits
 - 400ft altitude limit
 - Must have 3mi visibility
 - Max groundspeed of 87kts/100mph
 - Clouds clnc – 500ft blo, 2000ft horiz



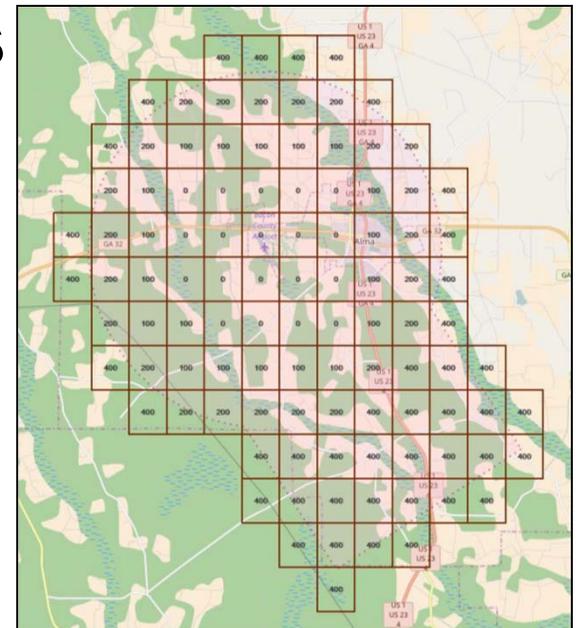
UAS in the National Airspace System



- Prior authorization required for Class B, C, D, & E sfc

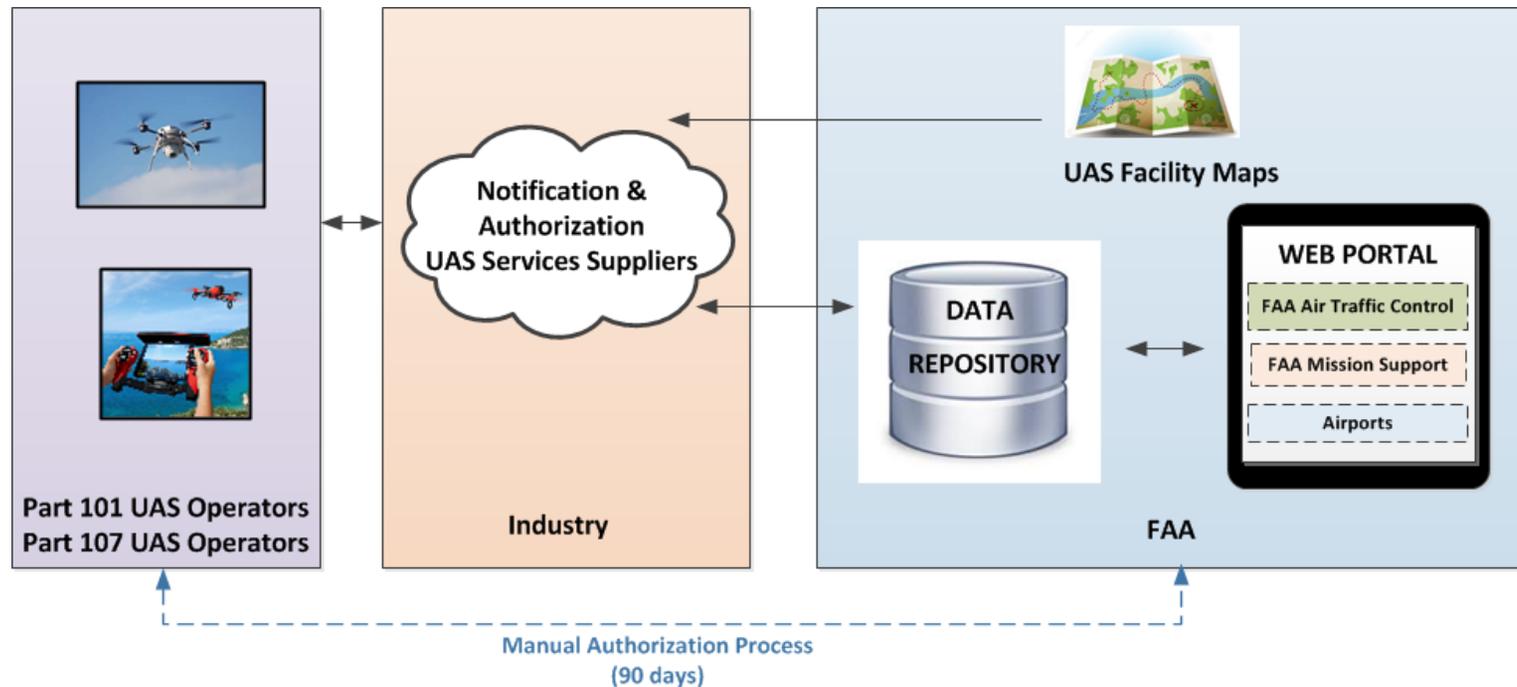
UAS Facility Maps

- **Depict maximum altitudes that FAA may grant approval to fly near airports under Part 107 without additional safety analysis**
- **Maps do not authorize operations**
 - Job aid for airspace authorization requests
 - Assists the FAA in streamlining authorization process
- **Maps released in phases, with all maps available by end Oct 2017**



Coming Soon – LAANC

Low Altitude Authorization and Notification Capability



Goals

- Enable efficient notification and authorization services to small UAS operators
- Provide the data exchange framework for UAS traffic management (UTM)

Focus Area Pathfinders – Expanding Operations

- **3 Focus Area Pathfinder Partners:**



1. CNN

- Exploring visual line-of-sight operations over people



2. Precision Hawk

- Exploring extended visual line-of-sight operations in rural areas



3. BNSF Railways

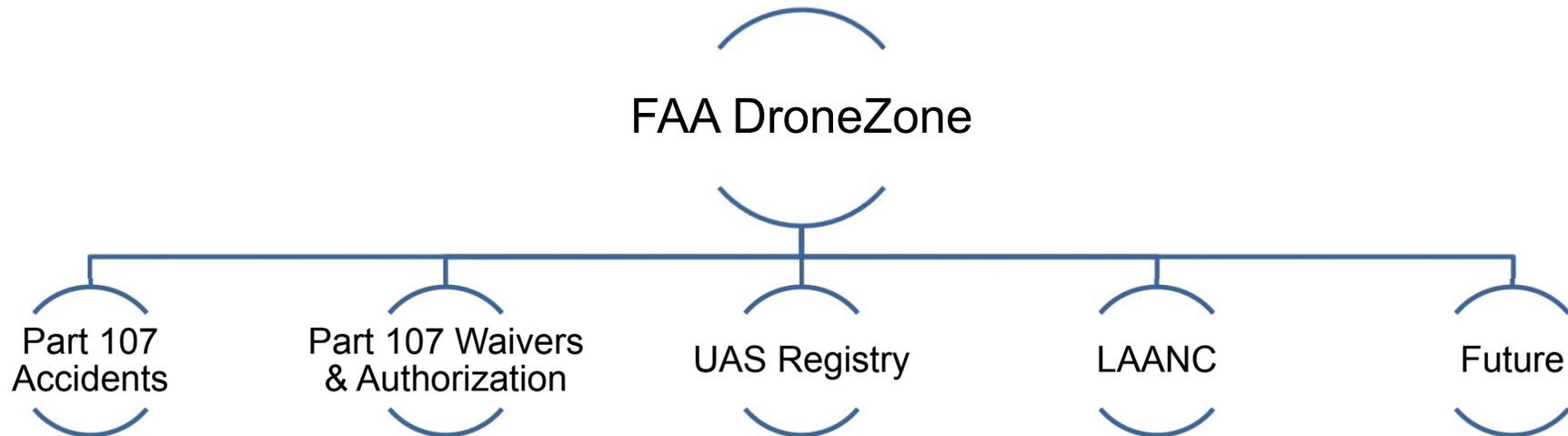
- Exploring beyond visual line-of-sight operations in rural areas

UAS Detection Initiative

- Growing concerns about potentially unsafe small UAS operations
- The FAA co-leads an interagency group with DHS to research UAS detection technology
- In October 2015, the FAA signed a CRDA with CACI International to test its detection technology
- In May 2016, the FAA signed additional CRDAs with Gryphon Sensors, LitEye, and Sensofusion



FAA DroneZone Initiated



- **Enterprise solution for “one stop shopping”**
 - One user ID & password
 - Links numerous databases
 - Provides status of registered aircraft, airspace and waiver applications

UAS Outreach and Education



I FLY SAFE

All drones are aircraft—even the ones at the toy store. So when I fly a drone I am a pilot. Before I fly I always go through my pre-flight check list. I regularly check the safety guidelines at faa.gov/uas

FLY SMART, FLY SAFE, AND HAVE FUN!

knowbeforeyoufly.org
faa.gov/uas

PRE-FLIGHT CHECKLIST

- I fly below 400 feet
- I always fly within visual line of sight
- I'm aware of FAA airspace requirements: faa.gov/go/uasfr
- I never fly over groups of people
- I never fly over stadiums and sports events
- I never fly within 5 miles of an airport without first contacting air traffic control and airport authorities
- I never fly near emergency response efforts such as fires
- I never fly near other aircraft
- I never fly under the influence

Federal Aviation Administration



Reporting Unsafe UAS Activity

- **Flight near or at the airport:**
 - Report the sighting to Air Traffic Control
 - Note the location, altitude, and characteristics of the aircraft
- **Anywhere else:**
 - Call local law enforcement
 - The FAA has published guidance for law enforcement to help them respond to unsafe UAS activity
- **Be as detailed & specific as possible**
 - Location, altitude, direction, pictures, videos, etc.
 - FAA Hotline 1-866-TELLFAA 1-866-835-5322



Airport Concerns & Opportunities

- **ATC manages airspace; you manage airports**
 - May *object* to model ops; may not *disapprove*
 - 107 ops do not require any notification to arpt mgr
 - UAS operators on your airfield – now what?
- **LOAs/MOUs with model clubs**
- **UAS troubles & what to do**
- **UAS for airfield inspection**
 - Public Aircraft Operations vs 107



Show Your Commitment to Safety

Develop Best
Practices

Establish Safety
Plans

Build Community
Involvement and
Trust

Welcome
Encounters to
Educate

Take Efforts to
Communicate

Identify
Mitigations to
Hazards





Questions?

www.faa.gov/uas,

Local FSDO,

or

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Public Aircraft Operations

- An entity who operates a public aircraft which is *intrinsically governmental* in nature (49 U.S.C. §40102 and §40125)
- e.g. DoD, NASA, CBP, state & local governments
- Aircraft + location + purpose = public use
- Certificate of Authorization (COA) – since can't meet all FAA regulations; Self-certifies UAS ops

