

Unmanned Aircraft Systems (UAS) 101

Presented to: Contract Management Conference

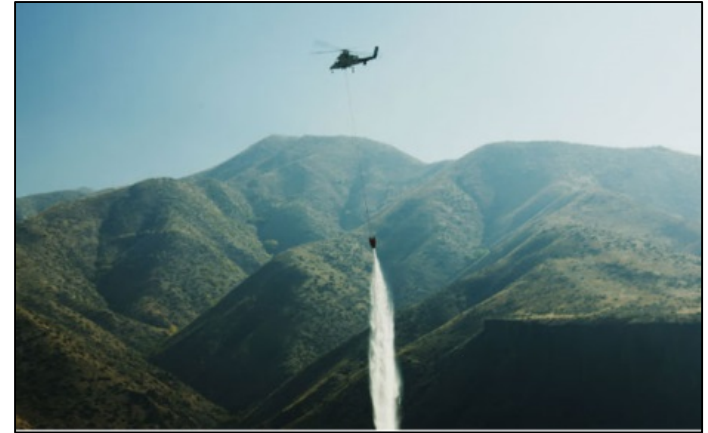
Presented by: Bryan Budds / Mike Soper, MDOT

Date: March 5, 2019



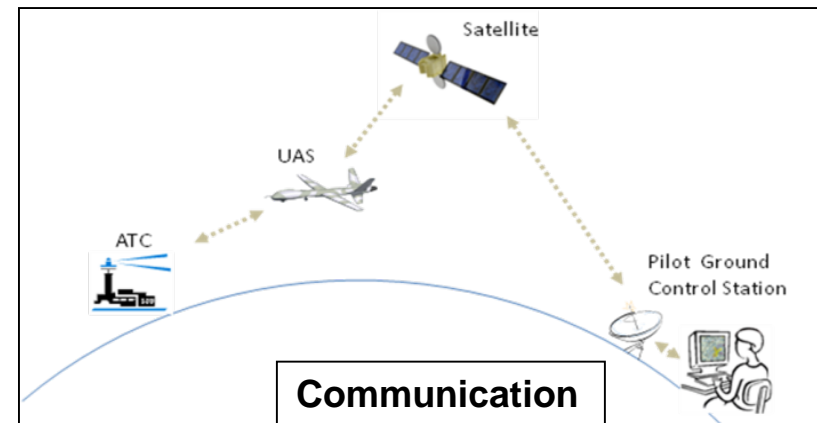
Overview

- **Unmanned Aircraft Systems**
 - What & Why
- **FAA Authority**
- **Types of UAS Operations**
 - 333 Exemptions
 - Hobby/Recreational Operations
 - Small UAS Rule (Part 107)
- **Outreach Efforts**



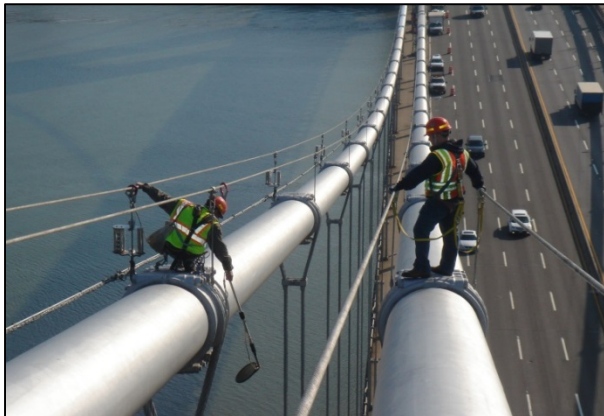
What is a UAS?

- **Unmanned Aircraft System**
- **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**



What is the FAA's Authority?

- **U.S. airspace is public space**
 - 49 U.S.C. §40103(a)(1)
- **UAS are aircraft subject to regulation**
 - 49 U.S.C. §40102(a)(6) ; PL 112-95 §331 & §336; 14 CFR 1.1
 - An aircraft is any device used, or intended to be used, for flight
- **UAS must comply with FAA regulations**



Types of UAS Operations

	333 Exemption Operations	Model Operations	Part 107 Operations
Pilot Requirements	<ul style="list-style-type: none"> • Must have Part 61 pilot certificate 	<ul style="list-style-type: none"> • No FAA pilot requirements 	<ul style="list-style-type: none"> • Must have Part 107 Remote Pilot certificate
Aircraft Requirements	<ul style="list-style-type: none"> • Must be listed in the exemption • < .55 pounds must be registered 	<ul style="list-style-type: none"> • < .55 pounds must be registered 	<ul style="list-style-type: none"> • Must be less than 55 pounds • < 0.55 pounds must be registered
Location Requirements	<ul style="list-style-type: none"> • Must comply with the Certificate of Authorization (COA) 	<ul style="list-style-type: none"> • Must notify all airports and air traffic control (if applicable) within 5 sm 	<ul style="list-style-type: none"> • Class B, C, D, and surface E require ATC permission • Class G, & the rest of Class E without ATC permission
Operating Rules	<ul style="list-style-type: none"> • Operator requires an exemption. • Must comply with Part 91, and the Conditions & Limitations in the exemption. 	<ul style="list-style-type: none"> • Must keep aircraft in visual line-of-sight • Must follow community-based safety guidelines 	<ul style="list-style-type: none"> • Must comply with Part 107. • Operator may have waiver from certain parts of the rule.
Purpose	<ul style="list-style-type: none"> • Any Civil operations allowed by the exemption 	<ul style="list-style-type: none"> • Only Recreational or certain Educational flying 	<ul style="list-style-type: none"> • Any Civil operations allowed under the rule.



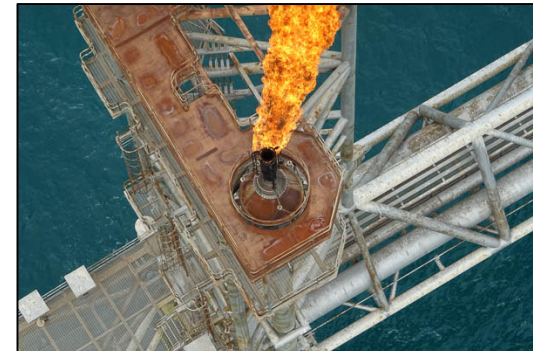
The Small UAS Rule (Part 107)

- First rules for routine operation of small UAS (<55 pounds)
- Took effect August 29, 2016
- Recreational operators may fly under part 107 or Public Law 112-95 Section 336/Part 101 criteria



Part 107 Operating Rules

- Visual line-of-sight only
- Daylight or civil twilight only
- No operations over people
- Must yield right-of-way to manned aircraft
- One UAS per operator
- Max groundspeed of 100 mph
- External load operation permitted if the load does not affect flight operations or control

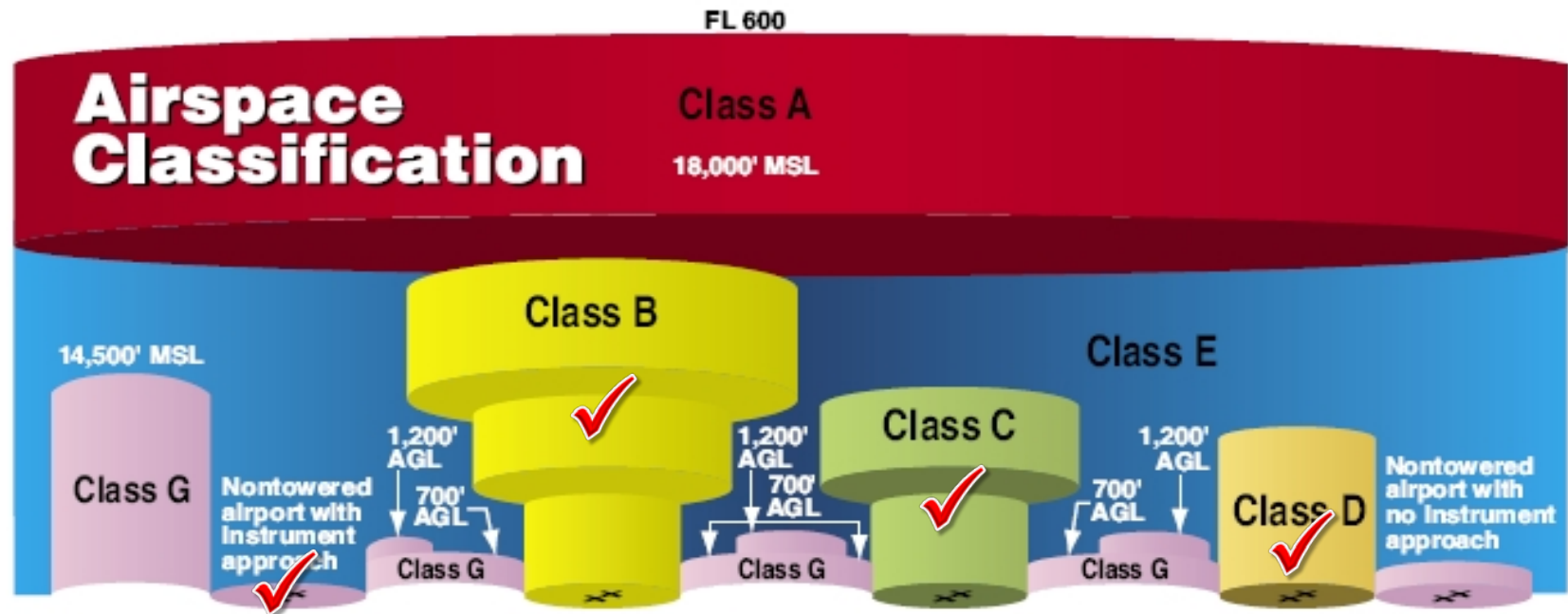


The Basics

- Remote Pilot Certificate required
- Must not have any known medical issues
- <400' AGL or within 400' of a structure; other airspace use requires authorization
- UAS must weigh <55 lbs.
- Registration required



Part 107 Airspace Requirements



- Class B, C, D & surface Class E require ATC authorization ✓
- Class G and the rest of Class E without ATC authorization
- Phased approach to airspace authorizations
- Online portal available at <https://www.faa.gov/uas>

Waivable Provisions of Part 107

- **Operation from a moving vehicle or aircraft (§ 107.25)**
- **Daylight operation (§ 107.29)**
- **Visual line of sight aircraft operation (§ 107.31)**
- **Visual observer (§ 107.33)**
- **Operation of multiple small UAS (§ 107.35)**
- **Yielding the right of way (§ 107.37(a))**
- **Operation over people (§ 107.39)**
- **Operation in certain airspace (§ 107.41)**
- **Operating limitations for small UAS (§ 107.51)**

Online portal available at www.faa.gov/uas/request_waiver/



Unmanned Aerial Systems Statewide Integration

March 4, 2019



UAS - Evolving Policy, Encouraging Innovation

- Unmanned Aircraft Systems Act (PA 432 of 2016, Amended 2018)
 - State Preemption, State Authorization for Use
 - Extension of self
 - Interference with public safety official
 - Interference with key facility
 - Harassment, restraining order, sexual offense
 - Protection of privacy rights
 - Michigan Aeronautics Commission – UAS Program Office
 - Some State Agency Restrictions
 - UAS Task Force
- Federal Aviation Administration 2018 Reauthorization and Rulemaking
 - Draft Notice of Proposed Rulemaking (NPRM) for beyond visual line of sight (BVLOS), flight over people
 - Hobbyist registration reinstated
 - Part 135-esque commercial rules
 - Remote ID and UAS Traffic Management (UTM)

Internal MDOT UAS Guidance Draft

- MDOT Guidance Document
 - Establish internal MDOT procedural and operational requirements in order to ensure the safety and efficiency of all UAS flight operations conducted by MDOT personnel or on behalf of MDOT
 - To ensure that MDOT, its employees, and other on behalf of MDOT remain compliant with 14 CFR Part 107 and/or MDOT Public Certificate of Authorization, and all other federal, state, and local laws.
- UAS Operational Policy & Guidelines for Small Unmanned Aircraft Systems
 - MDOT UAS Program Office & Program Manager / Training Officer
 - Bureau/Office Director, Region Engineer, or designee / UAS Coordinator
 - Remote Pilot in Command / UAS Pilot / UAS Operator / UAS Visual Observer
 - Procurement, Registration, Maintenance, SOPs
- Comments are welcome!
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