

Unmanned Aircraft Systems (UAS) Overview



Brief History of UAS and the FAA

- Spring 2005: FAA UAS Program Office created
- February 2007: FAA states UAS ARE Aircraft.
- Feb 2012 Congress mandates UAS in the NAS by public law
- Oct 2012 – NASA Draft UAS Operating Challenge
- Nov 2013 FAA published first UAS “Roadmap” plan
- June 2014 FAA defines model UAS vs. commercial UAS
- Feb 2015 – NPRM for UAS commercial operations issued.
- September 2015 – AC 91-57A re-issued – Model Aircraft
- December 2015 – Registration for ALL UAS required
- August 2016 – FAR part 107 published
- September 2016 – Part 107 waiver criteria published
- November 2017 – pending sig., hobby UAS will register

FAA places UAS in three categories:

- (1) Public (gov.) aircraft
- (2) Civil aircraft
- (3) Model UAS – registered –
no commercial use



FAR Part 107 – UAS

Effective August 29, 2016

- 107.12 - **RPIC** – Remote PIC – small UAS rating or Private + with training
- 107.13 – Registration per 91.203(a)(2)
- 107.15 – Condition safe for operation
- 107.23 – Careless and Reckless



- **Limits:** < 55 lbs / day VFR (3 SM viz) / unaided visual line of sight only / one UAS per operator / max 100 knots / controlled airspace requires ATC permission / operator stationary (except on water or sparse pop areas) / preflight required; no mandatory maintenance / may NOT operate over persons except crew / TSA must “vet” operator / comm. operator hold FAA Remote PIC license / operator must pass knowledge test every 24th month / minimum age 17 / reportable accidents if damage to other property.

AC 107-2 (6/21/16) for UAS rules. New FAR 107 in effect 8/29/2016



U.S. Department
of Transportation
Federal Aviation
Administration

FAA-S-ACS-10

Unmanned Aircraft Systems
Airman Certification Standards



U.S. Department
of Transportation
Federal Aviation
Administration

Advisory Circular

Subject: Small Unmanned Aircraft Systems
(sUAS)

Date: 6/21/16

AC No: 107-2

Initiated by: AFS-800

Change:

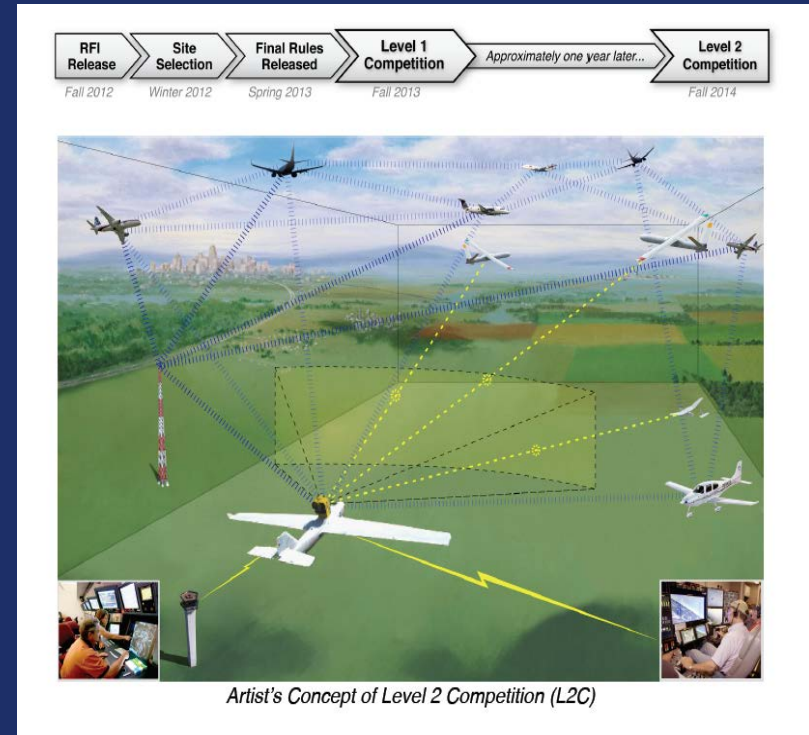
The Federal Aviation Administration (FAA) is amending its regulations to adopt specific rules for the operation of small Unmanned Aircraft Systems (sUAS) in the National Airspace System (NAS) through a final rule. These changes address the classification of sUAS, certification of sUAS remote pilots, and sUAS operational limitations. This advisory circular (AC) provides guidance for conducting sUAS operations in the NAS in accordance with Title 14 of the Code of Federal Regulations (14 CFR) part 107.

FAA Order 8900.1, Volume 16 - UAS *(fsims.faa.gov)*

- *FAA's internal guidance to manage UAS*
- *Alternate means of compliance (AMOC)*
- *Sense and Avoid not fully met – waivers to FAR 107 will proceed as technology proves out.*
- *FAA has granted 80+ waivers as of 11/2016*
- *72 waivers permit night operations*

NASA UAS Airspace Operations Challenge

**FAA Pathfinder
Program and the
NASA UTM Program
– working to meet
Sense and Avoid
mandate (91.113)**



FAA and Industry

- **Visual line-of-sight operations in urban areas**

CNN - how UAS might be safely used for newsgathering in populated areas

- **Extended visual line-of-sight operations in rural areas**

Precision Hawk - explore how this might allow greater UAS use for crop monitoring in precision agriculture operations

- **Beyond visual line-of-sight in rural/isolated areas**

BNSF Railroad - using UAS to inspect rail system infrastructure

FAR 107 Waiver (107.20)

- **List from FAR 107.205:**
- (a) Section 107.25—Operation from a moving vehicle or aircraft - **NO carriage of property of another by aircraft for compensation or hire**
- (b) Section 107.29—Daylight operation.
- (c) Section 107.31—Visual line of sight aircraft operation - **NO carriage of property of another by aircraft for compensation or hire.**
- (d) Section 107.33—Visual observer.
- (e) Section 107.35—Operation of multiple small unmanned aircraft systems.
- (f) Section 107.37(a)—Yielding the right of way.
- (g) Section 107.39—Operation over people.
- (h) Section 107.41—Operation in certain airspace.
- (i) Section 107.51—Operating limitations for small

UAS Facts to Date

- **100,000+ individual drones have been registered for commercial and government purposes**
- **More than 80,000 people have obtained a Remote Pilot Certificate**

Change to FAA Guidance, UAS Violations

CHANGE

**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

**ORDER
2150.3B
CHG 13**

National Policy

Effective Date:

08/27/18

SUBJ: Compliance and Enforcement Bulletin 2018-13: Guidance on Unmanned Aircraft System (UAS) operations that interfere with wildfire suppression, law enforcement, or emergency response efforts.

UAS Sighting List

UAS_Sightings_report_21Aug-31Jan.xlsx [Read-Only]

EventDATETIME		EventREPORTNARRATIVE
571	8/22/2015 21:08	MOR Alert: SAM2 departed memorial hospital heading southbound to RCR. 4SE of SBN SAM1 reported an orange/red drone 1200 MSL maneuvering in the area.
572	8/22/2015 20:45	<p>PRELIM INFO FROM FAA OPS: ANGOLA, IN/UAS INCIDENT/1645E/FORT WAYNE ATCT REPORTED CESSNA C172, AT 2,500 FEET OBSERVED A FLUORESCENT ORANGE UAS WITH FOUR ROTORS COME WITHIN 20 FEET (NEAR MISS) OF ACFT 9 MILES SOUTHWEST ANGOLA. STEUBEN COUNTY SHERIFF NOTIFIED.</p> <p>MOR Alert for FWA Type: Date/Time: Aug 22, 2015 - 2045Z A/C: (C172)</p> <p>Summary: C172 REPORTED A 20' NEAR MISS WITH A UAV 9NM SW OF ANQ AT 2500' MSL. BRIGHT OR FLUORESCENT ORANGE IN COLOR WITH FOUR ROTORS. ROC, DEN, ATM & LOCAL LAW ENFORCEMENT NOTIFIED.</p>

- faa.gov – search “UAS sightings”

<http://pr.cirilot.com/faa-and-assure-announce-results-of-ground-collision-study/>



Risk to persons on the
ground from UAS
overflight

APRIL 28, 2017

FAA And ASSURE Announce Results Of Ground Collision Study

Low Altitude Authorization and Notification Capability

Tower managers approve altitude & area for UAS flight

IAH and HOU are part of the Wave 1 test program



FAA will go to a new URL for UAS:
www.faadronezone.gov

UAS Control – French Air Force

Following incidents of drones flying over the presidential palace and restricted military sites – along with the deadly 2015 Paris terror attacks – the French Air Force has trained four golden eagles to intercept and destroy the rogue aircraft



**Kevlar gloves to
protect the talons**



Drone Advisory Committee (DAC)

- 5/2016 – FAA announces a DAC is being formed to provide an open venue for the FAA and key decision-makers supporting the safe introduction of Unmanned Aircraft Systems (UAS) into the National Airspace System (NAS). The Advisory Committee will be led by Intel CEO Brian Krzanich and FAA Administrator Michael Huerta will be the Designated Federal Official.



Drone Advisory Committee (DAC)

- **Visual line-of-sight operations in urban areas**
CNN - safe use for newsgathering in populated areas
- **Extended visual line-of-sight operations in rural areas**
Precision Hawk - UAS use for crop monitoring in precision agriculture operations
- **Beyond visual line-of-sight in rural / isolated areas**
BNSF Railroad - inspect rail system infrastructure



aopa.org – Pilot Resources – Aircraft Ownership – Drones UAS

Best Practices for Flying your Drone within Five Miles of an Airport

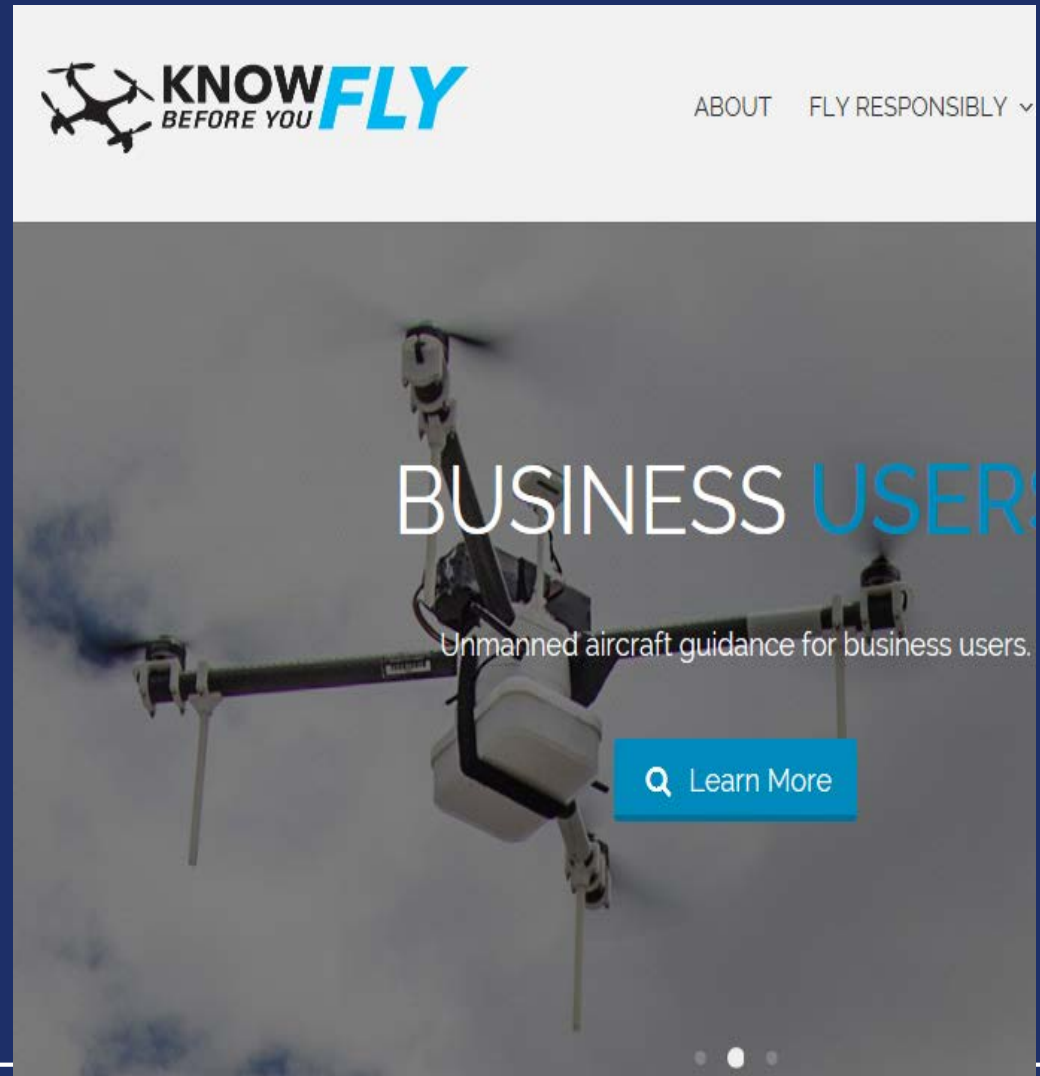


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<http://knowbeforeyoufly.org>

- Association for UAS International / Academy of Model Aeronautics / FAA UAS directorate
- Clearing house site for UAS users



Lockheed / Martin AFSS Tool

