



Federal Aviation  
Administration

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## UAS Security Overview

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# UAS Are Changing the Aviation Ecosystem

## Manned Aircraft

- Relatively few aircraft; most above 1,000 ft.
- High barriers to entry
  - Costly operator certification
  - High aircraft cost
- Aircraft easily tracked and identified
- Professional operators with certifications at risk—encourages compliance



## Unmanned Aircraft Systems

- UAS now outnumber manned aircraft 4:1; most below 500 ft.
- Low barriers to entry
  - Lower operator requirements
  - Very low aircraft cost
- Aircraft and operator more easily concealed
- Public can now access the NAS with no training—far fewer incentives for compliance



# UAS Security Overview

Border Concerns

Airport and Airspace Disruptions

Critical Infrastructure

Criminal Activities: espionage, smuggling, Cyber, terrorism

Clueless & Careless Operators

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IFSEC Global



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## UAS Security:

- Protect the NAS and associated infrastructure, and
- Reduce the risk of malicious actors

## Security and Safety:

*Threats:* Persons, organizations or other actors intentionally employing UAS for the purpose of terrorism, espionage, or criminal activity.

*Hazards:* UAS operations that create a risk to aviation or public safety through careless or clueless operations—primarily due to ignorance, disregard for rules or loss of situational awareness

*Security is integral to UAS integration  
Achieved through a partnership of public and private stakeholders*

# Addressing UAS Security

Faa.gov/UAS

First thing to remember is UAS are aircraft

## Operating Rules

- Airspace access, ops over people, BVLOS, Part 107

## Detection and Awareness

- Remote ID, UAS detection, UAS reporting

## Counter UAS Systems

- Coordinating partner use of UAS detection and mitigation systems

**Partnerships:** Maturing inter-governmental roles, missions

- Whole of community approach
  - Federal Partners
  - State and Local Public Safety Agencies

Prevention

Deterrence

Detection

Response



**Common Security Goal:** Build security into the front end while maximizing the economic and societal benefits of UAS without compromising public safety and national security

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# UAS Detection and Mitigation

## Detection



RF Sensing / Passive



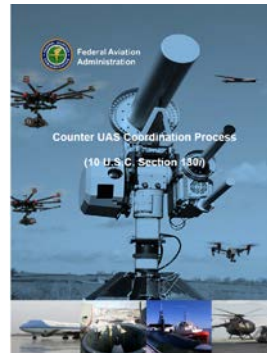
Radar



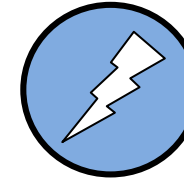
Electro-Optical /  
Infrared



Acoustic



## Mitigation



### **Kinetic**

- Physical engagement/interdiction
- Projectiles and Firearms
  - Net guns
  - Capture systems (Hunter/Gatherer)
  - Water jets and hoses
  - Birds of prey
  - Directed Energy



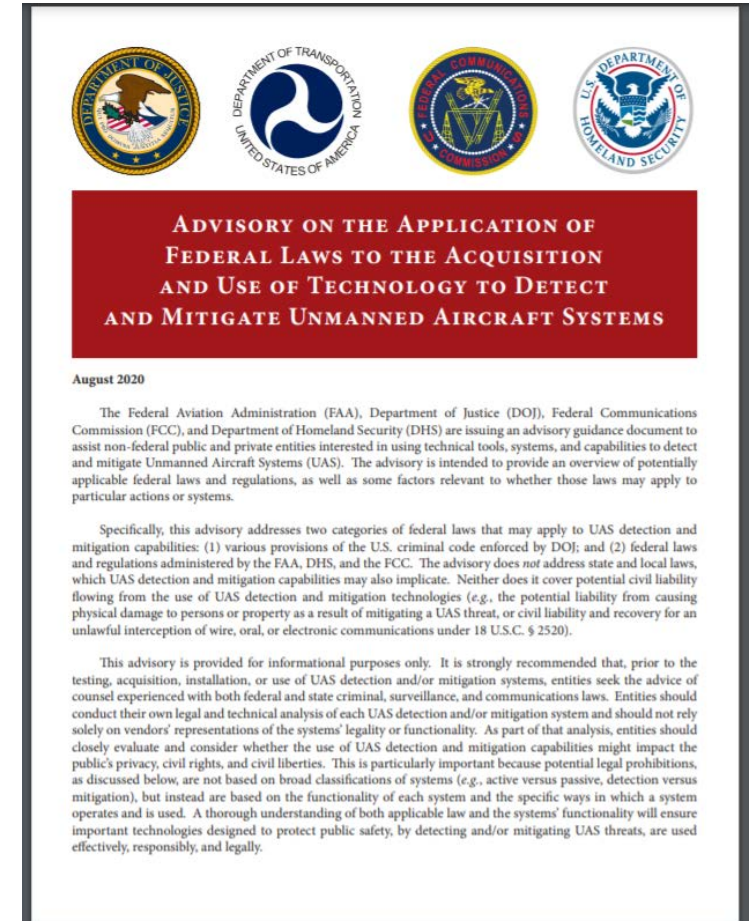
### **Non-Kinetic**

- A non-physical provision of affects against a target, such as sound, light, or electronic means
- Electronic Warfare (EW):
- Jamming
  - Redirection
  - Counter GNSS

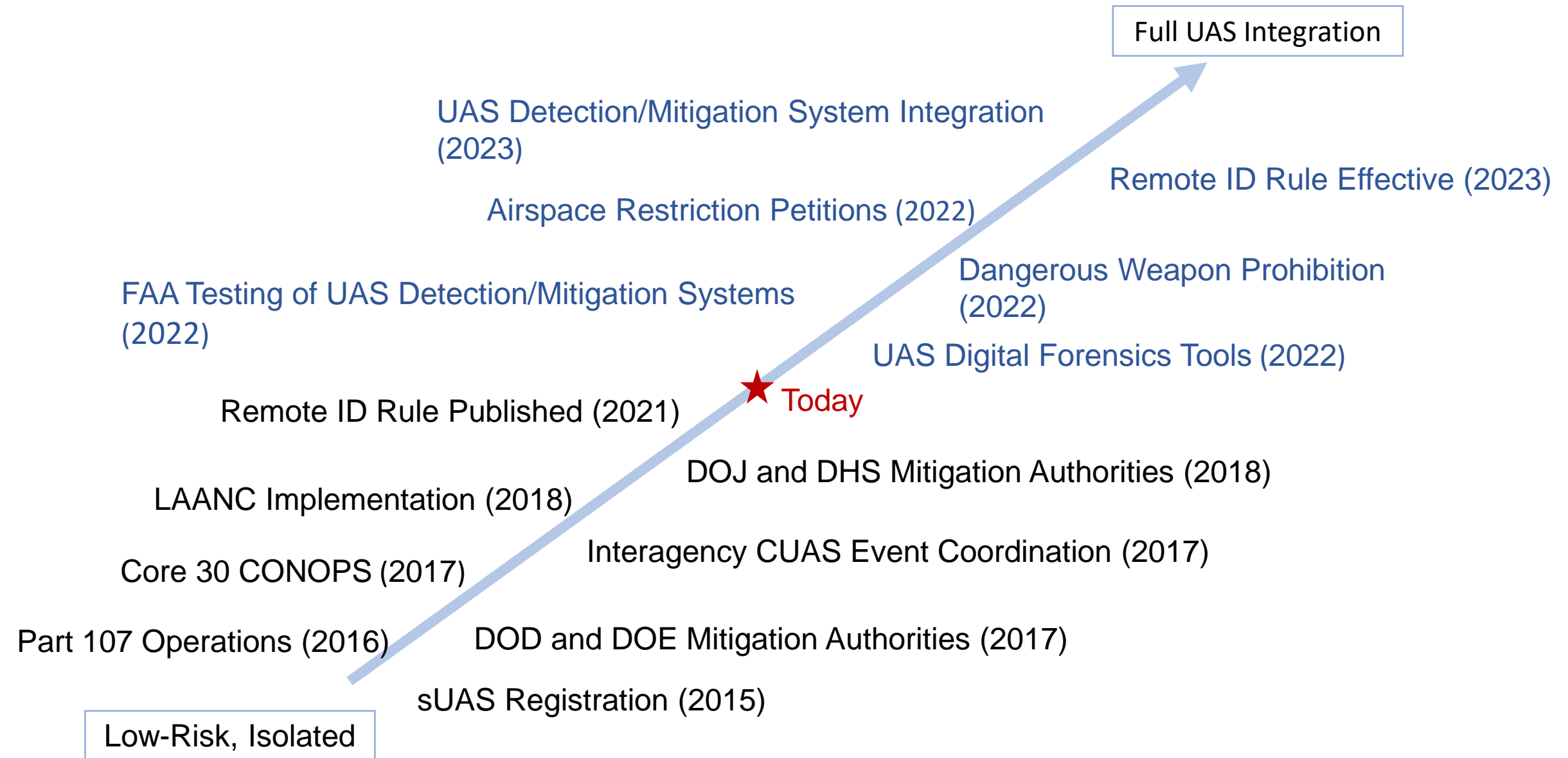
*Detection and Mitigation: FAA coordinates with security partners to ensure that detection and mitigation capabilities do not negatively impact safety and efficiency*

# Legal Advisory on Use of UAS Detection & Mitigation Technologies

- DOJ, DOT (FAA), DHS, and FCC advisory guidance document
  - Goal: help non-federal public and private entities better understand the federal laws and regulations that may apply to the use of capabilities to detect and mitigate threats posed by UAS operations
  - Provides overview of various provisions of U.S. criminal code enforced by DOJ, and relevant federal laws and regulations related to aviation safety
- Released August 17, 2020 and available online at <https://www.justice.gov/opa/pr/interagency-issues-advisory-use-technology-detect-and-mitigate-unmanned-aircraft-systems>



# UAS Integration and Security Flight Path



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A silhouette of a person on the right side of the frame, holding a remote control device. To the left, a drone is flying in the sky. The background is a dramatic sunset or sunrise sky with orange and blue clouds.

# Any questions?

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