



# FAA UAS SYMPOSIUM

## Supporting Safety Through Industry Standards



Federal Aviation  
Administration



# Supporting Safety Through Industry Standards



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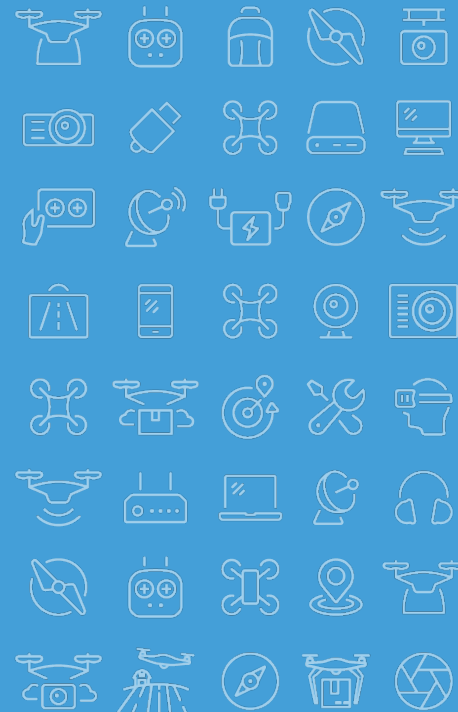
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**FAA UAS  
SYMPOSIUM**

# Agenda

- FAA (3-5 min)
- AUVSI (3-5 min)
- ANSI (3-5 min)
- ASTM (3-5 min)
- RTCA (3-5 min)
- Panel Discussion/Q&A (30-40min)
- Wrap-Up (5 min)



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# Why do we need Standards?



- Why Do We Need Standards?
  - FAA
    - Standards Support Rulemaking
    - Standards Require Research
    - Standards Link Research to Rulemaking
  - Industry
    - Ensure Safety, Reliability & Quality
    - Facilitate Free & Fair Global Trade
    - Interoperability
- Use of Consensus Standards
  - Public Law 104-113
    - National Technology Transfer and Advancement Act of 1995
  - OMB Circular A-119
    - Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities



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# Standards to Support UAS

- Remote Identification (Remote ID)
- Operations Over People/Night (OOP)
- Detect and Avoid (DAA)
- Command & Control (C2)
- UAS Traffic Management (UTM)
- Design and Construction (D&C)
- Modernization of Special Airworthiness Certification (MOSAIC)
- & More!!!



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# AUVSI



- AUVSI Mission

- AUVSI exists to advance that shared interest through **advocacy**, **education** and **market growth**. The work of the association fosters the technical and commercial success of the members and contributes to the societal benefits of safe, accessible and affordable advanced technology.



- Industry Concerns

- **Manufacturers**; regulatory standards that support growth, safety and sustainability.
- **Operators & Maintainers**; performance based regulations that support growth and sustainability.
- **Service Providers**; unified standards for high quality service delivery an includes provision for unified training standards and competency.



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# ANSI



- ANSI Mission
  - To enhance both the global competitiveness of U.S. business and the U.S. quality of life by promoting and facilitating voluntary consensus standards and conformity assessment systems, and safeguarding their integrity
- UAS Standardization Collaborative Activity
  - Cross-sector coordinating body whose charge is to describe current and future standards needed to integrate UAS into the NAS
  - Overarching aim is to support growth of the industry with focus on civil, commercial, and public safety applications
  - UAS Standards Roadmap v1.0 published December 2018
  - UAS Standards Roadmap v2.0 to launch September 12, 2019 targeted for publication end of June 2020



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ASTM INTERNATIONAL  
Helping our world work better



**FAA UAS**  
**SYMPOSIUM**

# F38 Unmanned Aircraft Systems



**F38 Mission:** Produce practical, consensus standards that facilitate integrated UAS operations at an acceptable level of safety. These standards include the design, manufacture, test, maintenance and operation of unmanned aircraft systems as well as the training, qualification, and certification of personnel relevant to the UAS operation. Committee F38 supports industry, academia, government organizations and regulatory authorities.

Formed: 2003, memorandum agreement with FAA  
Current Membership: 230+ members (30 regulators)  
Standards: 18 approved; 25+ in development

## F38.01 Airworthiness

- Hardware oriented
- Safe design, construction, test, modification, & inspection of the individual component, aircraft, or system

## F38.02 Flight Operations

- Procedure oriented
- Safe employment of the system within the aviation environment among other aircraft & systems

## F38.03 Personnel

- Individual, Crew and Organization Oriented
- Safe practices by the individuals and teams responsible for employing the system

## Global Representation

*Argentina  
Australia  
Bahamas  
Canada  
China  
France  
Germany  
Italy  
Korea, Republic of  
Netherlands  
New Zealand  
Norway  
United Kingdom  
United States*

*Also Require Infrastructure capable of incorporating this technology safely in the NAS- ATM,UTM, LAANC*



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# Scope of Standard

Broadcast UAS



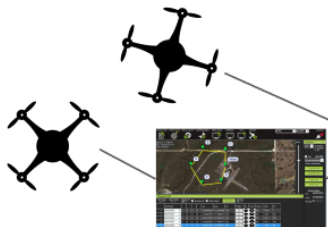
Broadcast Remote ID

Bluetooth  
Wi-Fi



Networked UAS

Direct from Drone or GCS



Network Remote ID

Display Provider identifies (discovers) all relevant service providers

Gets flight data per area

Get flight detail per flight

Net-RID Service Provider (USS)

Net-RID Display Provider (USS)

Non-Equipped Network Participant

Area of Operation Reported



# FAA UAS SYMPOSIUM

## Display Users



- Members include
- Amazon Prime Air
- Google Wing
- GE AirXOS
- ANRA
- Thales
- Unifyly
- Intel
- AGI
- KittyHawk
- Mitre
- PrecisionHawk
- AirMap
- Uber
- AT&T
- TMobile
- Airbus
- NASA



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# Key Focus Areas



1. Standards and Methods for UTM USS-USS functionality
  - i. required interoperability and performance characteristics for USS to USS communications.
  - ii. compatible with and in conjunction with Remote Identification standard
2. UAS Approved Training Provider Program (UATPP)
  - i. evaluate training programs for drone operators, maintenance technicians, instructors,
  - ii. complies with F3266 Standard Guide for Training and Remote Pilot Command of Unmanned Aircraft System
3. BVLOS Strategy
  - i. develop flexible and scalable framework of standards to support a set of performance based
  - ii. **Goal:** Routine, commercial BVLOS operations enabled through clear and accepted
4. AC 377 Autonomy in Design and Operations in Aviation
  - i. develop short/long term strategy towards autonomy standards in ASTM
  - ii. develop terminology /guidance regarding roles/classes of automation for hardware, software and human interaction



# RTCA

THE GOLD STANDARD FOR AVIATION SINCE 1935



# RTCA



- RTCA SC-228 Mission
  - Inspire the creation and implementation of integrated performance standards that meet the changing global aviation environment and ensure the safety, security, and overall health of the aviation ecosystem.
- Standards Development Activity in Support of UAS Integration
  - Detect & Avoid: Airborne; Ground Based; ACAS Xu
  - Command & Control: C-Band; L-Band; Ka Ku (SATCOM)
  - Software Standards
  - Environmental Standards



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# Discussion/Q&A





# 20 Minute Break

## Next in this room...

*Is Your Safety Case Ready – Leveraging Research*



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