

# FAA UAS SYMPOSIUM

## UAS Standards – What Exists & What's Coming



Federal Aviation  
Administration



# UAS Standards – What Exists & What’s Coming



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# The Importance of Standards



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# 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



# Prescriptive vs. Performance-Based



Prescriptive Regulatory System	Performance-Based Regulatory System
Establishes specific technical requirements that must be met by applicants and approval holders	Establishes <i>outcomes</i> that must be achieved; allows flexibility in how the applicant or approval holder achieves those outcomes
<i>Example:</i> Emergency exits must be movable windows, panels, canopies, or external doors...that provide a clear and unobstructed opening large enough to admit a 19-by-26-inch ellipse.	<i>Example:</i> The airplane must be designed to facilitate rapid and safe evacuation in conditions likely to occur following an emergency landing.

# Performance-Based Regulations

## Pros and Cons



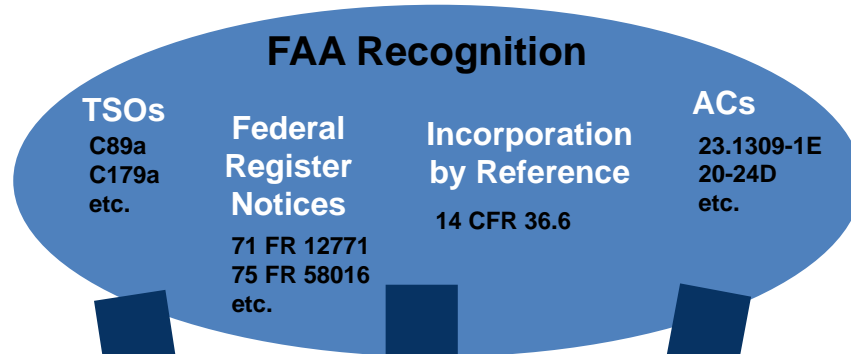
Pros	Cons
<p>Greater agility in accommodating innovation and new technologies</p> <p>Stronger focus on achieving the desired safety performance</p> <p>Improved understanding of risks</p> <p>Potential for stronger safety culture within regulator and industry</p>	<p>Defining requirements in terms of performance can be challenging.</p> <p>Defining what compliance looks like can be difficult</p> <p>Compliance planning requires more effort</p>

# Who Develops Standards?

- Standards Developing Organizations (SDOs)
  - Industry
    - Designers, Manufacturers, Operators, Etc.
  - Associations
    - Represent Interest Groups and help level the playing field
  - Government



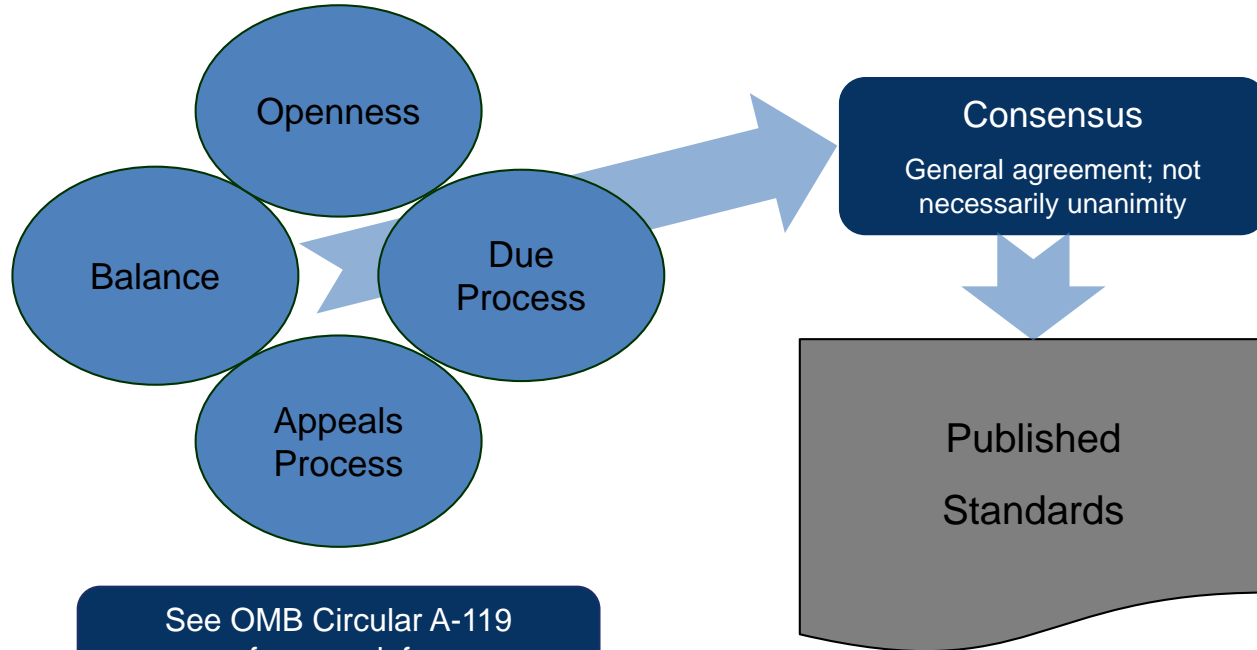
# We've Used Industry Standards for Decades





# Consensus Standards

Not all industry standards are consensus standards



See OMB Circular A-119  
for more info  
OMB A 119 Revised January 27, 2016

# Use of Consensus Standards



- Public Law 104-113: National Technology Transfer and Advancement Act of 1995
  - Requires\* Federal agencies to use voluntary consensus standards as a means to carry out policy objectives
    - \*unless illegal or impractical*
  - Requires\* Federal agencies to participate with voluntary consensus standards bodies
    - \*when in the public interest and compatible with mission, budget, etc.*
- OMB Circular A-119  
“Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities”

## Applicants

Participate in standards development (optional)

## SDO

Develop standards content

Achieve consensus

Publish standards

Receive Feedback

## FAA

Participate in standards development

Review published standards

Issue Notice accepting standards

Use standards

Use standards

Continuous Improvement

Comments

# ANSI Unmanned Aircraft Systems Standardization Collaborative



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# About ANSI



- Leads standards, conformity assessment, and related activities in the United States
- Founded in 1918, ANSI is a private, non-profit organization
- ANSI is not a government agency or a standards developer
- Works to enhance U.S. global competitiveness and quality of life through standards
- Accredits SDOs / approves standards developed in accordance with essential requirements for due process
- U.S. member International Organization for Standardization (ISO)
- Offers a neutral forum for coordination and identification of standards needs for emerging technologies



# Why Standards?

- Spur innovation / drive business growth
- Enable interoperability of products, processes, systems
- Lower research and development costs
- Reduce time to market
- Promote quality and efficiency in supply chains
- Protect safety, health, and the environment
- Reduce liability and regulatory compliance risks
- Demonstrate that products perform as claimed
- Create public trust / foster widespread acceptance





- **Mission:** Coordinate and accelerate the development of standards and conformity assessment programs needed to facilitate the safe integration of UAS into the U.S. national airspace, with international coordination and adaptability
- **Deliverable:** A comprehensive roadmap describing the current and desired standardization landscape for UAS, to be completed in 2018. UASSC is not developing standards

# Objectives

- Foster coordination and collaboration on UAS standardization issues among stakeholders
- Clarify current and future UAS standardization landscape
- Help stakeholders focus standards participation resources
- Inform U.S. policy and technical input to regional and international audiences
- Support growth of the UAS market with emphasis on civil, commercial, and public safety applications



# Structure and Participants

- Public Sector Co-Chair: Earl Lawrence, Director, UAS Integration Office, FAA
- Private Sector Co-Chair: Brian Wynne, President and CEO, AUVSI
- Steering Committee with representation from industry, SDOs, federal agencies, academia, et al.
- 4 Working Groups of 70 – 100 participants each representing the broad community of stakeholders

# Approach

- 4 Working Groups looking at specific use cases
  - Including aircraft risk classes and regulatory requirements
- Credentialing
  - Licensing, training, qualifications of remote pilots and visual observers
- Airworthiness
  - Certification of aircraft, equipment, hardware, software, components, systems
- Operations/Procedures
  - Including public safety, privacy, and security
- Airspace/Infrastructure
  - The environment where the UAS will operate

# Working Groups



- Disaster Relief and News Reporting WG
  - Hurricane Aftermath
    - Insurance companies
    - First responders
    - Industry/critical infrastructure companies
    - News gathering entities
- Critical Infrastructure and Environment WG
  - Point Inspections: Communications Towers
  - Linear Inspections: Electric Grid
  - Wide Area Inspections: Water Supply

# Working Groups

- Emergency and Medical Response WG
  - Traffic Accident Mapping & Reconstruction: Law Enforcement
  - Structural Fire Incident Response
  - Lost Persons Search and Rescue
  - Medical Supply and Service Delivery
- Transportation and Hazardous Materials WG
  - Surveying/Mapping/Inspection for Asset Management
    - Roads and Railroads
    - Bridges
    - Hazmat Sites
- More info / Sign up at: [www.ansi.org/uassc](http://www.ansi.org/uassc)