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F38 Unmanned Aircraft Systems

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www.astm.org

* This material represents the views and positions of the presenter and not those of ASTM International and/or the entire ASTM F38 Committee



What is ASTM?

A Proven and Practical System

- Established in 1898
 - 147 Committees & 12,500+ Standards
 - 32,000 members
 - 8,000+ International Members from 135 countries
 - 5,100 ASTM standards used in 75 countries
 - Process complies with WTO principles: Annex 4 of WTO/TBT Agreement
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- Development and delivery of information made uncomplicated
 - A common sense approach: industry driven
 - Market relevant globally
 - No project costs



ASTM International Committee F38



Vision

- Routine, safe UAS operations in civil airspace through standardization.

Mission

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

F38 Unmanned Aircraft Systems



Quick facts:

Formed: 2003

Current Membership: 155+ members (24 regulators)

Standards: 12 approved; 10 in development

Subcommittees:

F38.01 Airworthiness

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

F38.02 Flight Operations

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

F38.03 Personnel

- Crew oriented
- Safe practices by the individuals responsible for employing the system

Global Representation

Argentina

Australia

Bahamas

Brazil

Canada

China

Germany

Italy

Rep of Korea

New Zealand

Norway

Singapore

Spain

United States

Focus on small UAS (sUAS/sRPAS)



History

- April 2008
 - U.S. FAA charts an Aviation Rulemaking Committee (ARC) to examine a regulatory basis for permitting small Unmanned Aircraft Systems (sUAS) to fly for compensation or hire
 - ASTM is invited to participate in the ARC
- April 2009
 - ARC recommendations include reference to the use of industry consensus standards
- September 2009
 - FAA queries Standards Development Organizations (SDO) for their ability and resources to produce sUAS standards
- April 2010
 - FAA and ASTM sign a Memorandum of Understanding for the development of standards to support a new rule for sUAS

Focus on small UAS (sUAS/sRPAS)



History (cont)

- April 2010 to January 2015
 - ASTM approves and publishes the following sUAS standards:
 - Design, construction, and test (F2910)
 - Design of the C2 subsystem (F3002)
 - Use of batteries (F3005)
 - Production acceptance (F2911)
 - Quality assurance (F3003)
 - Maintenance and continued airworthiness (F2909)
 - Aircraft flight manual (F2908)

Focus on small UAS (sUAS/sRPAS)



Other sUAS Standards in Development

- More details at: www.astm.org/COMMIT/SUBCOMMIT/F38.htm
- Operations over People
- Extended/Beyond Visual Line of Sight Operations
- Operational Risk Assessments
- Ensuring Software Dependability
- Safely Bounding Adaptive Algorithms
- Marking
- Training of Pilots and Visual Observers
- Design, Construct, and Test
 - Fixed wing
 - VTOL
- Micro UAS Requirements

Continued participation in ASTM standards development by sUAS stakeholders is highly encouraged



Global Acceptance of sUAS Standards

- Global acceptance of ASTM sUAS standards is in best interest of the sUAS/sRPAS community
 - Benefit to builders: Lowers manufacturing costs/avoids multiple versions
 - Benefit to buyers: Lowers acquisitions costs
- ASTM is seeking more active participation from the global sUAS/sRPAS stakeholder community
 - Reduce duplication of standards development efforts
 - Maximize effectiveness/efficiency of limited “volunteer” resources

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