ASTM International Committee F38 on Unmanned Aircraft Systems

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

– Background on Standards

– ASTM F38 Vision, Mission, & Structure

– F38 Focus on small UAS (sUAS/sRPAS)
  • Background
  • Standards recently published
  • Other sUAS standards to be developed

– Harmonizing Standards
### Spectrum of Standards & Regulations

Regulatory Burden Commensurate with Intended Function and Assumed Risks

<table>
<thead>
<tr>
<th>Exempt from FARs by Definition</th>
<th>Regulation by FAA-Recognized 3rd Party Involvement e.g., FAR Part 103</th>
<th>Regulation by Self-Declaration to FAA-Recognized Consensus Standards Light Sport Aircraft</th>
<th>Heavily Regulated Normal, Utility, Transport Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kites Models</td>
<td>Sanctioned Industry Standards and Programs for Safe Construction and Operation USHPA SOPs</td>
<td>Consensus Standards are Primary Means of Establishing Compliance ASTM Committee F37</td>
<td>FAR Parts Supported by TSOs, Consensus Standards, and Formal TC/PC processes</td>
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</table>
ASTM – A Certified Standards Developer

– ASTM International
  • Founded 1898
  • ~12,000 published standards
  • 140 Technical Committees
  • 33,000 current members

– ANSI-accredited Standards Development Organization (SDO)
  • Policies & Procedures that withstand judicial scrutiny
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 Subcommittee Structure

– F38.01 System Airworthiness Standards
  • Hardware oriented
  • Safe design, construction, test, modification, & inspection of the individual component, aircraft, or system

– F38.02 Operations and Maintenance Standards
  • Procedure/performance oriented
  • Safe employment of the system within the aviation environment among other aircraft & systems

– F38.03 Pilot/Crew & Training Standards
  • Crew oriented
  • Safe practices by the individuals responsible for employing the system
Background

– April 2008 – U.S. FAA charters 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 Agreement for the development of standards to support a new rule for sUAS
Standards Recently Published

– 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)
Published standards have NOT yet been issued a Notice of Availability (NOA) by the FAA

- No one outside the U.S. Government has seen the details of the FAA’s small UAS Notice of Proposed Rulemaking (NPRM)
- FAA and other sUAS stakeholders will be “beta testing” and/or validating them over the next several years

- Revisions/changes are expected as testing and validation proceeds, the NPRM is issued, and regulations are finalized

- Continued/increased participation by sUAS stakeholders is highly encouraged
Other sUAS Standards to be Developed*

- Additional requirements for operations over people
  - Effort will begin after sUAS NPRM is published and requirements are better defined
  - May not be necessary but......

- Marking
  - Complex effort due to variety of sUAS

- Certification of pilots, visual observers, instructor pilots, and training courses
  - Anticipate it will be based on sUAS ARC recommendations
  - Not required by FAA
  - May be useful to international community

*Looking for Task Group Leaders and Members for these efforts
Harmonizing sUAS Standards

– ASTM leadership also participating in other efforts
  • US: RTCA
  • EU: WG-73/93
  • Canada

– Objective – one set of standards worldwide
  • Benefit to buyers: Lowers acquisitions costs
  • Benefit to builders: Lowers manufacturing costs
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