ANSI American National Standards Institute

ANSI UNMANNED AIRCRAFT SYSTEMS STANDARDIZATION COLLABORATIVE (UASSC)

Unmanned Aircraft Systems Standardization Collaborative (UASSC) Plenary Meeting
MEETING SUMMARY
Thursday, September 12, 2019, 9:00 am – 5:00 pm Eastern
AAMC Learning Center
655 K Street, NW, Room LC 200 (2nd Floor), Washington, DC 20001

The meeting was for the purpose of launching the version 2 update to the ANSI UASSC standardization roadmap for UAS. The master slide deck for the meeting can be found here: Master_ANSI_UASSC_2019_Plenary

Discussion Topic and Speaker

Welcome and Opening Remarks – Fran Schrotter, Senior Vice President & Chief Operating Officer, American National Standards Institute

Ms. Schrotter provided opening remarks for the plenary meeting. She started off by extending regrets on behalf of Mr. Bhatia, who was unfortunately unable to attend. Also on Mr. Bhatia's behalf, she extended a thank you to the UASSC's new co-chairs, Jay Merkle of the Federal Aviation Administration (FAA) and Matt Zuccaro of the Helicopter Association International (HAI), and expressed appreciation to all who participated in developing the first version of the UASSC standardization roadmap. The roadmap has been well received by the community.

Ms. Schrotter provided an overview of ANSI, reminding the group of its roles as the administrator and coordinator of the U.S. private sector system of voluntary standardization. The mission of ANSI is to enhance U.S. global competitiveness and the American quality of life by promoting, facilitating, and safeguarding the integrity of the voluntary standardization and conformity assessment system. The Institute serves as the U.S. national body to the International Organization for Standardization (ISO) and, via the U.S. National Committee, the International Electrotechnical Commission (IEC). ANSI does not develop standards; rather, it accredits standards developing organizations (SDO) and provides a coordination function via its collaboratives.

Regarding the UASSC, ANSI's job is to ask how the voluntary standardization community can best help and support FAA and industry in achieving their goals of safe integration of UAS into the national airspace, which is an exciting and complex challenge. The UASSC roadmap is meant to answer this question.

Finally, Ms. Schrotter thanked the following UASSC sponsors:

Founding Partner: Federal Aviation Administration
Premier Partner: U.S. Department of Homeland Security Science & Technology Directorate
Supporting Partner: ASTM International
Associate Partner: DroneScape, PLLC

Industry Perspective: Importance of Standards for UAS – Matt Zuccaro, President and CEO, Helicopter Association International (UASSC co-chair)

Mr. Zuccaro opened his remarks by emphasizing HAI's commitment to the UASSC's activities. To the helicopter industry, UAS is not considered a threat; it is a great business opportunity. HAI is therefore fully committed to the activities of the UASSC.

Mr. Zuccaro described the connection between helicopters and UAS. Using vertical lift mode, UAS are doing missions that helicopters have done. The customer base is now looking to the UAS industry to accomplish these

missions. Additionally, UAS are accomplishing these missions next to helicopters. This is not only applicable to small UAS, but full-size production UAS used in aerial firefighting and utilized by the U.S. Navy.

Mr. Zuccaro emphasized that standards are absolutely critical to any aviation endeavor. First and foremost, HAI is all about safety. The U.S. has the safest national airspace system in the world. Support standards for safety and UAS operations, including personnel certification, and airworthiness criteria for UAS and the national airspace system, has accommodated several types of aircraft that all have successfully been integrated into the system. There are rules and regulations that people need to comply with, whether they are a commercial UAS operator or a private recreational user. It is necessary to stick to the mandates for airspace access in order to maintain the safest operating environment possible.

Finally, Mr. Zuccaro addressed the topic of the preemption of airspace being a concern with municipalities and states, who are establishing rules and overstepping where FAA has purview and oversight. This could lead to a chaotic operating environment, as not everyone has the proper training to do this. Everyone has a right to "sit at the table," but FAA must do the regulatory oversight.

Government Perspective: Importance of Standards for UAS – Art Hinaman, Manager, Technical Support Branch, UAS Integration Office, Federal Aviation Administration (on behalf of UASSC co-chair, Jay Merkle)

Art Hinaman provided brief welcoming remarks on behalf of Jay Merkle, who unfortunately had a scheduling conflict. He thanked ANSI Staff, HAI, and the participants.

UASSC Overview – Art Hinaman, Manager, Technical Support Branch, AUS-420, FAA

Document: Hinaman_UASSC_Overview

Mr. Hinaman went through his presentation. He emphasized that the key to success is coordinating and accelerating our efforts, which yields the final product of our standardization roadmap. This is a collaborative effort being undertaken by industry representatives, federal and state agencies, academia, etc. The objective of having such a wide array of stakeholders is to support the growth of the market.

Mr. Hinaman reminded the group of UASSC's objectives and provided a brief review of the collaborative's structure, which includes a steering committee (SC) and four working groups (WG). He also provided a recap of events since the publication of the first version of the roadmap, which includes the 2019 FAA UAS Symposium and various presentations at SAE International meetings.

Mr. Hinaman reviewed several things that we should keep in mind when working on the second version of the roadmap. First, he noted the SC's recent efforts to further prioritize the high level gaps identified in the first version of the roadmap. Second, he outlined the goals for version 2. Third, he discussed new areas/topics that were previously not covered (for example, spectrum, UAM, etc.). Other topics or issues may be added, as identified by participants. Our goal is to have the second version of the roadmap published by June 2020.

Mr. Hinaman emphasized today's meeting objectives are to get to know one another, share perspectives, and identify prospective participants who should be involved.

Setting the Stage for Roadmap Version 2.0 – Jim McCabe, Senior Director, Standards Facilitation, ANSI

Document: McCabe_Setting_Stage

Mr. McCabe went through his presentation. He provided a brief overview/reminder of how the roadmap is organized. He went over how the WGs are meant to approach the gap analysis. This was followed by a sample gap statement. It should be noted that the gap statements in version 2 will differ slightly from version 1; there are two new sections, "Status of Progress" and "Update." The gap prioritization matrix was also noted. Every suggested gap is scored on criticality (safety/quality implications), achievability (time to complete), scope (investment of resources), and effect (return on investment).

Mr. McCabe also shared a summary of the current gaps, broken down by roadmap section/WG and priority. For version 1 of the roadmap, there were 40 gaps (out of 60 total) that were categorized as "high priority." In order

to further prioritize these, the UASSC Steering Committee proceeded to analyze and rank the high priority gaps. This analysis resulted in the high priority gaps being broken down into the following subcategories: most critical, critical, and least critical. These rankings can be considered by the group as they do the gap analysis.

Preparation for Breakout Groups – Jim McCabe

Document: McCabe_Setting_Stage

Mr. McCabe went through the topics that are covered under each WG. This included the following new topics that have been suggested for version 2: Spectrum (WG1); Urban Air Mobility (WG3); and Recreational Operations (WG4). He also described how the breakout groups would proceed.

Concurrent Breakout Groups

The list of breakout groups follows below. The participants were able to self-select which breakout group they wanted to participate in.

Working Group 1 – Airworthiness (Roadmap Chapter 6)
Working Group 2 – Flight Operations: General Concerns and Personnel Qualifications (Roadmap Chapters 7 and 10)
Working Group 3 – Infrastructure Inspections and Commercial Services Operations (Roadmap Chapter 8)
Working Group 4 – Public Safety Operations (Roadmap Chapter 9)

The WG co-chairs or their designated facilitators noted in the slide deck led the respective breakout groups. The WGs were asked to consider the questions below related to the published UASSC roadmap and regarding UAS standardization more generally.

Questions Related to the Roadmap and Roadmap Update

1. What are the top UAS issues of concern for your organization?
2. What issues, activities, or initiatives are missing from the roadmap or not adequately covered in your view?
3. Please provide any comments that you have on the roadmap's organization.
4. Who is not here today who should be involved in this effort?

Questions Related to UAS Standardization

5. What topics are not being adequately addressed in UAS standardization?
6. What overlap or duplication exists in UAS standardization?

Breakout Groups Report Back to Full Group – All

Documents:
WG1_Breakout_Report_ANSI_UASSC_2019_Plenary, WG1 Report;
WG2_Break_Out_Discussion_Final_Joe_20190912, WG2 Report;
WG3_Breakout_Report_Updated_ANSI_UASSC_2019_Plenary, WG3 Report;
WG4_Breakout_Notes_ANSI_UASSC_091219_Mtg, WG4 Transcript of Handwritten Notes (No Powerpoint)

WG1 Report – Wendy Ljungren, AiRXOS, part of GE Aviation, made the report back.

Question 1. The group members identified the following UAS issues of concern for their organizations: a lack of delineation for vehicle weights, performance, risk and passenger capacity; a lack of consistency regarding approved segmentation of risk classes and associated risks; defining what the acceptable use, frequency, performance, etc. of spectrum is; the lack of SDO coordination surrounding data telemetry protocols and content; the lack of applicability of current DAA standards to UAM; the levels of criticality of UTM; and the multitude of standards available for cybersecurity.

Question 2. The group highlighted the following issues and activities as missing from the roadmap or not adequately covered: a master spec for telemetry data; reporting requirements for UAS; payload retention requirements; connected vehicle standards; and the need to ensure consistency in terms across SDOs and documents.

Question 3. Several comments were provided regarding the roadmap's organization. It was pointed out that the topic of UAM could go into other working groups, not just WG3. It was also suggested that the roadmap incorporate some sort of distinction between Large and Small UAS, and how they are organized in terms of what standards are applicable to which classes of UAS. Another comment was that there is a difference between actions called out in the roadmap and what the industry has decided to implement. On a similar note, the scope of this document is not to write standards.

Question 4. The following groups and organizations were identified as prospective participants in this effort: Part 135; UAS Designees; and the Federal Military Side of Spectrum, NTIA. The following groups were identified as being represented: aircraft manufacturers; part suppliers to the manufacturers; operators of aircraft; repair stations; pilots; software, cyber, and AI fields; UTM; SDOs; and trade associations.

Question 5. A few key topics were identified as not being adequately addressed in UAS standardization. First, a prioritized list of research and development is needed. Second, the issue of charge ports for High Power Lithium Ion Batteries with cooling requirements is not currently covered. This issue came up at the Uber Elevate conference. This is a specific technical standard that needs to be developed; some standards on the manned aircraft side could be leveraged and applied to unmanned systems.

Question 6. The group felt that overlap or duplication exists in UAS standardization of the following areas: spectrum and uses by airspace; classification of aircraft; telemetry data; detect and avoid; and cybersecurity.

WG2 Report – Joe Valasquez, DroneScape, PLLC, made the report back.

Question 1. The group members identified the following UAS issues of concern as top issues for their organization: BVLOS, Detect and Avoid, Remote ID, pilot qualifications and airspace integration (UTM/ATM). Several other areas of concern were identified as well including operations over people, drone incident reporting, data sharing, and weather.

Question 2. The group highlighted the following issues and activities as missing from the roadmap or not adequately covered: UTM/ATM Integration (Data/Message exchange); Urban and Expanded Air Mobility, and Cybersecurity. Several other issues were identified including flight planning addressed in UTM, terminology, and operations over roads, moving vehicles, etc.

Question 3. Several comments were provided regarding the roadmap's organization. In terms of positive feedback, the group finds that the roadmap is organized in an overall logical manner. The following topics were identified as potentially needing review to assess cross-cutting/cross-referencing in more than one section of the roadmap: security, recreation, and cybersecurity. There is also a need to clearly define what is in and out of scope for each of the WGs, in addition to the overall scope of the roadmap. The group suggested that Airspace Integration, including UTM and ATM, be a separate WG activity.

Question 4. The following groups and organizations were identified as prospective participants in this effort: Wing, Amazon, NASA, FAA office issuing waivers, and Air Traffic Controllers.

Question 5. In terms of what is not adequately addressed in UAS standardization, the group brought up the scope of the standards for each standard listed in the roadmap. It was determined that this is more about a need to add in more context of what the standards cover.

Question 6. Regarding the overlap or duplication of efforts in UAS standardization, it was suggested to encourage heightened, persistent coordination among SDOs and associations. International coordination was emphasized.

<u>WG3 Report</u> – Chris Martino, HAI, made the report back.

Question 1. The group members identified the following UAS issues of concern for their organizations: building inspections; above and below ground pipeline inspections; marine applications for shipbuilding; wind turbines; medical clearance for pilots; and critical incident stress management standards.

Question 2. The group highlighted the following issues and activities as missing from the roadmap or not adequately covered: security standards/cyber locks, which would clear people for working on critical assets/missions; a lack of environmental standards that call for protection of wildlife; a lack of standardization for qualifying sensors (minimum accuracy for industries/applications); and standard(s) for qualifying sensors from different manufacturers.

Question 3. Several comments were provided regarding the roadmap's organization. It was suggested that the topic of Occupational Safety be distributed across chapters or included in one chapter. The group pointed out that there is some confusing use of terminology. On a similar note, there needs to be standard definitions of system technologies. For example, automated, autonomous, AI. It was also suggested to incorporate more cross-references within subchapters. This would help to understand how a topic is being covered in multiple/other areas.

Question 4. The following groups and organizations were identified as prospective participants in this effort: labor unions, OSHA, MSHA, CPWR, regulatory bodies that are utilizing UAS in research programs (NERC, FERC), PHMSA.

Question 5. The following topics were identified as not being adequately addressed in UAS standardization: the safety and health of workers in close proximity or shared space with drones; external load operations; application of materials (i.e., spraying or painting a building); and insurance inspections (e.g., a rooftop after a storm, post-wildfire areas).

Question 6. Overlap or duplication exists in the UAS standardization of the following areas: incident command and UAM.

UAM was a major topic of discussion in this WG. This topic could come up underneath every WG or be a separate WG. The UASSC needs to scope what we mean by UAM. Additionally, the "real" needs need to be determined. It would be beneficial to leverage work that has already been done and see what else is needed to fill in the gaps.

<u>WG4 Report</u> – Eric Schwartz, Florida Power & Light Company, made the report back.

Question 1. The group members identified the following UAS issues of concern for their organizations: disaster and emergency response, incident response in general; cybersecurity – data transfer, safety of data training for emergency response communication, LTE; spectrum for emergency response; and integration into UTM.

Question 2. The group highlighted the following issues and activities as missing from the roadmap or not adequately covered: how hazmat is handled by fire and police; operational communication; and airspace coordination.

Question 3. See the transcribed notes*.*

Question 4. The following groups and organizations were identified as prospective participants in this effort: DARPA, TSA, NSA, NIC, FMMA, smaller state groups for police, fire, EMS.

Question 5. See the transcribed notes*.*

Question 6. Overlap or duplication exists in the UAS standardization of the following areas: specialized training for emergency response; standardization and liability; and future of research.

AW Drones Update – Mary Mikolajewski, Manager, Technical Committee Operations, ASTM International; Staff Manager, ASTM F38 (on behalf of Phil Kenul, Chair, ASTM F38)

Document: 6.09.19_AW-Drones – Project Overview_v1.0updateMM9_12pptx

Mary Mikolajewski gave the presentation in Phil Kenul's absence. AW Drones is a 3-year Coordination and Support Action (CSA) to harmonize drone standards to support the ongoing EU regulatory process. The objectives of AW Drones include: to collect information on ongoing and planned work regarding standards developed for drones worldwide; to carry out a critical assessment of collected data to identify best practices and gaps; to propose and validate a set of standards for each category of drone operations; to create an online repository to explore the data; and to engage with key stakeholders and end users.

Ms. Mikolajewski provided an overview of the methodology employed by AW Drones, which includes utilizing the UASSC Standardization Roadmap to collect and categorize standards. AW Drones will do a critical assessment/benchmarking of the data collected to identify best practices, i.e., a "metastandard." The effort is examining the work that everyone is doing in order to avoid duplication. It is are 3-step process: 1) collection of drone-related standards; 2) collection of applicable general industry standards; and 3) assessment of standards.

Lastly, Ms. Mikolajewski outlined the scope, timeline, and outputs of the effort. The scope is outlined by assigning a specific goal to each year of the program (i.e., the goal of Year 1, which is underway, is to map standards against the SORA). Currently, over 600 standards have been collected, 50% of which have been mapped to the SORA requirements. The scope and the timeline utilizes an iterative approach: results will be regularly updated. Regarding the outputs, each year a new version of the document/report will be published. Additionally, an open repository containing information on different UAS rules, procedures, and standards will be accessible.

Open Discussion / Common Themes from Breakout Groups – Messrs. Zuccaro, Hinaman, McCabe / All

During the WG3 breakout session, it was suggested that the subject of occupational safety/OSH be addressed in multiple chapters, and not just one. This has the potential to be redundant, but every WG has a stake in these requirements. The following sections were identified as potentially being OSH-applicable, in addition to Section 8.5: 6.2.6, 7.3, 7.4, 9.1, 10.2, 10.3, and 10.7.

Next the possibility of creating a separate WG for Airspace Integration (including UTM, ATM) was discussed. This topic was originally brought up in the WG2 Breakout Session. UTM will need to be integrated with Air Traffic Services. After discussion among the plenary participants, it was decided that the topic should stay where it is in WG2. If needed, it can be cross-referenced elsewhere.

UAM was discussed during both the breakout sessions and the open discussion. One participant suggested that the topic was being covered in other forums and should not be covered because it is complex and a number of affected stakeholders are not participating in the UASSC; alternatively, it warranted its own working group. It was noted that outreach had been done to engage the UAM community. The original intent was that we were talking about commercial passenger transport (i.e., flying taxis). This was viewed as a commercial services use case which is how it came to be under WG3. There's no reason both airworthiness and operational gaps could be identified. That said, it was agreed that we need a clear definition of what we mean by UAM, and we want to avoid duplication of effort. The scoping of this topic is critical.

Mr. Zuccaro identified other activities that need to be considered: HAI has recommended practices and procedures for electronic news gathering, aerial photography, pipeline control, etc. HAI also has a fly neighborly program and community outreach. Noise impacts and community support are concerns in urban settings. Operating an aircraft in a rural area is completely different than doing so in an urban, dense area. There are different concerns, operating parameters, and missions.

Mr. Hinaman discussed some common themes that he noticed from the breakout sessions. One of the resounding issues is the need for a common terminology or lexicon. We also need to establish a clear difference between manned and unmanned aircraft, in addition to small and large UAS. BVLOS and DAA continue to be priorities. We can't ignore counter-UAS, but we need to figure out how it fits into the work we are doing.

Cybersecurity is a huge issue that has garnered a lot of attention. UTM is a big deal that cannot be ignored. We need to figure out the gap(s). Another common theme is determining where UAM fits. We need to document as much as we can. We also need to determine where recreational users and hobbyists fit; this was intentionally left out of version 1.0, but it keeps coming up and needs to be addressed.

Mr. Hinaman also noted that some participants are calling for greater delineation between aircraft size, weight, and risk class. Spectrum is another issue that needs to be addressed. Various data protocols (C2, UTM, Remote ID, etc.) need to be defined. Medical clearance of operators and critical stress management was an interesting topic that came up. Testing the accuracy of sensors was also brought up in terms of requiring standards. We need to capture new topics and synchronize and prioritize our efforts.

Participants were given the opportunity to provide additional comments. In the WG3 discussion, it was observed that there is no coverage in the roadmap version 1.0 of any operations of drones outside of the NAS (e.g., indoors, in enclosed or confined spaces). It was clarified that this is because we are only concerned with FAA regulated and integrating drones into the NAS. We want to avoid "scope creep."

Recreational, private operators are large in number. We need to be as concerned if not moreso than with commercial operators.

Wrap-Up and Next Steps – Jim McCabe

Document: Master_ANSI_UASSC_2019_Plenary

Those who attended the meeting were encouraged to review the WG Architecture document. This document is regularly updated and includes the different WG topics and names of the WG co-chairs. The document will also include the schedule of twice a month WG calls once those are determined.

Participants who hadn't already done so were asked to complete and return the UASSC Sign-Up Sheet to ANSI by the end of September. People can sign up for as many WGs as they wish. Completing this important step ensures that participants will be kept in the loop on all UASSC updates, and will receive the WG meeting invites.

Mr. McCabe also encouraged the meeting attendees to conduct any outreach efforts to individual contacts they may have at organizations who were not present at the plenary, and who could make a contribution toward updating the roadmap. Such outreach assistance will be a big help to ANSI staff.

Mr. McCabe reviewed the project timeline. In October, the recurring WG calls will commence. These calls will focus on providing updates to the gaps and text, discussing new topics, and drafting new sections as necessary. The WG meetings will continue through March. In April, a draft of the roadmap version 2 will be made available for public review. The WGs will reconvene in May to dispose of any comments. Roadmap version 2 is targeted to be published in June 2020.

Attendees

First Name	Last Name	Organization
James	Reid	Academy of Model Aeronautics (AMA)
Fred	Borda	Aerial Innovation, LLC
Ryoji	Koike	
Christopher	Todd	Airborne International Response Team (AIRT)
Daniel	Schwarzbach	Airborne Public Safety Association (APSA)
Peter	Lyons	Airbus
Christopher	Cooper	Aircraft Owners and Pilots Association (AOPA)
Wendy	Ljungren	AiRXOS, part of GE Aviation
Lisa	Peterson	
Fred	Stein	
Jennifer	Richter	Akin Gump Strauss Hauer & Feld LLP

David	Vondle	
Anna	Dietrich	AMD Consulting
Mike	Burnside	American Fuel and Petrochemical Manufacturers (AFPM)
Hillary	Woehrle	American Institute of Aeronautics and Astronautics (AIAA)
Patricia	Reddington	American Society of Mechanical Engineers (ASME)
Drew	Colliatie	Association for Unmanned Vehicle Systems International (AUVSI)
Brian Mary Len	Meincke Mikolajewski Morrissey	ASTM International
Peter	Musgrove	AT&T
Rich	Moran	ATIS, The Alliance for Telecommunications Industry Solutions
Ed	Koch	Automodality
John	Slaughter	AVIAN, Inc.
Michael	Baum	Aviators Code Initiative
Andrew	McCauley	Baltimore Gas & Electric / Exelon
John	Wittmaak	Bell Helicopter
Mike	McNair (remote)	Bellflight
Stella	Weidner	The Boeing Company
Kenneth	Dunlap	Catalyst-Go LLC
Dr. Vladimir	Murashov	Centers for Disease Control and Prevention (CDC): National Institute for Occupational Safety and Health (NIOSH)
Mark Marina	Hogsett Rozenblat	CNA
Bryan	McKernan	Consortiq
Robert	McCoy	Crown Castle
Brian	Hill	Deloitte Consulting LLP
Javier	Caina	DJI
Fred	Judson	DriveOhio
Charles	Werner	DRONERESPONDERS Public Safety Alliance
Joe	Valasquez	DroneScape, PLLC
Paul	Lewis	Eno Center for Transportation
Alex Cody	Harvey Long	Exelon AeroLabs
Brian Karan	Cramer Patel	Exelon Corporation
David Bin Ritesh Glenn Adam Art David Kenneth Kerin	Chen Ghimire Gosnell Hendrickson Hinaman Killian Miller Olson	Federal Aviation Administration (FAA)
Bob	Pavlak	Federal Communications Commission (FCC)
Eshwar	Pittampalli	FirstNet, U.S. Department of Commerce (DOC)

Eric	Schwartz	Florida Power & Light Company
Karen	Quackenbush	Fuel Cell and Hydrogen Energy Association
Jonathan	Neptune	General Atomics ASI
Christopher Matthew	Martino Zuccaro	Helicopter Association International (HAI)
Samuel	Arbel	IAI North America
Jacob	Karson	International Code Council (ICC)
Brandon	Allen	International Fire Chiefs Association (IFCA)
Constantine	Pagedas	International Technology and Trade Associates (ITTA), Inc.
Mahssan "Bear"	Afkhami	JMA Solutions
Kurt	Jacobs	JMA Wireless
Tom	Ferrell	Joby Aero, Inc.
Dr. Bob	Touchton	Leidos Innovations Center
Andrew	Poissant	Millennium Engineering and Integration Company
Andrew	Weinert	MIT Lincoln Laboratory
Michael	Guterres	MITRE
Laura	Feix	NACE International
Frank	Taylor (remote)	National Agricultural Aviation Association
Chris	Mallon	National Association of Tower Erectors (NATE)
Carl	Szabo	NetChoice
Jay	Willmott	Nexutech LLC
Basil	Yap	North Carolina Department of Transportation
Nicholas Erin	Flom Roesler (remote)	Northern Plains UAS Test Site
Lance	King	Northrop Grumman Corporation
Andy	Thurling	NUAIR Alliance
Richard	Abbott	Objectstream, Inc.
Mark	Reichardt	Open Geospatial Consortium (OGC)
John	Walker	The Padina Group, Inc.
Carrie	Greaney	Pipeline Research Council International (PRCI)
Chris	Adams	RAND Corporation
Andy	Osantowske	Robotic Skies
Terry	McVenes	RTCA, Inc.
Logen	Johnson	SAE International
Daniel Briana	Bosch Ross	SICDRONE, Corporation
Richard	King	SkyRegs Aviation Information Software
Corey	Hitchcock	Southern Company
Michael Ted	Hinkler Lindsley	SqwaQ
Marianna	Kramarikova	Telecommunications Industry Association (TIA)
Franco	Basti	Thales
Don	Berchoff	TruWeather Solutions Inc.

Jace	Sotomayor	University of Hawaii
Matt	Scassero	University of Maryland UAS Test Site
Jacob	Rutledge	UPS
Sean	Higgins	U.S. Army
Jonathan	Alvear	U.S. Department of Commerce (DOC): ITA
Kamel	Saidi	U.S. Department of Commerce (DOC): NIST
Christine Kai-Dee Terry Nancy Philip Jeffrey Lori Renee	Caccamise Chu Dorn Lim Mattson Randorf Sims Stevens	U.S. Department of Homeland Security (DHS)
Sgt Freddy Ssgt Paul	Calderon McCollough	U.S. Marine Corps (USMC)
Zachary Tanay	Falk Gupta	WSP
Kelley Jim Fran Lucy	Cox McCabe Schrotter Yarosh	American National Standards Institute (ANSI)