ASTM INTERNATIONAL
Helping our world work better

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June 8, 2020

Kathy Smith, Chief Counsel
National Telecommunications and Information Administration
U.S. Department of Commerce
1401 Constitution Avenue, NW,
Washington, DC 20230

Submitted electronically to WTSA2020@ntia.gov

Re: Input on Proposals and Positions for the 2020 World Telecommunication Standardization Assembly, Docket No. 200504-0126, RIN 0660-XC045

Dear Ms. Smith,

The following comments are submitted in response to your agency's May 8 Federal Register notice and request for public comment and recommendations on priorities that advance international communications and information policies at the International Telecommunications Union and on the agency's proposals and positions on matters to be addressed at the 2020 World Telecommunication Standardization Assembly.

ASTM International is a U.S.-domiciled, globally recognized leader in the development and delivery of voluntary consensus standards. Today, over 12,000 ASTM standards are used around the world to improve product quality, enhance health and safety, strengthen market access and trade, and build consumer confidence. More than 30,000 of the world's top technical experts and business professionals – representing 140 countries – contribute to ASTM's leadership in international standards development. Working in an open and transparent process and using ASTM's advanced IT infrastructure, our members create the test methods, specifications, classifications, guides and practices that support industries and governments worldwide.

When new industries look to advance the growth of cutting-edge technologies through standardization, many of them come to ASTM International. ASTM International standards and activities serve a range of industries related to telecommunications, including but not limited to consumer products, Internet of Things, additive manufacturing, and unmanned aerial vehicles.

If you have questions about ASTM International, our activities, or any aspects of the following comments, please contact Jeff Grove in ASTM International's Washington Office at jgrove@astm.org or (202)223-8505.

Sincerely,

Katharine E. Morgan

Katharine E. Morgan
President
ASTM International

ASTM International Comments in Response to NTIA Request for Input on Proposals and Positions for the 2020 World Telecommunication Standardization Assembly

Executive Summary

- ASTM International, a globally recognized leader in the development and delivery of voluntary consensus standards. Across the organization, ASTM convenes more than 30,000 of the world's top technical experts and business professionals representing 140 countries. ASTM's open and transparent process and advanced information technology infrastructure enable and support creation of test methods, specifications, classifications, guides and practices that support industries and governments worldwide.

- ASTM international standards are developed in accordance with the guiding principles of the World Trade Organization and fuel trade by opening new markets and creating new trading partners for enterprises everywhere. For businesses and countries of all sizes, our standards help level the playing field to foster competition in the global economy.

- ASTM's Committee F38 is active in the area of Unmanned Aerial Vehicles (UAV), an area referenced in the subject Notice and Request for public comment. With open and multinational participation, the Committee addresses issues related to design, performance, quality acceptance tests, and safety monitoring for unmanned air vehicle systems. Participants include manufacturers of unmanned aircraft systems (UAS) and components, government agencies, design experts, professional organizations, and many others. The Committee currently has 24 standards, including F3411-19, *Standard Specification for Remote ID and Tracking*. Current Committee work items in areas of possible interest to International Telecommunications Union members include, but are not limited to, "Required Product Information to be Provided with a Small Unmanned Aircraft System", "Service Provided under UAS Traffic Management", "Framework for Using ASTM International Standards for Unmanned Aircraft Systems", and "Surveillance UAS Traffic Management Supplemental Data Service Provider Performance".

- Several ASTM Technical Committees are active in the areas of Artificial Intelligence (AI), Internet of Things (IoT), and consumer protection. These include:
    - the ASTM Committee F45 on Driverless Automatic Guided Industrial Vehicles, which addresses issues related to performance standards and guidance materials for 'automatic' (e.g., automatic guided vehicles) through 'autonomous' (e.g., mobile robots) unmanned ground vehicles (A-UGVs) with industrial applications
    - ASTM Committee F42 on Additive Manufacturing; and
    - ASTM Committee F15 on Consumer Products, which is developing guidance for connected consumer products (i.e. IoT) as it relates to product hazards created by virtue of connectivity.

Discussion

ASTM International is a globally recognized leader in the development and delivery of voluntary consensus standards. Today, over 12,000 ASTM standards are used around the world to improve product quality, enhance health and safety, strengthen market access and trade, and build consumer confidence.

ASTM International Technical Committees convene more than 30,000 of the world's top technical experts and business professionals representing 140 countries. Working in an open and transparent process and using ASTM International's advanced information technology infrastructure, our members create the test methods, specifications, classifications, guides and practices that support industries and governments worldwide.

We welcome and encourage participation from around the world. Our open consensus process, using advanced Internet-based standards development tools, ensures worldwide access for all interested individuals, including government officials. When new industries look to advance the growth of cutting-edge technologies through standardization, many of them come to ASTM International.

ASTM International's standards are developed in accordance with the guiding principles of the World Trade Organization and fuel trade by opening new markets and creating new trading partners for enterprises everywhere. For businesses and countries of all sizes, our standards help level the playing field to foster competition in the global economy.

ASTM International maintains Memoranda of Understanding with over 115 Standards Development Organizations around the world and has Partner Standards Developing Organization (PSDO) agreements in place as well. The MOU agreements promote communication between the standards bodies, awareness of each other's systems and de-duplication of standardization efforts. The PSDO agreements eliminate duplication of effort while maximizing resource allocation within the standardizing industry. In the case of the PSDO between ASTM International and the International Organization for Standardization (ISO), a sister organization to the ITU, the organizations' additive manufacturing committees agreed to coordinate efforts and normatively reference certain standards in the publications of the partner organization in compliance with each organizations' policies and directives relative to normative references.

ASTM International capabilities and standards are available to ITU-T members and stakeholders seeking expert forums for technical collaboration to develop guidance in many areas listed by NTIA in the subject notice, including Unmanned Aerial Vehicles, artificial intelligence, Internet of Things, and consumer protection.

<u>Unmanned Aerial Vehicles (UAV)/Unmanned Aircraft Systems (UAS)</u>

ASTM's F38 Committee addresses issues related to design, performance, quality acceptance tests, and safety monitoring for unmanned air vehicle systems. Stakeholders include manufacturers of unmanned aircraft systems (UAS) and their components, civil aviation authorities, design professionals, professional societies, maintenance professionals, trade associations, financial organizations, and academia. Over 430 members are involved in this multinational initiative, all participating actively within a three-tiered subcommittee structure focusing on airworthiness, flight operations, and operator qualifications. The Committee currently has 24 standards, including F3411-19, *Standard Specification for Remote Identification (ID) and Tracking*.

Regarding the issue of ITU-T duplication of work via parallel efforts, we would draw attention to ITU-T work on Object Identifiers (OIDs) as part of Remote ID requirements for UAV/UAS. Specifically, according to public reporting, the ITU-T's SG17 Security Group's committee on identifiers and X.509 digital certificates, Q11/17, has advanced its work based on a proposal from China Electronics Standardization Institute (CESI).

The ASTM F38 Committee's Remote ID standard (F3411) was designed with a certain degree of flexibility and optional fields to be used globally supporting basic ID message formats for the aircraft, which can be one of the following:

a. ANSI/CTA Serial Number (adopted by both the Federal Aviation Administration (FAA) and European Aviation Safety Agency (EASA) for the European Union and is the default per the standard)

b. Civil Aviation Agency (CAA) Assigned ID (this is intended to be a CAA assigned *aircraft* ID). This is harmonized with the International Civil Aviation Organization (ICAO) as well. This is the equivalent to the N-Number in the United States of America.

c. UAS Traffic Management (UTM) flight ID. This is a Universally Unique Identifier (UUID) assigned by a UTM service

If there is a requirement by any CAA for an OID, the ASTM standard can easily accommodate it just by adding an OID type of authentication message.

Participation in the F38 Committee is open to any ITU members who would like to participate. An overview of current and planned activities follows. We recommend NTIA encourage ITU members to refrain from initiating redundant or competing technical work in the ITU-T, which lacks openness and transparency.

Outline of F38 Activity

ASTM International Committee F38 has published and is maintaining the following standards for UAS:

- F2849-10(2019), *Standard Practice for Handling of Unmanned Aircraft Systems at Divert Airfields*
- F2851-10(2018), *Standard Practice for UAS Registration and Marking (Excluding Small Unmanned Aircraft Systems)*
- F2908-18, *Standard Specification for Unmanned Aircraft Flight Manual (UFM) for an Unmanned Aircraft System*
- F2909-19, *Standard Specification for Continued Airworthiness of Lightweight UAS*
- F2910-14, *Standard Specification for Design and Construction of a Small Unmanned Aircraft System (sUAS)*
- F2911-14e1, *Standard Practice for Production Acceptance of sUAS*
- F3002-14a, *Standard Specification for Design of the Command and Control System for sUAS*
- F3003-14, *Standard Specification for Quality Assurance of a sUAS*
- F3005-14a, *Standard Specification for Batteries for Use in sUAS*
- F3178-16, *Standard Practice for Operational Risk Assessment of sUAS*
- F3196-18, *Standard Practice for Seeking Approval for Beyond Visual Line of Sight (BVLOS) sUAS Operations*
- F3201-16, *Standard Practice for Ensuring Dependability of Software Used in UAS*
- F3266-18, *Standard Guide for Training for Remote Pilot in Command of UAS Endorsement*
- F3269-17, *Standard Practice for Methods to Safely Bound Flight Behavior of Unmanned Aircraft Systems Containing Complex Functions*
- F3298-19, *Standard Specification for Design, Construction, and Verification of Lightweight UAS*

- F3322-18, *Standard Specification for sUAS Parachutes*
- F3330-18, *Standard Specification for Training and the Development of Training Manuals for the UAS Operator*
- F3341/F3341M-20, *Standard Terminology for Unmanned Aircraft Systems*
- F3364-19, *Standard Practice for Independent Audit Program for Unmanned Aircraft Operators*
- F3365-19, *Standard Practice for Compliance Audits to ASTM Standards on UAS*
- F3366-19, *Standard Specification for General Maintenance Manual (GMM) for a sUAS*
- F3379-20, *Standard Guide for Training for Public Safety Remote Pilot of UAS Endorsement*
- F3411-19, *Standard Specification for Remote ID and Tracking*
- F3422-20, *Detect and Avoid Performance Requirements*

The Committee is also working on the following items for proposed new UAS standards:

- Assessing the Safety of Small Unmanned Aircraft Impacts
- Vertiport Design
- Design of Fuel Cells for Use in UAS
- Training for Remote Pilot Instructor (RPI) of UAS Endorsement
- Training for Public Safety Remote Pilot of UAS Endorsement
- Detect and Avoid Test Methods
- Large UAS Design and Construction
- Specification for the Development of Maintenance Manual for Lightweight UAS
- Training and Equipping Visual Observers of UAS (VO Endorsement)
- General Operations Manual for Professional Operator of Light UAS
- Required Product Information to be Provided with a Small Unmanned Aircraft System
- Service provided under UAS Traffic Management (UTM)
- Operation Over People
- Light UAS Manufacturers Quality Assurance System
- Framework for Using ASTM International Standards for UAS
- Surveillance UTM Supplemental Data Service Provider (SDSP) Performance
- Showing Durability and Reliability Means of Compliance for UAS
- Verification of Lightweight UAS

<u>Artificial Intelligence, Internet of Things and Consumer Protection</u>

Several ASTM Technical Committees are active in the areas of artificial intelligence (AI), Internet of Things (IoT), and consumer protection.

The ASTM Committee F45 on Driverless Automatic Guided Industrial Vehicles addresses issues related to performance standards and guidance materials for 'automatic' (e.g., automatic guided vehicles) through 'autonomous' (e.g., mobile robots) unmanned ground vehicles (A-UGVs) with industrial applications. A-UGV applications include, but are not limited to: indoor warehouse, manufacturing, and medical facilities and outdoor security and shipyards. It also works closely with industrial vehicle safety standards organizations. The Committee includes representatives from industry, government, and academia. Committee F45 has four technical subcommittees with one specifically addressing "Communication and Integration." At present, one work item is being developed regarding Performance Testing of an A-UGV Under Varied Communication Conditions. The scope of the work item considers manufacturers' minimum specifications for communication of their A-UGV system within a user's facility or environment. The test method suggests signal quality testing, vehicle testing, and facility integration testing as required for the intended A-UGV installation.

The scope of the ASTM Committee F42 on Additive Manufacturing encompasses promotion of knowledge, stimulation of research, and implementation of technology through the development of standards for additive manufacturing technologies. The Committee work is coordinated with other ASTM technical committees as well as national and international organizations having mutual or related interests. Committee F42 has over 900 members from 30 countries. To date the Committee has developed 28 standards (a good percentage of which are joint ISO/ASTM standards, developed under the umbrella of the Partner Standards Developing Organization (PSDO) agreement between ASTM and the International Organization for Standardization (ISO).

Additive manufacturing involves a broad range of applications and implications of data, such as data generation and pedigree, database and data management systems (access, maintenance, security and dissemination), and data-driven approaches. As a result, the Committee F42 structure includes a subcommittee on Data, which may be of interest to ITU-T members. The Data subcommittee intends to develop and perform value-stream mapping to identify needs, processes, tools, opportunities, and dependencies required to obtain complete digital thread understanding. As noted, subcommittee work will be coordinated with other ASTM technical committees as well as other national and international organizations having mutual or related interests.

Work items under consideration in the Data subcommittee include:

- Standard Practice for Secure Data Acquisition and Storage
- Standard Guide or Practice for Acquiring Data from a Laser Beam Powder Bed Fusion (LB-PBF) Machine
- Standard Practice for Storing and Managing In-Situ Monitoring Data
- Standard Guide on Data Management for PBD Platform
- Standard Terminology: Additive Manufacturing Common Data Dictionary

ASTM Committee F15 on Consumer Products is the global leader is this area, with subcommittees dedicated to juvenile products, toys, connected products/IoT, and many other areas related to consumer safety. The Committee encompasses a diverse mixture of representatives from industry, government, testing laboratories, retailers and the ultimate consumer.

The subcommittee on Connected Products is developing a standard guide for manufacturers of connected consumer products to help ensure the physical safety of those products as it relates to their connected functionality. While the Internet of Things (IoT) presents one system for connecting products, as covered by this guide, the proposed standard also covers other types of network-connected systems such as Bluetooth or other communication protocols used with consumer products. The guide applies to connected products that need testing and evaluation to prevent cybersecurity vulnerabilities and weaknesses that could compromise safety-related

performance of the product and create a safety hazard. In particular, it provides guidelines for remote updates, software and firmware configuration, and cybersecurity risk controls.

Conclusion

If NTIA would like additional information about any of the ASTM technical activities referenced above, we would be pleased to arrange a briefing. Thank you for your consideration of our activities as you prepare for WTSA2020.