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Research and Technology Subcommittee

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Statement of

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Thank you, Chairman Stevens and Ranking Member Feenstra. Good morning, everyone.

My name is Mary Saunders and I am the vice president of government relations and public policy at the American National Standards Institute (ANSI), which has coordinated the U.S. voluntary private-sector-led standardization system for more than 100 years. We thank you for the opportunity to testify on the topic of further strengthening U.S. leadership in technical standards.

Overview of the U.S. Standardization System

Standards and conformity assessment activities are linked to all facets of our nation’s economy and are vital to U.S. competitiveness globally. According to a report from the U.S. Department of Commerce’s International Trade Administration, 93% of global goods exports rely on conformance to standards.¹

The U.S. standardization system is one of the most wide-reaching and impactful public-private partnerships in our nation’s history, enabling the efficient development of responsive standards for enhanced safety, security, sustainability, performance, and interoperability of nearly every product, process, and service Americans rely upon every day.

There is a longstanding recognition in the U.S.—among stakeholders in both the public and private sectors—that standards are a building block for U.S. innovation, competitiveness, security, and quality of

¹ U.S. Department of Commerce. International Trade Administration. June 2016. *Standards and Regulations: Measuring the Link to Goods Trade*. Washington, D.C.

https://legacy.trade.gov/td/osip/documents/osip_standards_trade_full_paper.pdf

life. This fact has been formally recognized in both U.S. law and policy² and in the *United States Standards Strategy (USSS)*,³ which is currently in its fifth edition.

In our role as coordinator of the U.S. private-sector-led standardization system, ANSI's mission is to enhance both the global competitiveness of U.S. business and the U.S. quality of life by promoting and facilitating voluntary consensus standards and conformity assessment systems, and safeguarding their integrity. The Institute itself does not develop standards; rather ANSI facilitates the development of American National Standards (ANS) by accrediting the procedures of standards developing organizations (SDOs) and approving their documents as ANS. This process serves and protects the public interest since standards developers accredited by ANSI—and the ANS they develop—must meet the Institute's requirements for openness, balance, consensus, and due process and adhere to ANSI's neutral oversight, assuring that all directly and materially interested parties have an opportunity to participate in a standard's development.

Public-Private Partnership

One of the strengths of the U.S. standardization system that sets us apart from other countries is our public-private partnership. Many countries use a top-down standardization system, meaning that a single government agency drives the standards and conformance activities that will govern its products, systems, and services. In contrast, the U.S. system is bottom-up. The views of all directly and materially interested parties, in both the public and private sectors, are considered through an open, balanced, and consensus-based process.

The United States is a highly diversified society with a long tradition of a market-driven economy. Our standards system reflects this diversity, encompassing multiple and varied standards sources—ranging from the work of formal SDOs to consortia and fora. In any area of standards development, marketplace diversity means that in many cases there is no simple prescription that can be applied to fit all needs. Flexible and responsive, the U.S. system evolves to meet changing needs—including the emergence of new SDOs, changes to existing SDO portfolios and procedures, new standards deliverables, and the like.

There are great benefits to our decentralized system, which is flexible and responsive to market and stakeholder needs. Users of standards are increasingly aware of their importance and require a system that can produce and deliver standards with maximum efficiency and minimum cost, while avoiding unnecessary duplication.

The open, market-driven, and private-sector-led nature of our system is critical to achieving the widely shared policy goals of expanded U.S. leadership and innovation on the global stage, and enables the U.S. to deliver responsive, globally relevant solutions in new and innovative technologies.

² The U.S. standardization system and its public-private partnership are reflected in Public Law 104-113, the National Technology Transfer and Advancement Act of 1995 (NTTAA), and the associated OMB Circular A-119. The NTTAA directs agencies to consider the use of private-sector-developed standards in lieu of government-unique standards whenever possible.

³ <http://www.ansi.org/uss>

United States Standards Strategy

First published in 2000 as the *National Standards Strategy for the United States*, the *United States Standards Strategy (USSS)* describes the principles and tactics that guide how the United States develops standards and participates in the international standards-setting process. The USSS is updated every five years to assure that it continues to meet the needs of diverse U.S. interests and that it reflects technological advancements, industry growth areas, national and international priorities, and updates to relevant U.S. government policy. The guiding document details 12 strategic initiatives that can be implemented by diverse stakeholders to meet their national and individual organizational objectives.

ANSI leads the review of the USSS and publishes each edition. The 2020 review and update process incorporated the input of a diverse group of constituents representing stakeholders in industry, government, SDOs, consortia, consumer groups, and academia. Reflecting the diversity of the U.S. standardization system itself, the 2020 update was informed by input from ANSI members and the broader standardization community, including feedback received during a public comment period. A task force—comprised of volunteers and members of ANSI's Board representing SDOs, government, industry, and consortia—guided ANSI staff in managing the update. ANSI continues to work with stakeholders to promote and implement the USSS.

Principles of Standardization

As affirmed in the *United States Standards Strategy*, the U.S. standards system is based upon globally accepted principles for standards development:

- **Transparency:** Essential information regarding standardization activities is accessible to all interested parties.
- **Openness:** Participation is open to all affected parties.
- **Impartiality:** No one interest dominates the process or is favored over another.
- **Effectiveness and Relevance:** Standards are relevant and effectively respond to regulatory and market needs, as well as scientific and technological developments.
- **Consensus:** Decisions are reached through consensus among those affected.
- **Performance-based:** Standards are performance based (specifying essential characteristics rather than detailed designs) where possible.
- **Coherence:** The process encourages coherence to avoid overlapping and conflicting standards.
- **Due Process:** Standards development accords with due process so that all views are considered and appeals are possible.
- **Technical Assistance:** Assistance is offered to developing countries in the formulation and application of standards.

In addition, U.S. interests strongly agree that the standardization process should be:

- **Flexible**, allowing the use of different methodologies to meet the needs of different technology and product and service sectors; and to meet convergent needs across sectors where technically relevant;
- **Timely**, so that developed standards meet market expectations and timing; and

- **Balanced** among all affected interests.

These principles form the basis for the rules that different organizations put in place to manage their standards activities. Models are varied, but processes are rules-based and incorporate checks and balances throughout. As an example, ANSI's *Essential Requirements*⁴—which are implemented by all ANSI-accredited SDOs—incorporate openness, balance of interests, lack of dominance, coordination and harmonization, consensus, and the right to file a procedural appeal. ANSI-accredited SDOs maintain written procedures and document that they comply with these procedures. The system produces standards that are consistent with the principles of the World Trade Organization (WTO) Agreement on Technical Barriers to Trade (TBT) and the WTO TBT Committee Decision on international standards.

U.S. Government Participation in and Use of Standards

As previously noted, the public-private standards partnership is the cornerstone of the U.S. system. Neither government nor industry claims or exerts overall authority over the other, and by working cooperatively, we are able to most effectively respond to the strategic needs of the nation.

Public Law 104-113, the National Technology Transfer and Advancement Act (NTTAA), directs federal agencies to use voluntary consensus standards and participate in their development in lieu of writing government unique standards. Circular A-119 from the White House Office of Management and Budget (OMB) lays out clear instructions for agencies regarding use and participation. Both the NTTAA and OMB Circular are operational in focus, although they do refer to “policy needs.”

The U.S. government uses standards in a variety of ways, including to establish internal procedures, aid in developing regulations for public safety and welfare, and improve the efficiency of the procurement process. Decisions about what standards are appropriate for specific needs are left to individual agencies. Over the past 25 years, federal agencies have made substantial investments in standards participation and use to support regulatory objectives (e.g., U.S. Department of Transportation, U.S. Department of Energy, U.S. Environmental Protection Agency, Federal Communications Commission, and U.S. Food and Drug Administration) and procurement and operational needs (e.g., U.S. Department of Defense, National Aeronautics and Space Administration, U.S. Department of Homeland Security). Others, like the U.S. Department of Commerce and the U.S. Department of State, have significant policy interests.

In the past several years there has been increased federal agency interest in identifying relevant standards and standards venues relating to specific technology areas, such as the National Institute of Standards and Technology's efforts related to artificial intelligence⁵ and the U.S. Department of Defense's support of the America Makes & ANSI Additive Manufacturing Standardization Collaborative (AMSC).⁶

⁴www.ansi.org/essentialrequirements

⁵<https://www.nist.gov/artificial-intelligence>

⁶<https://www.ansi.org/standards-coordination/collaboratives-activities/additive-manufacturing-collaborative>

Discussions have sometimes risen to the policy level. For example, the *Principles for Federal Engagement in Standards Activities to Address National Priorities*,⁷ issued in 2012 pursuant to the White House *Strategy for American Innovation: Securing Our Economic Growth and Prosperity*,⁸ directed federal agencies to increase their efforts to catalyze technology breakthroughs to advance national priorities. The treatment of agency responsibilities in the memo was premised on maintaining economic competitiveness, but the principles and practices outlined are relevant to national security interests as well.

Recognizing that the vibrancy and effectiveness of the U.S. standards system in enabling innovation depend on continued private-sector leadership and engagement, the *Principles for Federal Engagement in Standards Activities* affirmed that reliance on private-sector leadership, supplemented by federal government contributions to discrete standardization processes, remains the primary strategy for government engagement in standards development.

In recognition of the need for a coordinated national approach to support the development of the best possible standards as reflected in the *United States Standards Strategy*, ANSI and NIST have long had a memorandum of understanding (MOU) outlining both ANSI's and NIST's important responsibilities in standardization. Most recently updated in 2019, the MOU recognizes the value of the public-private partnership between ANSI and the federal government and confirms ANSI's coordinating role in the U.S. standardization system. The MOU's overarching purpose is to facilitate domestic communication and coordination among both private- and public-sector parties in the United States on voluntary standards and conformity assessment issues and promote effective federal agency participation in the voluntary standards-setting process.

ANSI and its Role in the International Standards System

ANSI's diverse roles reflect the flexibility of the market-driven U.S. system, helping to ensure its continued strength and impact in innovative standards and conformity assessment work domestically, regionally, and globally.

The Institute's membership comprises businesses, professional societies and trade associations, standards developers, government agencies, academic institutions, and consumer and labor organizations. Through this network of members, the Institute represents the diverse interests of more than 270,000 companies and organizations and 30 million professionals worldwide.

ANSI accredits standards development organizations, promotes the use of standards developed by U.S.-based standards developing organizations internationally, advocates U.S. policy and technical positions in international and regional standards organizations, and encourages the adoption of international standards as national standards where they meet the needs of the user community. ANSI is also active in regional and international activities that facilitate trade and market access by providing capacity-

⁷ https://www.nist.gov/system/files/documents/2017/01/30/m-12-08_1.pdf

⁸ <https://obamawhitehouse.archives.gov/sites/default/files/uploads/InnovationStrategy.pdf>

building assistance and engagement opportunities with emerging economies on standards, trade, infrastructure, and good regulatory practices.

With respect to representing the U.S. globally, ANSI is the official U.S. representative to the International Organization for Standardization (ISO) and, via its U.S. National Committee (USNC), the International Electrotechnical Commission (IEC). In this capacity, ANSI works to ensure that all U.S. interests are considered in the formulation of U.S. positions in these international standards bodies. We work with national standards bodies from 124 full and 39 correspondent ISO member countries and with national committees representing the 62 full and 26 associate IEC member countries.

In the U.S., input into the ISO and IEC processes is coordinated by U.S. Technical Advisory Groups (TAGs).⁹ A U.S. TAG comprises relevant experts from a broad range of U.S. stakeholder categories who work together to develop U.S. consensus positions on activities and ballots of a specified technical committee, for example, AI, nanotechnology, and many other areas. These consensus positions are transmitted to ISO and IEC on behalf of the U.S. via ANSI and the USNC, respectively. U.S. TAGs also designate U.S. experts to serve as delegates and experts for direct participation at the international level, and they determine whether ANSI should assume leadership roles, on behalf of the United States, in international committees.

ANSI works with U.S. TAG Administrators to attract greater and diverse industry and government participation in ISO and IEC activities. To facilitate this greater level of engagement, ANSI seeks to improve access to publicly available information on TAG activities and coordinates efforts with federal agencies to ensure that interested government stakeholders are aware of opportunities for participation and encourage them to do so.

U.S. leadership in international standards forums is essential, because it allows us to ensure the integrity of the process—assuring a level playing field, open participation, and consensus—and standards that are globally relevant. The U.S. is one of the most active and influential members of ISO and IEC, participating in more than 90% of IEC technical activity, and nearly 80% of ISO’s more diverse technical activity.

One example of robust U.S. engagement in international standardization is our leadership in the Joint Technical Committee (JTC) 1, *Information Technology*, of ISO and IEC. JTC1 is the largest and most prolific technical committee creating ICT standards under a set of globally accepted, consensus-based procedures. The U.S. has served as chair of JTC1, with ANSI as the secretariat, since the committee’s formation 30 years ago. More than 4,500 experts from 32 participant member countries come together under the helm of JTC1 to develop mutually beneficial standards that advance global trade. To date, JTC1 has developed more than 3,200 international standards spanning artificial intelligence, ICT security, biometrics, identity management, cloud computing, quantum, and many more foundational areas – and more than 600 additional JTC1 standards are currently underway.

⁹ U.S. TAGs to ISO are accredited by ANSI and must follow the Institute’s cardinal principles, similar to accredited standards developers. U.S. TAGs to IEC are appointed by the USNC Technical Management Committee and must meet a set of established criteria for fairness and openness.

Current International Standards Landscape

Today, the rate of change in emerging technology areas is moving at an ever-increasing speed. To keep pace, the sheer number of standards activities and venues has grown dramatically in the past decade, and work is expanding in formal consensus bodies, treaty organizations, consortia, fora, and in the open source space. There are also a larger number of global players in both government and private sectors actively engaged in standards processes. Globally, activities in critical and emerging technologies such as AI, IoT, and quantum information science are driving the conversation at the policy level and in key application areas.

Rapidly evolving and pervasive technologies are presenting new standards development challenges. As competition for technology-driven advantages intensifies—and economic, security, and public health challenges continue to raise the stakes at home and around the globe—the push to develop globally accepted standards is greater now than ever before. An open, rules-based standards system that is participatory in nature is key to enabling worldwide participation of stakeholders and facilitating an innovative environment that reflects changing needs in the global marketplace. Maintaining the integrity and impartiality of international standards development processes continues to be a priority.

Potential Threats to U.S. Leadership

We have heard concerns expressed in various policy venues regarding China’s ambitions and potential for increased influence of the Chinese government over international standards. While China may be seeking to propose a significant number of new subjects to ISO, assuming an increasing number of committee leadership roles, and participating in an increasing percentage of ISO committees, ANSI does not perceive China to be a significant driver of changes to ISO policy and governance in ways that may favor China over other countries. The key ISO Council and ISO Technical Management Board governance groups are not actively led by China or Chinese proposals.

Regarding the overall trends in China’s participation in international standards-setting, ANSI agrees with published reports that China has increased its participation, but does not see that increase as threatening U.S. influence or contributing to a shift in dominance in those organizations. In fact, ANSI and its members have encouraged China's participation in rules-based international organizations in lieu of developing China-unique standards that may not reflect the consensus of the global community.

The *quantities* of leadership positions taken or the standards proposed do not necessarily lead to more influence. The *quality* of contribution, globally accepted due process, wide support from other working group members, and many other factors also need to be considered in the evaluation of a country’s impact and status in international standards-setting organizations.

Several studies and research reports conducted by scholars, experts, and think tanks have also drawn similar conclusions: that while China’s presence in international SDOs is increasing, it is still far away from being disproportionately influential compared to other members.

To a great extent, success in international standardization is built on trust in the system and its rules. The standards process brings competitors together seeking consensus on baseline technical solutions. The U.S. has long enjoyed a positive reputation as a reliable partner and leader in international standards development.

Recently however, trust in the U.S. private-sector-led standards process has begun to erode in some quarters, driven by the false perception that the U.S. private-sector-led standards system is somehow inadequate to the challenges of the current strategic environment and that the government needs to step in. Proposals circulating in both the legislative and executive branches have sought to address “shortcomings” or “limitations” of the private-sector-led approach. These have been perceived by some observers as the government seeking to put its thumb on the scales. And in 2019, the addition of Huawei to the BIS Entity List, with a carve out for 5G standards activities in specific standards venues, created serious disruptions for U.S. companies and many SDOs.

Recommendations to Address Threats: A Continued Commitment to Industry-Led Standards

An October 2021 report from the Atlantic Council’s GeoTech Center¹⁰ finds that the history and structure of SDOs indicate the most successful standards are not those directed by governments. SDOs have deeply ingrained procedures and mechanisms that result in the best-engineered, most collaborative, and economically optimal standards, while government-directed standards activities risk locking in suboptimal standards that do not serve global market needs.

ANSI concurs with the conclusions reached in the report and recommends that U.S. policy support the domestic technology sector and ensure that the technology coming out of the U.S. is the best engineered and best suited to the global economy. Equally important, policy should support and champion active U.S. private-sector participation in international standards venues that are transparent, open to participation of all interested parties, and based on consensus.

A sustained, long-term, proactive approach to standards development is required to ensure that the U.S. remains a global leader in standards development for critical and emerging technologies. This approach should encompass:

- A sustained investment in R&D—a critical component of successful international standards development
- Expanded coordination among government, industry, and academia
- Expanded collaborations among U.S. government and likeminded partners and allies
- A commitment to industry-led standards development processes

¹⁰ Atlantic Council. *Standardizing the future: How can the United States navigate the geopolitics of international technology standards?* 2021. <https://www.atlanticcouncil.org/in-depth-research-reports/report/standardizing-the-future-how-can-the-united-states-navigate-the-geopolitics-of-international-technology-standards/>

It will be important to preserve the strengths of the U.S. approach while developing innovative ways in which standards developers, consortia, and other emerging communities of open collaboration—together with government and industry—can collaborate most productively:

- **Government** should seek early collaboration with industry and SDOs to identify standards needed to meet emerging national priorities.
- **Industry** should participate actively in efforts to identify needed standards and in the timely development of those standards.
- **Government, industry, and standards developers** should be proactive in addressing international implications of standards in support of national priorities.

Specifically, the U.S. government should redouble its commitment to industry-led standards by:

- Supporting and advancing widely accepted principles for the development of international standards
- Continuing to incentivize U.S. stakeholders' participation in international standards development
- Removing export controls restrictions on standards development activities
- Expanding public-private partnerships on standards-related education and training to build capacity for effective U.S. participation in international standards
- Taking a consistent approach to the treatment of standards in government-to-government dialogues—both bilateral and multilateral—and coordinate with the private sector on messaging

In Conclusion

Standards development in this country is one of the earliest and most successful examples of the public-private partnership, benefitting our nation tremendously on many fronts. For more than 100 years, the market-driven, private-sector-led U.S. standardization system has advanced technological innovation, built bridges to new markets, and created gateways for U.S. businesses in an increasingly complex world of global access—while helping to assure health, safety, and quality of life for individuals in the United States and around the world. ANSI stands ready to assist this Subcommittee and its parent Committee in further deliberations on the U.S. standardization system and our public-private partnership.

About ANSI

ANSI is a private, non-profit organization that administers and coordinates the U.S. voluntary standards and conformity assessment system. In this role, the Institute oversees the development and use of voluntary consensus standards by accrediting the procedures used by standards developing organizations, and approving their finished documents as American National Standards.

Internationally, the Institute is the official U.S. representative to the International Organization for Standardization (ISO) and, via the U.S. National Committee, the International Electrotechnical Commission (IEC).

ANSI's membership is comprised of businesses, government agencies, professional societies and trade associations, standards developing organizations, and consumer and labor organizations. The Institute represents the diverse interests of more than 125,000 companies and organizations and 3.5 million professionals worldwide. ANSI works closely with stakeholders from both industry and government to identify consensus-based solutions to national and global priorities – an inclusive, collaborative partnership between the public and private sectors.

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