



Comments from the American National Standards Institute on National Telecommunications and Information Administration Request for Comment

Docket Number 200521-0144

The American National Standards Institute¹ (ANSI) welcomes the opportunity to provide its input to the NTIA Request for Comment to inform the development of an Implementation Plan for the National Strategy to Secure 5G. As the coordinator of the U.S. voluntary standardization system, ANSI works to advance standards-based solutions to national and global priorities.

About the U.S. Voluntary Standardization System

Market-driven and private-sector-led, the U.S. standardization system is dynamic and responsive because it thrives on the active participation and engagement of all affected stakeholders – including industry, government, standards developing organizations, academia, consumers, and others.

As one of the biggest users of standards, the U.S. government's active participation in standardization is of great importance. Through public-private partnership, the U.S. is able to respond most effectively to the strategic needs of the nation on both domestic and international fronts.

Reliance on private sector leadership, supplemented by Federal government contributions to standardization processes as outlined in OMB Circular A-119, *Federal Participation in the Development and use of Voluntary Consensus Standards and in Conformity Assessment Activities*, remains the primary strategy for government engagement in standards development. The circular has guided Federal agency implementation of the *National Technology Transfer and Advancement Act of 1995* for more than two decades.

About ANSI

ANSI is a federation whose members are government agencies, trade associations, standards developing organizations, professional societies, companies, academic and international bodies, and consumer organizations looking to harness the power of standards to position themselves for long-term success. ANSI represents the interests of more than 270,000 companies and 30 million professionals worldwide. As the voice of the U.S. standards and conformity assessment system, ANSI empowers its members and constituents to strengthen the U.S. marketplace position in the global economy while helping to assure the safety and health of consumers and the protection of the environment.

¹ www.ansi.org

Voluntary consensus standards for products, processes, and services are at the foundation of the U.S. economy and society. The United States has a proud tradition of developing and using voluntary standards to support the needs of our citizens and the competitiveness of U.S. industry in world markets.

ANSI oversees the creation, promulgation, and use of thousands of norms and guidelines that directly impact businesses in nearly every sector: from acoustical devices to construction equipment, from dairy and livestock production to energy distribution, and many more. Across the broad range of topic areas where ANSI oversees work, information and communications technology standards are both a horizontal and vertical focus area.

ANSI's wholly owned subsidiary, the ANSI National Accreditation Board (ANAB), is actively engaged in the accreditation of conformity assessment bodies – assessing the competence of organizations determining conformance to standards.

And via the ANSI affiliate Workcred, the Institute supports efforts to strengthen workforce quality by improving the credentialing system, ensuring its ongoing relevance, and preparing employers, workers, educators, and governments to use it effectively.

International Standardization

ANSI promotes the use of U.S. standards 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.

The Institute is the sole U.S. representative and dues-paying member of the two major non-treaty international standards organizations, the International Organization for Standardization (ISO) and, via our U.S. National Committee (USNC), the International Electrotechnical Commission (IEC). As a founding member of ISO, ANSI plays a strong leadership role in its governing bodies while U.S. participation, via the USNC, is equally strong in the IEC.

To formulate and advance consensus U.S. positions with respect to ISO and IEC work, ANSI accredits U.S. Technical Advisory Groups (TAGs) to ISO and approves USNC TAGs to IEC. The primary purpose of these TAGs is to develop and transmit, via ANSI, U.S. positions on activities and ballots of ISO and/or IEC Technical Committees (and, as appropriate, subcommittees and policy committees). ANSI's *International Procedures* provide the due process-based framework within which U.S. TAGs develop and coordinate U.S. positions.

ANSI is a permanent member of both the ISO Council and Technical Management Board. ANSI and its members participate in more than 78% of ISO and JTC1 Technical Committees (TCs) and Subcommittees (SCs) and administer 14% of TC and SC Secretariats. ANSI's USNC is a permanent member of the IEC Council Board, Standardization Management Board, and Conformity Assessment Board. The USNC

participates in over 95% of IEC TCs and SCs, and administers 14% of TC and SC Secretariats.

American National Standards

Domestically, ANSI accredits standards developing organizations (SDOs) and approves standards from these organizations as American National Standards (ANS). To achieve the ANSI-Accredited Standards Developer (ASD) designation – the first step for developing ANS – SDOs must comply with ANSI’s [*Essential Requirements*](#) and demonstrate commitment to a set of principles that includes openness, balance, due process, and consensus. The principles contained in the *Essential Requirements* are consistent with the *United States Standards Strategy* (USSS) and World Trade Organization (WTO) TBT Agreement principles for the development of international standards. Conformance to these principles means that the U.S. can set an example globally for what open and trusted standardization looks like.

ANSI’s many checks and balances, including impartial audits, accreditation requirements, and an appeals process, underpin the integrity of the ANS process, regularly assuring adherence to the Institute’s procedures and safeguarding the value of the ANS designation. This voluntary consensus standards process is time-tested, and has been relied on by many government agencies to the benefit of the public, government, industry and many other stakeholders. ASDs meet the definition in OMB Circular A-119, *Federal Participation in the Development and use of Voluntary Consensus Standards and in Conformity Assessment Activities*, of “voluntary consensus body.”

ANAB Conformity Assessment

ANSI’s wholly owned subsidiary, ANAB, provides third-party accreditation programs of product and management system certification bodies, calibration and testing labs and forensic services providers, personnel credentialing organizations, inspection bodies, police crime units, greenhouse gas validation and verification bodies, reference material producers, and proficiency test providers.

ANSI Collaboratives

More than twenty years ago, ANSI launched the standards collaborative model to address the needs of both government and private-sector stakeholders for a mechanism to coordinate and accelerate the development of private sector-led standards and conformity assessment programs to address national and global priorities. While each collaborative is unique, several have addressed cross-sector needs in emerging technology areas ranging from nanotechnology and nuclear energy to electric vehicles, additive manufacturing, and unmanned aircraft systems. In each of these instances, federal agencies have been active participants and have publicly acknowledged the valuable role and contributions of ANSI-led collaboratives.

Particularly in rapidly evolving, interconnected technology areas – transforming nearly every industry and market worldwide – effective, responsive standards and conformity assessment are critically important, demanding even greater investment, leadership, engagement and public-private partnership.

Comments on Standards-Related Aspects of the NTIA RFC

Line of Effort Four: Promote Responsible Global Development and Deployment of 5G.

(1) How can the U.S. Government best lead the responsible international development and deployment of 5G technology and promote the availability of secure and reliable equipment and services in the market?

(2) How can the U.S. Government best encourage and support U.S. private sector participation in standards development for 5G technologies?

The U.S. government should lead by example through responsible development and deployment of 5G technology at home, including securing supply chains. Leading by example includes reliance on robust private-sector-developed technical standards and assuring compliance with those standards through risk-based conformity assessment programs. One example to consider is the effort being undertaken by the Telecommunications Industry Association (TIA), an ANSI member. QuEST Forum, which merged with TIA in 2017, is developing a comprehensive approach to improving supply chain security by incorporating proven elements of existing industry-driven standards and adding new ICT requirements that address modern networks and their supporting technologies.

Globally, government leadership is also critical in international diplomatic engagements that reinforce the value of consensus standards processes, sound technical standards, and data-informed conformity assessment.

With respect to standards development, the vibrancy and effectiveness of the U.S. standardization system in enabling innovation depend on continued private sector leadership and engagement. Reliance on private sector leadership, supplemented by Federal government contributions to discrete standardization processes as outlined in OMB Circular A-119, *Federal Participation in the Development and use of Voluntary Consensus Standards and in Conformity Assessment Activities*, remains the primary strategy for government engagement in standards development. As the coordinator of the private sector-led standardization system in the United States and the U.S. national representative to ISO and IEC, ANSI is committed to upholding the integrity of standards development processes globally.

1. 5G Standards Venues

The international wireless communication systems standards space is multifaceted – it encompasses a range of organizations such as the 3rd Generation Partnership Project (3GPP), the global collaborative effort comprising seven standards development organizations (SDOs) that draw up complete mobile system specifications, including the Long-Term Evolution (LTE), LTE-Advanced and 5G wireless specifications; the Internet Engineering Task Force (IETF); and the International Telecommunication Union (ITU). Also important are the World Wide Web Consortium (W3C), Institute for Electrical and Electronics Engineers (IEEE) and the O-RAN Alliance, just to name a few key players.

Each of these organizations has different structures and development processes and provides for different modes of engagement, ranging from national body participation to organizational participation to participation by individual technical experts.

Participation in 3GPP is on an organizational basis – mobile operators and vendors in every region are represented. The Alliance for Telecommunications Industry Solutions (ATIS), an ANSI member, is the North American Organizational Partner of 3GPP. In this role, ATIS works with its global membership, including its U.S. government members that participate in 3GPP through ATIS, to ensure that 3GPP specifications meet North American commercial, regulatory and security needs. Since 3GPP itself is not a standards development organization, ATIS also publishes 3GPP specifications as formal US standards, facilitating their implementation in North America.

The IETF is the standards body coming up with the key specifications for virtualization functions evolving IP protocols to support network virtualization. IETF members are individual engineers and other technical experts.

The ITU is a treaty organization focused on information and communication technologies. It coordinates the global sharing of radio spectrum. In 2015, the ITU identified three spectrum bands that will be used for 5G, and in 2016, it refined the criteria for the selection of 5G radio interface technologies. In late 2016, a special ITU focus group concluded a preliminary study into the standards necessary to meet 5G's performance targets, including concentrations on network architecture, fixed wireless convergence, network management requirements, and network management framework. The ITU will release the final standard, which is also referred to as International Mobile Telecommunications (IMT)-2020.

JTC 1 – a joint technical committee of ISO and IEC – is also working on a number of foundational standards supporting 5G, dealing with the exchange of information between telecommunication systems. Participation in JTC1 is on a national body basis – through ANSI. ANSI also provides the secretariat for JTC 1.

JTC 1 is a highly productive collaboration between ISO and IEC working in areas such as 3-D printing and scanning, IT security (cybersecurity), privacy, Internet of Things (IoT), cloud computing, biometrics, software development languages, IT governance, and artificial intelligence. More than 4,500 experts from 32 participant member countries come together to develop mutually beneficial standards that advance global trade. The U.S. has served as its chair since the committee was formed 30 years ago. The current chair of JTC1 is Phil Wennblom of Intel Corporation. One of the largest and most prolific technical committees in the international standardization community, ISO/IEC JTC 1 has had direct responsibility for the development of over 3,000 published ISO/IEC standards, with more than 500 currently under development – making a tremendous, ongoing impact on global industry at every level and across every sector.

It is critical for U.S. companies to participate strategically in all relevant 5G standards-setting activities to enhance the compatibility of the final standards with their technologies. Continued access to global forums where 5G standards setting is taking place, while respecting national security constraints, is critical to U.S. competitiveness. The draft interim rule issued by the Bureau of Industry and Security (BIS) on June 15 provides some much-needed clarity regarding the intersection of export controls and standards-setting activities, but the rule is narrowly crafted, applying only to interactions in standards

organizations with representatives of Huawei and its subsidiaries. It is important that the U.S. government ensure that U.S. companies are able to engage broadly in standards setting activities where industry leaders, whoever they may be, define the next wave of technology.

Private sector stakeholders recognize that government has a clear interest in and role to play in advanced communication technology (5G and beyond) standards efforts, corresponding to government's equities in these technologies. These equities are also reflected in public sector R&D efforts that are then incorporated into technical contributions to globally accepted standards. Active government engagement in private sector-led standards development activities can help catalyze technology advances, promote market-based innovation, and encourage outcomes that are more competitive.

Working together, U.S. industry and government representatives are providing high-quality technical contributions and sending subject matter experts to meetings. These experts drive our agenda and work collaboratively with other experts from around the world to establish the consensus necessary for standards outcomes to be accepted globally. The rules of the system protect against dominance by any single interest.

ANSI advocates that government agency experts continue to be active and engage in 5G standards activities alongside U.S. industry by bringing quality contributions representative of U.S. government interests and technical requirements appropriate to the particular forum at issue. In doing so, the Federal government should respect market dynamics, clearly define its role and then work with private sector standardization organizations in the exercise of that role.

In all cases when engaging in the standards arena, including 5G, Federal agencies should ensure effective intra- and inter-agency coordination of engagement in standards development activities. They should take into account the impact of their standards-related choices on innovation and the global competitiveness of U.S. enterprises, including the impact of intellectual property incorporated into standards, consistent with international obligations. To the extent feasible and appropriate, agencies should provide continuous support for their technical experts' participation and leadership activities in mission-critical standards-setting activities and standards organizations, to include maintaining adequate resource levels throughout the life of priority standards activities.

ANSI recognizes and commends the central role of the National Institute of Standards and Technology (NIST), established in law and policy, in coordinating Federal agency participation in the development of standards and use of standards in regulation, procurement, and policy activities. The Institute is working in partnership with NIST to seek public-private sector agreement on a strategic U.S. approach to work collaboratively in relevant 5G standards venues. Both private and public sector stakeholders agree on the importance of promoting competition and vendor choice while also managing the security risks associated with 5G networks. We are better able to do this via a strong public-private partnership to develop and implement the best technical standards that are globally applicable.

The strategy will be informed by data, both on U.S. stakeholder participation in relevant standards venues and the effectiveness of the resulting standards, as indicated by use. It will take into account opportunities for information sharing, partnerships and coordinated input both among US stakeholders and in conjunction with other likeminded interests internationally.

Comments on Conformity Assessment-Related Aspects of the NTIA RFC

Line of Effort One: Facilitate Domestic 5G Rollout.

(2) How can the U.S. Government best foster and promote the research, development, testing, and evaluation of new technologies and architectures?

Reliance on recognized accreditation bodies, accredited testing laboratories, and accredited certification bodies in accordance with ISO/IEC 17011, ISO/IEC 17025, and ISO/IEC 17065 respectively provides confidence that the testing, evaluation, and certification of new 5G technologies and architectures comply with the appropriate standards.²

Regulations generally have some direct or indirect interaction with both standards and conformity assessment procedures. Regulations can include requirements for how compliance is to be demonstrated and communicated (*e.g.*, regulations may require testing of a product by a recognized accredited testing laboratory and the subsequent marking of those products if they have fulfilled the requirements).³

By relying on conformity assessment in accordance with International Standards and Guides, regulators and the market can be assured that claims of conformance in relation to the products, processes, services, management systems, persons, or organizations are well founded and legitimate. Conformity assessment in accordance with International Standards and Guides assists in avoiding regulation that may add unnecessary costs to the economy and reduce competitiveness of domestic production, and that may be substantially different to those in other economies, which can lead to technical barriers to trade.

In addition, as the communications industry continues to deploy network infrastructure to meet the tremendous demand for connectivity in America, the demand for a skilled workforce necessary to build next generation networks must be addressed. ANAB recently accredited the National Wireless Safety Alliance (NWSA) for its Telecommunications Tower Technician 1 and Telecommunications Tower

² See: ISO/IEC 17011: 2017, *Conformity assessment – Requirements for accreditation bodies accrediting conformity assessment bodies*, ISO/IEC 17065:2012, *Conformity assessment – Requirements for bodies certifying products, processes and services*, and ISO/IEC 17025:2017, *General requirements for the competence of testing and calibration laboratories*.

³ See: https://www.iso.org/sites/cascoregulators/01_0_conformity-assessment-basic-concepts.html.

Technician 2 programs. These NWSA programs meet the requirements of ISO/IEC 17024, the global benchmark for organizations that certify professional trade workers.⁴

ANAB recommends that international conformity assessment standards, ISO/IEC 17011, ISO/IEC 17024, ISO/IEC 17025, and ISO/IEC 17065 be referenced to recognize accreditation bodies, testing laboratories, and certification bodies in the National Strategy to Secure 5G Implementation Plan.

Line of Effort Four: Promote Responsible Global Development and Deployment of 5G.

(5) Both the U.S. Department of Commerce and the Federal Communications Commission (FCC) have rulemakings underway to address the security of the telecommunications infrastructure supply chain. Are there other models that identify and manage risks that might be valuable to consider?

ANAB encourages the use of existing private sector certification programs to address the security of the telecommunications infrastructure supply chain. For example, the FCC Telecommunications Certification Body (TCB) program is an equipment authorization procedure that provides for effective and efficient testing and certification of Radio Frequency (RF) devices prior to being marketed or imported into the United States.

The FCC's Office of Engineering and Technology (OET) administers the equipment authorization program under the authority delegated to it by the Commission. The equipment authorization program relies on the use of private sector organizations to implement the authorization program. The FCC equipment authorization program requires the use of accredited testing laboratories and certification bodies (TCB). Recognized accreditation bodies perform accreditations.⁵

ANAB recommends that private sector certification bodies be relied on to certify network and user equipment to the applicable 5G standards – product certification to be performed using programs such as the TCB program. The scope of the TCB program should be expanded to include reference to applicable 5G standards as part of the National Strategy to Secure 5G Implementation Plan.

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⁴ <http://www.nws-a.org/certification-programs/nwsa-awarded-prestigious-ansi-national-accreditation-board-accreditation/>

⁵ See: <https://www.fcc.gov/engineering-technology/laboratory-division/general/equipment-authorization>.