

OVERVIEW 2023

Advancing ICT Industry Transformation



CONTENTS



3 A LETTER FROM THE PRESIDENT AND CEO

4 ATIS BOARD OF DIRECTORS

5 ATIS BOARD MEMBER COMPANIES

6 ADVANCING INDUSTRY TRANSFORMATION

- 7 ATIS' Value-Driven Mission
- 7 A Diverse And Robust Portfolio Of Deliverables
- 7 ATIS Priorities
- 7 Technology Focus Areas

8 POLICY

- 9 The Critical Role Of The Industry-Led Standards Model

10 6G AND BEYOND

- 11 The Next G Alliance Research Council
- 11 Meeting Audacious Goals Toward the 6G Future
- 12 Global 6G Cooperation
- 13 Next G Alliance Publications

14 GLOBAL COLLABORATION - 3GPP

- 15 Advancing North American Priorities Globally for 5G

16 STRATEGIC INITIATIVES

- 17 3GPP Release 17 – Building Blocks for UAV Applications
- 17 Deployment and Operational Requirements of 5G Non-Public Networks
- 17 5G Secure Profile
- 17 Content Classification
- 17 IoT Categorization
- 18 Metaverse
- 18 Quantum
- 18 Securing the 5G Supply Chain

19 REGULATORY INITIATIVES

- 20 Robocalling Mitigation
 - 20 ATIS' Secure Telephone Identity Governance Authority
 - 20 Expanding SHAKEN's North American Success Globally
- 21 Non-IP Call Authentication
- 22 Hearing Aid Compatibility

23 STANDARDS AND SOLUTIONS

- 24 ATIS Committees And Forums
- 25 Streamlined Outage Reporting
- 25 Identifying and Developing Adaptations to Existing Test Methodologies to Better Measure Handset-Based Geodetic and Civic Location Performance
- 25 IMSI Resource Management
- 26 Wireless Emergency Alerts



From the President and CEO

Welcome to the 2023 *Overview*. It offers insight into ATIS' work as a vibrant, member-driven organization advancing technology solutions development and standards in the information and communications technology (ICT) industry. You will learn about our 2022 accomplishments, as well as what's on the horizon for 2023. Consider this piece a summary of some of the most important technology and policy initiatives relevant to ICT companies' business priorities.

The work of our [Next G Alliance](#) is one example. ATIS created this initiative to advance North American 6G mobile leadership through private-sector-led efforts. North American preeminence in the 6G future will usher in a new generation of applications and services that will bring tremendous benefits to multiple sectors. This will drive even greater domestic industry investment in job-creating, high-tech development and manufacturing critical to U.S. economic and national security. Another goal of this work is to drive North American needs and goals into the 6G global standardization process.

ATIS initiatives are also enabling the industry to secure the 5G supply chain, advance robocalling mitigation, build network functions faster with greater scalability and flexibility and prepare our industry for the future on many more fronts. On behalf of our growing membership, I hope you enjoy learning about how ATIS is advancing ICT industry transformation.

Sincerely,

A handwritten signature in black ink that reads "Susan M. Miller". The signature is fluid and cursive, with the first name "Susan" being the most prominent part.

Susan M. Miller
ATIS President & CEO

ATIS Board Of Directors Officers



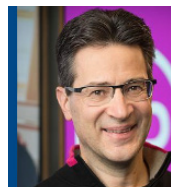
Chair
Igal Elbaz
Network Chief Technology Officer
AT&T



First Vice Chair
Mark Hess
Senior VP, Business and Industry
Affairs
Comcast



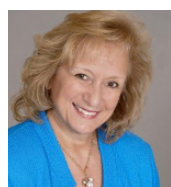
Second Vice Chair
Sanjay Udani
VP, Technology Policy
Verizon



Secretary
Karri Kuoppamaki
Senior VP, Technology Development
& Strategy
T-Mobile



Treasurer
Stephen Alexander
Senior VP, CTO
Ciena



ATIS President and CEO
Susan M. Miller

ATIS Board Member Companies



The background of the entire page is a complex, abstract network diagram. It consists of numerous small, dark grey circular nodes connected by thin, light grey lines. The nodes are distributed across the page, with some appearing as single dots and others as small clusters. The lines form a web-like structure, with some areas being more densely connected than others. The overall color palette is a mix of light beige, dark grey, and white.

ADVANCING INDUSTRY TRANSFORMATION

National Accreditation and Global Leadership

ATIS is accredited by the American National Standards Institute (ANSI). The organization is the North American Organizational Partner for the 3rd Generation Partnership Project (3GPP), a founding partner of the oneM2M global initiative, a member of the International Telecommunication Union (ITU) and a member of the Inter American Telecommunication Commission (CITEL).

ATIS' Value-Driven Mission

ATIS brings the ICT industry together to deliver technology innovation for the future and address critical priorities. Here's how we create value:

- > ATIS' strategic initiatives and solutions/standards work progresses new business opportunities, solves common industry challenges and creates a platform for collaboration with other industries.
- > Members innovate and compete using ATIS' foundational work. Collaborative efforts across industries can lead to greater scale and customer adoption.
- > Identifying and defining where and how to align and collaborate are top priorities. Sharing resources, effort and cost to develop large-scale, interoperable solutions for a "common industry good" is both critical and beneficial to the industry.

A Diverse and Robust Portfolio of Deliverables

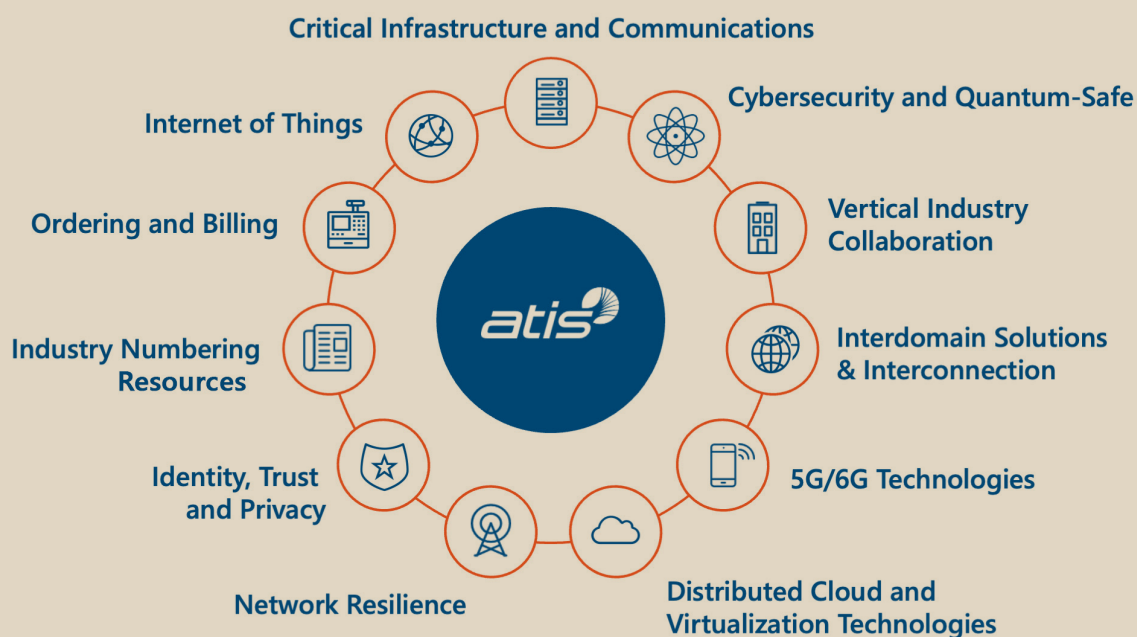
ATIS' portfolio includes strategic initiatives, technology and standards development, global partnerships and regulatory/policy advocacy. Specifically, we are engaged in:

- > Delivering technology innovation for the future.
- > Solving near-term deployment and implementation challenges.
- > Developing critical industry standards.
- > Driving global leadership and collaboration.
- > Advancing technology policy.
- > Engaging membership to advance industry transformation and collaboration.

ATIS Priorities

Our priorities change with market and member demands. Current technology focus areas are shown below:

TECHNOLOGY FOCUS AREAS





POLICY

ATIS has targeted initiatives as well as active relationships with key Agency, Congressional and Administration policymakers to advance industry's technology and policy goals.

Policy: The Critical Role of the Industry-Led Standards Model

On August 9, 2022, the President signed into law the CHIPS and Science Act, one of the most ambitious legislative efforts impacting the ICT sector in recent years and one that is likely to guide U.S. research investment for the remainder of the decade. ATIS voiced support for passage of the Act during its consideration. A key focus of our advocacy efforts in 2023 is ensuring full funding of the act's research programs and encouraging a whole-of-government strategy for investing these funds to drive leadership in next-generation communications technology.

Around the world, standards are increasingly becoming swept up in the political debate over national competitiveness and leadership in advanced technologies. ATIS has been at the forefront of discussions with the Administration and Congress to educate them about how standards development processes work to promote innovative solutions and the importance of the industry-led standards model to the country's long-term economic strength. ATIS has encouraged policymakers to focus on steps that would

strengthen the industry-led model by incenting greater domestic industry participation in international standards efforts. This includes proposals to offset the cost of participating in standards work, facilitating the ability for standards meetings to be held in the U.S. and growing the domestic standards talent base.

As demonstrated by references to technology standards in a recent White House national security strategy, the geopolitical concerns at the center of both the CHIPS and Science Act and the politicization of standards policy will only become more acute in the coming year. ATIS anticipates new legislative proposals and agency efforts prioritizing national security considerations in U.S. standards policy and will continue working with our member companies to channel government concerns toward steps that strengthen the industry-led model. We will also continue to amplify the work of the Next G Alliance to promote policies necessary for leadership in next-generation technologies.



An abstract network diagram consisting of numerous nodes (represented by small circles) connected by thin lines, forming a complex web. The nodes are distributed across the page, with a higher density in the upper left and center. Some nodes are highlighted with larger circles or different shades of gray.

6G AND BEYOND

2022 was a year of great accomplishment for the [Next G Alliance \(NGA\)](#). Established in November 2020, this ATIS initiative was created to advance North American 6G mobile leadership through private-sector-led efforts. Representing more than 100 members from diverse segments of industry, academia and government, the work of the Next G Alliance addresses the full lifecycle of 6G, research to realization, including R&D, manufacturing, standards leadership and market readiness. While industry will ultimately drive development and commercialization of the next generation of wireless communications, realizing this goal will require a commitment from government to support research and public policies that promote North American leadership.



The Next G Alliance Research Council

The [Next G Alliance Research Council](#) brings together leading industry and academic experts from the NGA to collaborate on development of a comprehensive North American 6G research strategy. It will leverage key NGA findings and lay the groundwork for cooperative efforts among government, industry and academia.

In conjunction with the launch of the Research Council, the Next G Alliance published its 6G Research Priorities, a major step in aligning the future vision for North American 6G with the research to drive wireless leadership over the next decade. These focus areas are derived from collaboration among NGA working groups, involving more than 800 experts from the 6G wireless ecosystem.

Research priorities encompass applications, technology, societal and economic needs and sustainability.

Developing an action plan to advance NGA research goals, working with the U.S. and Canadian governments as well as private-sector 6G research communities is the Council's next step.

Research Council member institutions include Ericsson, Google, Intel, Nokia, MIT, University of California Davis, University of Manitoba, Northeastern University, University of Notre Dame, University of Texas at Austin, Qualcomm and Verizon.

Supporting Policies to Advance North American 6G Leadership

The NGA research agenda provides a blueprint for government, industry, and academic collaboration necessary to achieve North American 6G leadership. While 6G may not be deployed until near the end of this decade, the critical research and skills to support such leadership will require years of investment that must begin now. Indeed, other regions of the world have already made significant commitments to research in support of the next generation of communications technology.

In addition to the work of the NGA Research Council, ATIS supports full funding of the CHIPS and Science Act research programs, and particularly the NIST and NSF research, including the work of NSF's new Directorate for Technology, Innovation and Partnerships. All of these are essential to ensuring that North America is the epicenter of 6G innovation. They will send a strong message that the U.S. is committed to being second to none in developing the technologies of the future.

Meeting Audacious Goals Toward the 6G Future

Defining what it takes to deliver next generation wireless leadership is an audacious undertaking. The Next G Alliance Roadmap to 6G sets forth six audacious goals to help get there. These guide future global standards, as well as deployment, product, operations and services recommendations for the networks of the future. They address the top priorities for North America's contribution to future 6G-related global standards, deployments, products, operations and services.

In 2022, the Next G Alliance fast-tracked the work to meet its audacious goals. A slate of major reports has been published so far, with more scheduled for completion in 2023:

Roadmap to 6G

Before discussing the audacious goals reports, it is critical to understand one pivotal and overarching contribution of 2022: completion of the [Roadmap to 6G](#). In addition to articulating the six audacious goals, the *Roadmap* sets forth the North American 6G vision and maps the steps to achieve it. A document expanding upon the work of the original 6G Roadmap, is due for completion in 1Q 2023 and will address the important needs of verticals and the intersection with 6G technologies and applications by the end of the decade.

Here are the six audacious goals and the accomplishments toward meeting them. The reports mentioned were created by the [National 6G Roadmap Working Group](#):

Trust, security and resilience must be advanced such that future networks are fully trusted by people, businesses and governments. Toward that goal, in 2022 the NGA published [Trust, Security and Resilience for 6G Systems](#).

An enhanced digital world must be achieved that consists of multi-sensory experiences to enable transformative forms of human collaboration, as well as human-machine and machine-machine interactions. The report [Digital World Experiences](#) was published in 2022.

Cost efficiency spanning all aspects of the network architecture is a critical part of 6G. The report [Cost-Efficient Solutions](#) was also published in 2022.

Distributed cloud and communications systems built on cloud and virtualization technologies will lead to increased flexibility, performance, and resiliency for key use cases such as mixed reality, URLLC applications, interactive gaming, and multi-sensory applications. In 2022, the NGA published [6G Distributed Cloud and Communications Systems](#).

With reports on four of the six audacious goals published in 2022, reports on the two remaining goals are in process and forthcoming in 2023. They will cover 1. an AI-native network and 2. sustainability related to energy efficiency and the environment at the forefront of decisions throughout the life cycle.

In addition to the reports advancing the audacious goals that were created by the [National 6G Roadmap Working Group](#), several of the other NGA Working Groups (WGs) completed deliverables to advance North American 6G leadership goals in the 6G future:

The Applications WG addresses the 6G-related application needs that will drive innovation and development for consumers, enterprises and verticals in a Next G world. In 2022, the Working Group released a report presenting the use cases and applications for the future 6G network. The [Next G Alliance Report: 6G Applications and Use Cases](#) report examines the drivers of future applications that have the potential to shape development of next generation mobile communication technologies. It shows how new applications, many of which are still being envisioned, will impact virtually all aspects of society and industry to improve the way we live and work — and expand global markets for North American innovation. Two reports focusing on multi-sensory extended reality and network-enabled robotics and autonomous systems as well as a second Applications report are in process and due out in 2023.

The Green G WG is delivering insight to minimize the environmental impact of future generations of wireless technology. In 2022, it mapped the path to a more energy-efficient and eco-friendly 6G by publishing [Green G: The Path Toward Sustainable 6G](#). The report shows how the ICT industry can contribute to reducing overall energy consumption and achieving environmental sustainability objectives while accelerating progress toward 6G. It identifies key areas where the ICT sector — including the mobile infrastructure, radio access technology, data center industry and device manufacturers — have made significant improvements over the last decade in reducing the overall energy consumption of network traffic. It also highlights the importance of sustainability in future generations of wireless in a world that grows more connected, with users' data needs increasing each year.

After publishing [Green G](#), a new Green G WG report is slated for release in early 2023. This report delivers insight into the scope of KPIs required to measure the sustainability metrics for future 6G networks. The goal is to provide an overview of available sustainability KPIs currently used for the ICT industry and applicability to the 6G ecosystem. Following this initial report, the [Green G Group](#) is delving deeper into specific sustainability metrics for end communications devices, the radio access network, the core network and cloud and edge compute infrastructures, with more focused reports on target for completion in 1Q2023.

The 6G Technologies WG (TWG) is defining the specific technologies needed to fulfill the vision in the 6G Roadmap. In July 2022, it released recommendations forecasting the technologies that will be needed to advance the 6G future and identified areas where further research is required on North American 6G priorities. This work is presented in [Next G Alliance Report: 6G Technologies](#).

The report provides an overview of 47 key 6G candidates spanning the areas of: Component Technologies; Radio Technologies; System and Network Architecture; Network Operations, Administration, and Maintenance (OA&M) and Service Enablement; and Trustworthiness — Security, Reliability, Privacy and Resilience. This provides one of the industry's first strategic looks at the technologies and research needed to deliver the yet-to-be-developed innovations that will position North America as a leader in 6G.

To further refine key areas of interest covered in *6G Technologies*, the TWG is developing additional white papers. The *6G Technologies for Wide Area Cloud Evolution* report currently being drafted will discuss ten technologies that will be fundamental for Wide Area Distributed Cloud and is on target for completion in March 2023.

Reports from the [Societal and Economic Needs WG](#) and the [Spectrum WG](#) are forthcoming in 2023.

Insight into the 6G Market

In addition to the prolific WG contributions in 2022, the NGA also delivered [6G Market Development: A North American Perspective](#), which outlines the strategic importance of 6G and the imperatives that will shape North America's competitiveness, economy and global leadership. This white paper also presents the context for NGA's work and priorities, explaining how 6G is different compared to prior generations. It provides insights into the 6G market, including prospects that will excite society and boost the digital economy.

Global 6G Cooperation

Cooperation between the Next G Alliance and other global entities is designed to advance both organizations' objectives in the development of the global 6G mobile wireless ecosystem. One example is the 6G Smart Networks and Services Industry Association (6G-IA), which is the voice of European industry and research for next-generation networks and services. In 2022, the NGA and 6G-IA announced a memorandum of understanding (MoU) to exchange information regarding their work programs in areas of mutual interest in the field of 6G communication systems and networks. Similar strategic agreements have been signed with [Korea's 5G Forum](#) and [Japan's Beyond 5G Promotion Consortium](#).

Access the [6G Library](#) for all Next G Alliance publications:



6G Technologies



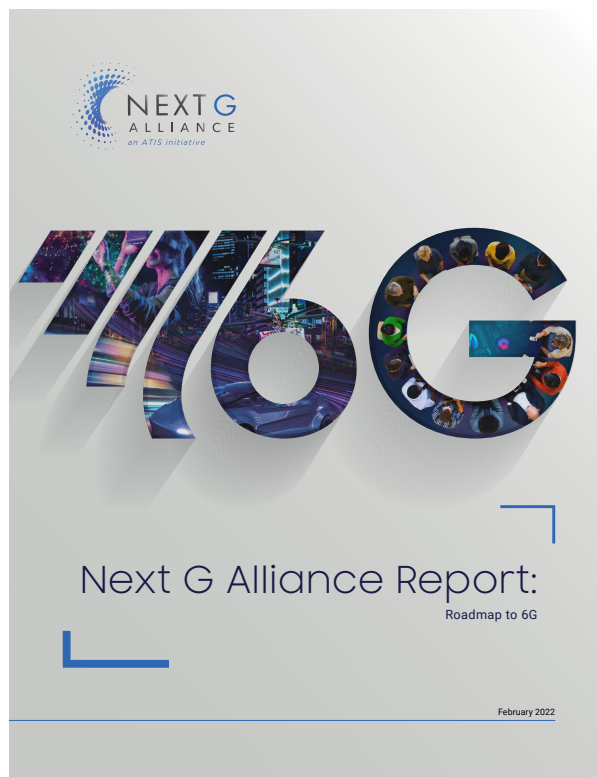
6G Applications and Use Cases



Green G: The Path Toward Sustainable 6G



6G Market Development: A North American Perspective



Roadmap to 6G



6G Distributed Cloud and Communications System



Trust, Security, and Resilience for 6G Systems



Digital World Experiences



Cost-Efficient Solutions

An abstract network diagram consisting of numerous dark grey circular nodes of varying sizes, interconnected by thin, light grey lines. The nodes are distributed across the entire page, with a higher density in the upper left and center, creating a complex web-like structure. The background is a solid, muted blue-grey color.

GLOBAL COLLABORATION 3GPP

3GPP global specifications and standards alignment activities focus on large-scale interoperability and inter-working. As part of its global leadership role, ATIS is the North American founding Organizational Partner of 3GPP. 3GPP unites seven standard development organizations (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC), known as "Organizational Partners" and provides their members with a stable environment to produce the specifications that define 3GPP technologies, including LTE and LTE-Advanced. Since the completion of the first LTE and the Evolved Packet Core specifications, 3GPP has become the focal point for mobile systems beyond 3G. Currently, it is moving the industry into the 5G future, an area in which ATIS has North American leadership.



A GLOBAL INITIATIVE

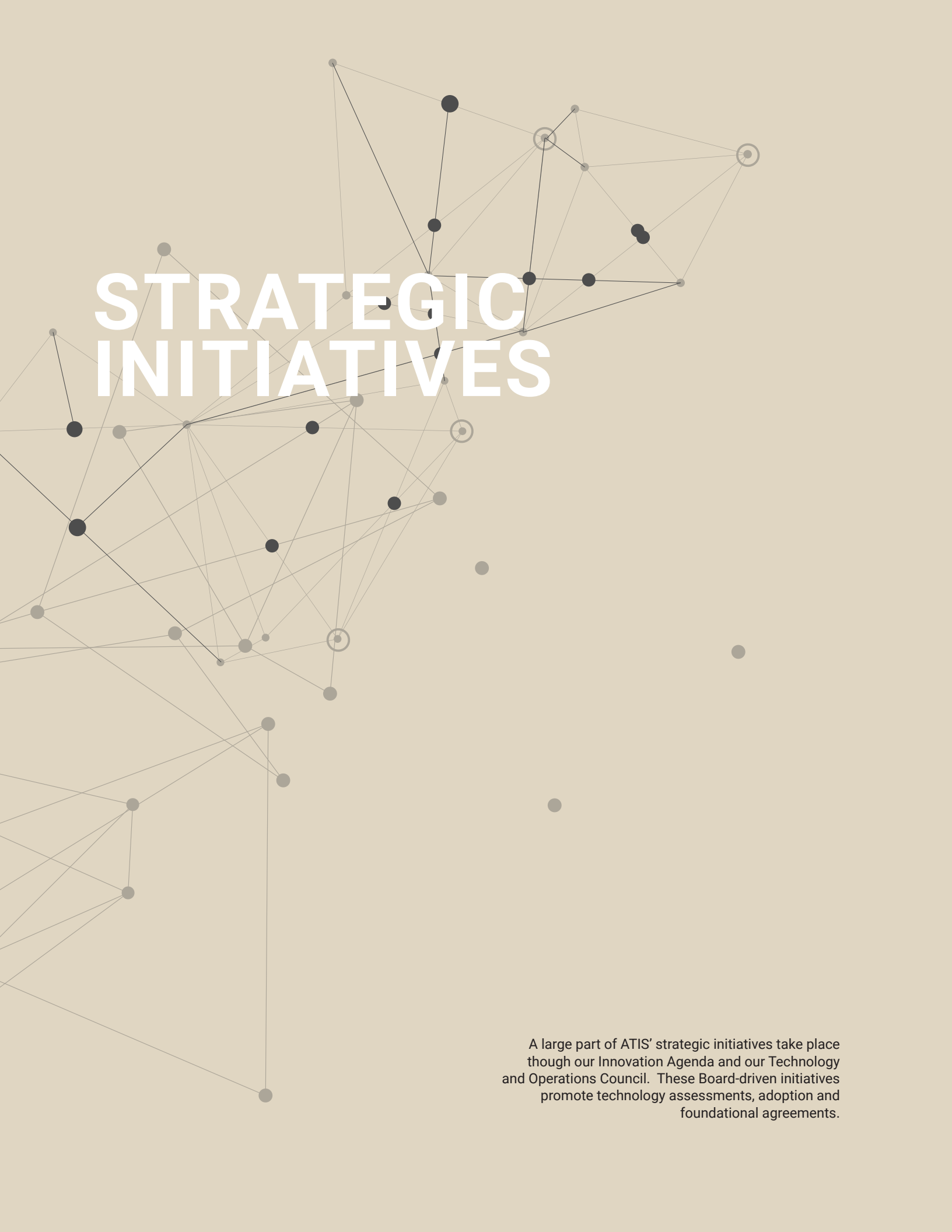
Advancing North American Priorities Globally for 5G

As part of its global leadership role, ATIS is the North American founding Organizational Partner of 3GPP. 3GPP unites seven standard development organizations (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC), known as “Organizational Partners (OPs),” to define globally aligned specifications for 4G and 5G mobile systems. 3GPP technologies’ generations include LTE and LTE-Advanced in 4G and “New Radio” (NR) in 5G. 3GPP specifications are the basis for some of the most economically important and widely deployed technology in the communications sector and underpin all public mobile networks. ATIS provides a North-American-based path for companies to participate in 3GPP and coordinates regional positions on strategic 3GPP issues.

As part of its 3GPP leadership, ATIS holds regular webinars on 3GPP Release content:

- > In 2022, ATIS held the webinar [5G Standards Development Update in 3GPP – Release 17 and 18](#).
- > On February 2, 2023, the webinar [Release 18: Status and Beyond](#) was held.

3GPP’s work is dynamic, and ATIS offers its continued support for efficient collaboration in 3GPP as we enter the post-Covid-19 environment. Our work will continue to ensure that the 3GPP organization and process creates a fair balance between the companies and regions involved in 3GPP.

An abstract network diagram consisting of numerous nodes (small circles) connected by thin lines. The nodes are distributed across the page, with a higher density on the left side where they form a complex web. Some nodes are highlighted with larger circles or double outlines. The background is a solid light beige color.

STRATEGIC INITIATIVES

A large part of ATIS' strategic initiatives take place through our Innovation Agenda and our Technology and Operations Council. These Board-driven initiatives promote technology assessments, adoption and foundational agreements.

3GPP Release 17 – Building Blocks for UAV Applications

How mobile networks supporting 3GPP Release 17 specifications can prepare for an increasingly drone-reliant future – and the new opportunities inherent in it.

An [ATIS report](#) released in summer 2022 describes how mobile networks supporting the 3GPP Release 17 specifications can enable uncrewed aerial vehicle (UAV) applications. It discusses how 3GPP's work fits with other specifications to address UAV needs and shows how the 3GPP system can be used to enhance the opportunities to safely use UAVs for commercial and leisure applications.

Deployment and Operational Requirements of 5G Non-Public Networks

Advancing 5G in non-public networks.

To advance the opportunities inherent in the addition of the non-public networks (NPNs) to 5G in 3GPP Release 16, ATIS released the [Deployment and Operational Requirements of 5G Non-Public Networks](#) in 2022.

In the pre-5G era, 3GPP networks were developed primarily for public communication services by commercial service providers. 3GPP Release 16 expands 5G by adding support for non-public wireless networks intended for use in many private settings and vertical sectors. In this report, ATIS examines the vertical sectors' capabilities applicable to NPNs that are hallmarks of worldwide mobile communication services. The report presents an analysis of the NPN use cases and an assessment of technical solutions based on 3GPP specifications.

5G Secure Profile

Advancing adoption of 5G innovation.

Government agencies and enterprises alike are eager to adopt transformative 5G technologies. To advance these efforts, creating enhanced security use cases is critical. However, gaps exist between organizations' mandatory security policies and the baseline security features implemented in commercial 5G solutions and service offerings. Early adopters of 5G have, in some cases, remedied this situation with a custom 5G network deployment tailored to address unique organizational or

mission-critical security requirements. ATIS and MITRE Corporation's 5G [Secure Profile Working Group \(SPWG\)](#) launched in 2022 to bring industry and government leaders together to develop a standardized set of above-baseline security measures and configurations.

The SPWG's primary objectives are to define and prioritize identified security gaps and produce secure profiles for use by both public and private sector stakeholders. These 5G "secure profiles" may be applied as standardized, above-baseline security measures by the 5G mobile industry. Each profile will be tailored to a specific high-assurance use case or security requirement(s) and may potentially make "optional" 3GPP security features "mandatory" for those use cases.

Content Classification

Forefront industry work mapping QoE to network availability.

Changes in traffic patterns and new use cases such as immersive extended reality (XR) call for new ways to look at how quality of experience (QoE) maps to network availability. This requires the ability to establish a content classification framework where content providers can convey simple encoding of the content flow types to network providers for network traffic optimization purposes. This classification must work in a non-discriminatory and non-priority-centric way.

An ATIS Working Group on [Content Classification for Traffic Optimization](#) brings together key stakeholders to articulate the use cases and define high-level requirements to evaluate current technical specifications, provide implementation recommendations and identify potential gaps in this area. This work will explore ways to enhance the bidirectional application-network metadata exchange in a privacy-focused way to proactively address congestion and improve QoE.

IoT Categorization

An industry-first database progressing ICT industry IoT goals.

After assessing a wide range of IoT devices and applications to identify areas of commonality in terms of network resource and performance requirements, ATIS' [IoT Categorization \(IoT Cat\) initiative](#) has standardized a new network slice, High-Performance Machine-Type Communications (HMTc). Through its work, the initiative learned that other apps could benefit from this new slice, including those in high-growth areas such as smart agriculture.

Beyond defining network slices, this work is creating a database of KPIs for applications – the industry's first resource of this type. [The Next G Alliance Applications](#)

[Working Group](#) will leverage the IoT Cat database to examine the existing applications in the database with a 6G lens to further identify Next G application performance requirements.



Metaverse

Addressing identity and privacy within the metaverse.

The metaverse is harnessing a range of next-generation technologies to engage with people and businesses in entirely new ways. Gartner predicts that by 2026, “25% of people will spend at least one hour a day in the metaverse for work, shopping, education, social media and/or entertainment.” These users need the ability to maintain a consistent and secure digital identity as they move both into and between metaverse worlds.

Digital identities will determine where, how and to whom people appear in the metaverse. In these immersive, embodied spaces, avatars will add a new layer of representation and self-expression to our understanding of digital identity. As the industry works together with others to build the future metaverse, it will be critical to define and understand people’s expectations of representation, identity and expression across both 2D and 3D immersive surfaces. In addition, the metaverse will process vast amounts of critical data. Consequently, industry must prioritize security, privacy and transparency of data use. These issues are being explored in ATIS’ [Identity and Privacy](#) Initiative.

Quantum

Helping the industry better understand quantum computing opportunities and threats.

Quantum computing leverages the quantum properties of entanglement and superposition to deliver a huge leap forward in computation to solve problems too complex for classical computers. However, there are concerns that quantum’s computational power will eventually compromise current encryption algorithms widely used by network operators. This issue is addressed in a white paper created by an Assistant Professor of Mathematics at University of Connecticut and the AT&T lead member of technical staff on ATIS’ [Quantum-Safe Communication and Information Initiative](#).

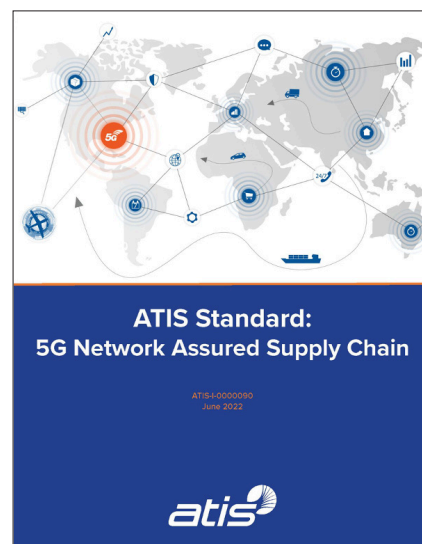
Securing the 5G Supply Chain

ATIS presents the first-ever supply chain standard to secure 5G infrastructure from cybersecurity threats.

Securing the 5G information and communications technology supply chain is critical as 5G capabilities expand rapidly in North America. At the Department of Defense’s request, ATIS brought together leading industry and government partners to address this issue. In June, ATIS released [ATIS Standard: 5G Network Assured Supply Chain](#), a publication presenting a standard to secure 5G infrastructure from cybersecurity threats. ATIS is confident in its ability to deliver the multiple levels of assurance needed to secure the 5G supply chain.

This 5G supply chain document includes requirements and controls necessary to operationalize a set of well-defined levels of assurance associated with the complete lifecycle functions of 5G supply chains. The standard provides entities operating networks and their suppliers with a flexible approach to assuring the 5G supply chain at any level of component integration or product type.

The work that went into developing it is based on a flexible reference model and component flow through the complex 5G supply chain to identify specific controls that can mitigate the identified threats and associated attacks. By applying these requirements and controls, customers can achieve a much greater level of assurance that the 5G supply chain is secure in a constantly evolving threat environment.



An abstract network diagram consisting of numerous nodes (represented by small circles) connected by thin lines, forming a complex web. The nodes are distributed across the page, with a higher density on the left side. Some nodes are highlighted with larger circles or additional concentric circles. The background is a solid blue color.

REGULATORY INITIATIVES

ATIS serves as a *de facto* technology advisor to the FCC by facilitating consensus on key regulatory issues affecting the ICT industry.

ROBOCALLING MITIGATION

ATIS' Secure Telephone Identity Governance Authority



Service provider participation in SHAKEN ecosystem grows.

The growth of the STIR/SHAKEN ecosystem continued on track in 2022. Just over 400 service providers were participating in STIR/SHAKEN at the start of 2022. By the year's end, more than 800 providers were authorized by the Secure Telephone Identity Policy Administrator (STI-PA). This increase in provider participation has led to a greater number of calls being authenticated and signed. Although this has not completely solved the illegal robocalling problem, it was intended to make it more difficult and more expensive for scammers to use the phone system to operate their scams.

And it is beginning to do that. As more providers sign voice calls, evidence suggests the scammers have reacted by changing their methods, moving toward a greater reliance on scam texting, for example, a topic that has been raised for discussion in the IP-NNI Task Force.

The industry continues to work to broaden the scope of caller ID authentication. In July, the [Secure Telephone Identity Governance Authority \(STI-GA\)](#) signed an MoU with the Canadian Secure Token Governance Authority (CST-GA). This MoU is enabling better coordination between the two countries, each of which has implemented STIR/SHAKEN following the ATIS standards. Service providers will soon likely have the ability to sign a call in one country and have that call appropriately verified in the other country. Further, the MoU will create a model for other countries to follow as they seek to implement STIR/SHAKEN and tie their systems into U.S. and Canadian systems.

However, extending STIR/SHAKEN beyond the U.S. and Canada will introduce additional challenges. While the mechanics of verifying cross-border calls have been defined, an approach to governance is needed that will ensure that the core STI-GA principles of security, accountability and inclusiveness are preserved as STIR/SHAKEN is extended globally.

Finally, the FCC has mandated that small providers implement STIR/SHAKEN by June 30, 2023. This may help to further increase the number of providers participating.

The broadening reach of STIR/SHAKEN will make it ever more difficult for scammers to operate the way they are accustomed to and easier for providers to filter out the bad traffic. There is still more work to do, but 2022 has been a year of great progress.



Expanding SHAKEN's North American Success Globally

The ATIS/iconectiv global STIR/SHAKEN framework was established in 2018 to support U.S. service providers and consumers. The framework is benefiting U.S. consumers and enhancing the impact of STIR/SHAKEN as a mitigation tool by allowing caller ID information to be verified. The current framework is focused on domestic U.S., IP-based calls, but it also sets the stage for allowing all calls, including international ones, to be verified end to end.

In 2022, the FCC North American Numbering Council Call Authentication Trust Anchor (CATA) WG began to address this challenge by considering key steps to

facilitate extending STIR/SHAKEN beyond the current deployment in the U.S. The CATA WG report identified criteria that should be considered to maintain the security and integrity of the SHAKEN ecosystem when expanding the STIR/SHAKEN “zone of trust.” Subsequently, the U.S. STI-GA formed a task force to formalize a mechanism to recognize other governance authorities while preserving the integrity of the U.S. STIR/SHAKEN framework.

In anticipation of the STI-GA expanding the zone of trust, ATIS has been developing a Global STIR/SHAKEN framework, working closely with iconectiv and founding members Bandwidth, Google, Microsoft and Ring Central. If the ATIS/iconectiv Global STIR/SHAKEN framework is approved for inclusion in the U.S. STI-GA zone of trust, the Global STIR/SHAKEN framework will be launched. This will allow legitimate global service providers to obtain STI certificates, sign calls with SHAKEN PASSporTs and have their international calls to the U.S. receive full attestation to reduce the chances that their calls will be flagged as “spam likely.”

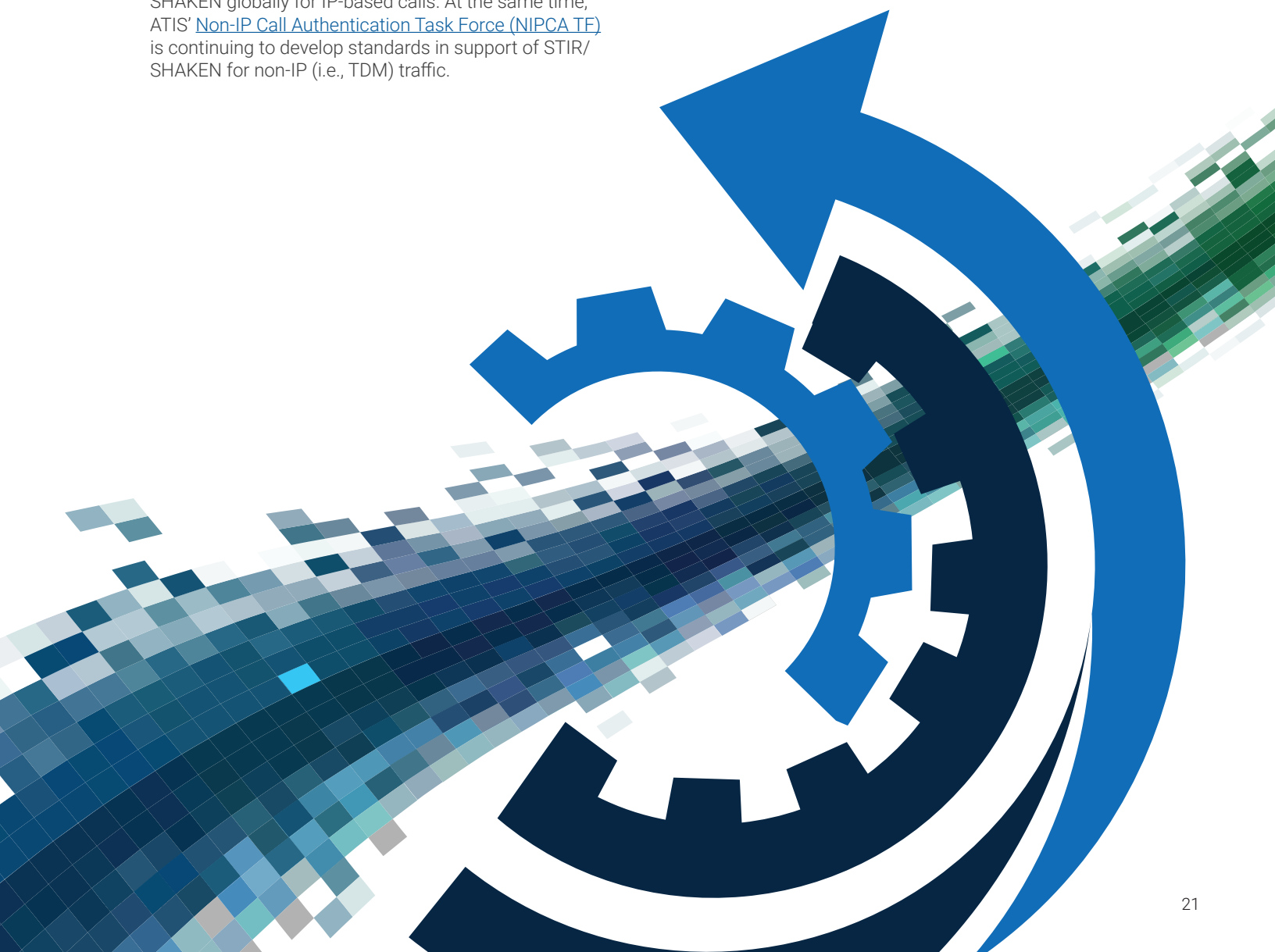
This deployment is a critical step in extending STIR/SHAKEN globally for IP-based calls. At the same time, ATIS’ [Non-IP Call Authentication Task Force \(NIPCA TF\)](#) is continuing to develop standards in support of STIR/SHAKEN for non-IP (i.e., TDM) traffic.

Non-IP Call Authentication

Extending ATIS’ leadership in SHAKEN development to face the challenges of TDM networks.

In October, ATIS announced release of two new major standards advancing the industry’s illegal robocalling mitigation goals in non-IP (i.e., TDM) networks: [Extending STIR/SHAKEN Over TDM](#) and [Alternatives for Call Authentication for Non-IP Traffic](#).

ATIS’ [Non-IP Call Authentication Task Force \(NIPCA-TF\)](#) is now developing a Technical Report that examines the viability of hybrid scenarios where non-IP call authentication standards coexist with the SHAKEN solution in IP networks. Through the NIPCA-TF, industry will continue to identify and address new issues and to refine existing solutions in this area to enhance interoperability and deploy-ability – and improve viability of the authentication standards for calls that traverse TDM networks.





HEARING AID COMPATIBILITY TASK FORCE



Hearing Aid Compatibility

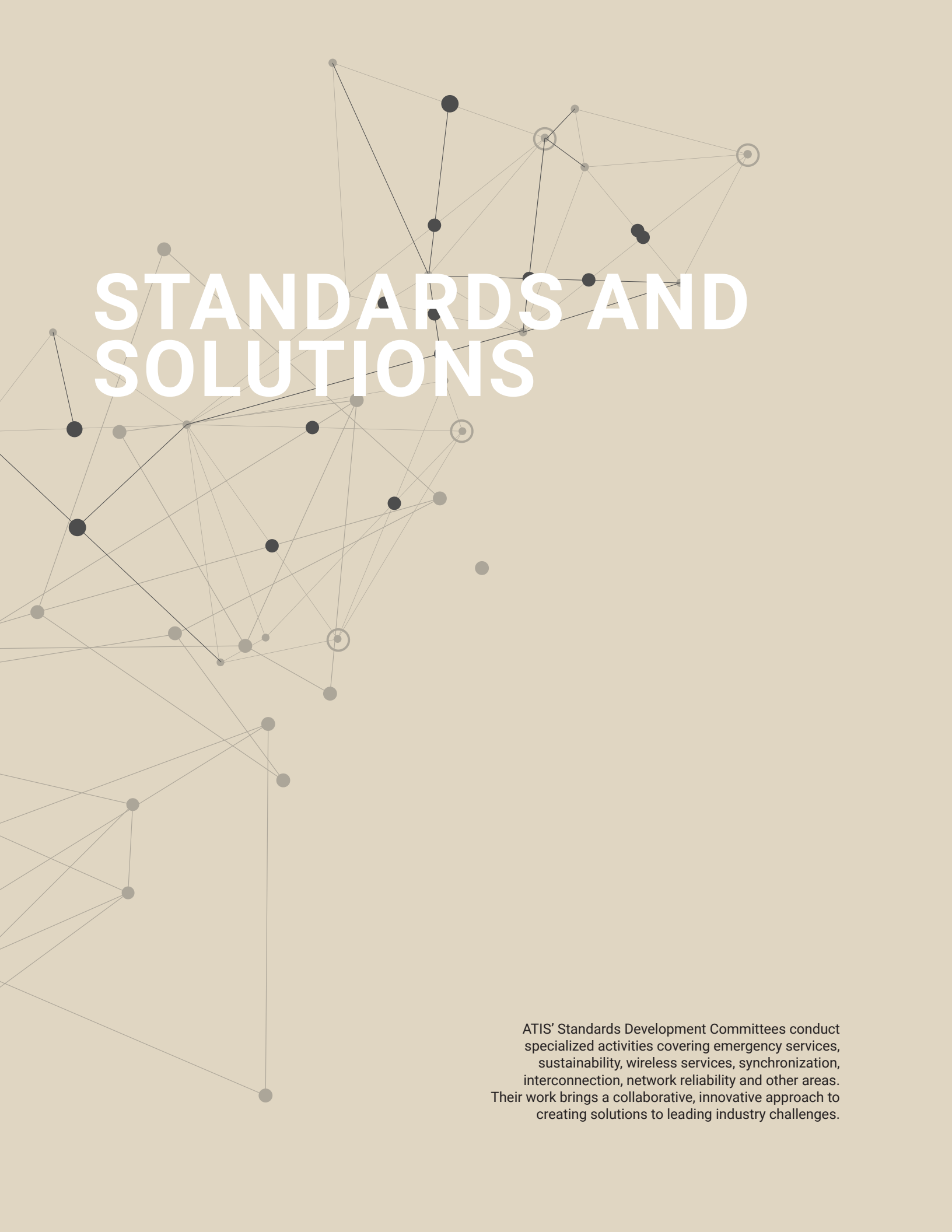
ATIS Hearing Aid Compatibility (HAC) Task Force Recommends a Path to 100 Percent Compatibility for Wireless Handsets

In late 2022, the ATIS-administered [Hearing Aid Compatibility \(HAC\) Task Force](#) delivered its Final Report to the FCC. Achieving the mission set forth in its Charter, the Final Report recommends to the FCC a path to achieving 100 percent hearing aid compatibility for wireless handsets. In particular, it calls on the FCC to ensure current technology is supported while leveraging new wireless connectivity technologies and accounting for intervening developments and innovations over the past few years. This includes Bluetooth, which consumers have embraced to couple their hearing aids with their wireless handsets.

ATIS is pleased to have convened the HAC Task Force, which represented key companies and consumer advocacy organizations working in this area. The expertise brought to this effort, both technical and consumer-focused, has contributed to development of consensus-based recommendations that will help those with hearing loss have a satisfying listening experience on their mobile devices into the future.

The HAC Task Force is the result of the landmark Joint Consensus Proposal among organizations representing the interests of people with hearing loss, service providers, and handset manufacturers. The Joint Consensus Proposal Signatories included Competitive Carriers Association (CCA), CTIA, the Hearing Loss Association of America (HLAA), the National Association of the Deaf (NAD), Telecommunications for the Deaf and Hard of Hearing, Inc. (TDI), and the Telecommunications Industry Association (TIA). The FCC accepted and adopted the Joint Consensus Proposal and invited industry stakeholders and advocates for consumers with hearing loss to develop the HAC Task Force to determine whether a 100 percent HAC deployment benchmark is achievable considering both technical and market conditions.

Access the [Hearing Aid Compatibility Task Force Final Report and Recommendation](#).

An abstract network diagram consisting of numerous nodes (represented by small circles) connected by thin lines. The nodes are distributed across the page, with a higher concentration on the left side. Some nodes are highlighted with larger circles or double outlines. The overall structure suggests a complex, interconnected system.

STANDARDS AND SOLUTIONS

ATIS' Standards Development Committees conduct specialized activities covering emergency services, sustainability, wireless services, synchronization, interconnection, network reliability and other areas. Their work brings a collaborative, innovative approach to creating solutions to leading industry challenges.

ATIS Committees and Forums

ACTA



Administrative Council for Terminal Attachments

AIDC



Automatic Identification & Data Capture Committee

ESIF



Emergency Services Interconnection Forum

INC



Industry Numbering Committee

IOC



International Mobile Subscriber Identity Oversight Council

NGIIF



Next Generation Interconnection Interoperability Forum

NRSC



Network Reliability Steering Committee

OBF



Ordering and Billing Forum

PTSC



Packet Technologies and Systems Committee

SNAC



SMS/800 Number Administration Committee

STEP



Sustainability in Telecom: Energy and Protection Committee

SYNC



Synchronization Committee

TMOC



Telecom Management and Operations Committee

WTSC



Wireless Technologies and Systems Committee

ATIS' committees and forums are advancing ICT industry priorities in diverse areas:

Streamlined outage reporting



ATIS' [Network Reliability Steering Committee](#) filed a Petition for Rulemaking recommending that the FCC modify its rules by encouraging Public Safety Answering Points (PSAPs) or 911 authorities to furnish all covered 911 providers (both i3 and legacy) with the population counts served by the PSAPs or 911 authorities. This petition also requires all covered 911 service providers to use population data instead of telephone number counts to consistently determine user minutes threshold criteria. This is because Automatic Location Identification (ALI) data and/or telephone number counts will not be available as providers transition to an i3 environment.

Additionally, NRSC recommended changes to Telecommunications Service Priority 2 (TSP 2) outage reporting by extending the reporting threshold of TSP 2 outages from 30 minutes to 4 hours, and to wireless outage reporting by establishing a de minimis exception for events that affect at least five macro cell sites located in Rural Service Areas or at least 15 macro cell sites located in Metropolitan Service Areas. These changes would result in outage reporting data that more accurately reflects the true impact on wireless and TSP 2 services, while also decreasing the number of low-impact or no-impact (e.g., withdrawn) outage reports.

Identifying and developing adaptations to existing test methodologies to better measure handset-based geodetic and civic location performance



Handset-based location plays a critical role in providing accurate geodetic X/Y/Z location for 911 calls. Better use of civic address information provided by handsets or other potential sources is a key public safety goal. Smartphones are increasingly maintaining knowledge of their physical location, which can also benefit the reporting of a user's location in the event of a 911 call. Current testing methodologies

assume memoryless test devices in fresh test locations that have typically not been visited for months (if ever) by the handsets under test. To address this issue, ATIS' [Emergency Services Interconnection Forum](#) is conducting a new initiative that will, among other things:

- > Starting with existing ATIS test methodologies, identify aspects that need to be updated and/or expanded to encompass the capabilities of device-based solutions and their possible memory of locale or use context.
- > Extend the general concepts around context-aware, device-based testing methodologies, captured in item 1 above, to address adaptations needed for specific types of location information to be collected (i.e., X/Y, Z-axis, floor level and complete civic address information).
- > Consider how to properly analyze the various types of location uncertainty information that may be associated with the various forms of civic location information.

IMSI Resource Management



ATIS and the [International Mobile Subscriber Identity \(IMSI\) Oversight Council \(IOC\)](#) announced that effective December 13, 2022, ATIS has assumed responsibility for the administration of the IMSI resource, including Home Network Identifiers (HNI) for non-Citizens Broadband Radio Service (CBRS) spectrum users and shared HNI four-digit IMSI Block Numbers (IBN) for CBRS spectrum users. The IMSI Code is the 15-digit number used within mobile phones that enables service providers to identify mobile terminals for purposes of international roaming. The IBN is used to identify CBRS operations, thus conserving HNI resources.

The IOC is responsible for the management and administration of IMSI in the U.S. and maintains compliance with the "IMSI Assignment Guidelines and Procedures" to ensure that it meets the evolving needs of the U.S. wireless telecommunications industry.

Applications for HNIs and IBNs can be submitted at imsiadmin.ATIS.org.



Wireless Emergency Alerts



The Wireless Emergency Alerts (WEA) work taking place through [Wireless Technologies and Systems Committee](#) has progressed significantly over the past year. Several updated standards have been published, and several sets of comments have been filed with the FCC regarding WEAs. The documents created or revised as the result of WEA 3.0, which includes support for Device-Based Geo-Fencing to ensure that the appropriate devices are alerted during an emergency are:

- > March: [ATIS-0700037.v003, Wireless Emergency Alert \(WEA\) 3.0 Federal Alert Gateway to CMSP Gateway Interface Specification](#)
- > March: [ATIS-0700038.v003, Wireless Emergency Alert \(WEA\) 3.0 Federal Alert Gateway to CMSP Gateway Interface Test Specification](#)
- > April: [ATIS-0700010.v004, Wireless Emergency Alert \(WEA\) 3.0 via EPS Public Warning System Specification](#)
- > April: [ATIS-0700045, Commercial Mobile Service Provider \(CMSP\) Gateway to Cell Broadcast Center \(CBC\) Interface Specification](#)
- > August: [ATIS-0700041.v002, Wireless Emergency Alert \(WEA\) 3.0: Device-Based Geo-Fencing](#)
- > November: [ATIS-0700035, Wireless Emergency Alert \(WEA\) 3.0 Service Description](#)

WTSC WEA also filed comments with the FCC as noted below, some of which are still in progress:

- > June: [Comments in response to FCC FNPRM on proposed data collection and reporting requirements for WEA](#) [Dkt No. 15-91, 15-94]
- > July: [Reply Comments in response to the comments submitted to the FNPRM on Bolstering the Effectiveness of WEA](#) [Dkt No. 15-91, 15-94]
- > Ongoing: [Comments in response to FCC NPRM on Protecting WEA from Cybersecurity Threats](#) [Dkt No. 15-94, 15-91, 22-329]





www.atis.org

To learn more about ATIS' initiatives, contact [Rich Moran](#),
ATIS Director of Membership