ATSC Advances Next-Generation Broadcasting: Standards, Global Collaboration and New Opportunities

By Anh Ngo

This report summarizes work currently underway in ATSC, the Broadcast Standards Association®, relating to technical standards for ATSC 3.0.

Co-founded by SMPTE more than four decades ago, ATSC is an international, non-profit organization developing voluntary standards and recommended practices for broadcast television and multimedia data distribution. ATSC member organizations represent the broadcast, professional equipment, motion picture, consumer electronics, computer, cable, satellite, and semiconductor industries. In addition to its role as a leading international standards development organization, ATSC develops implementation strategies and supports international educational activities on ATSC standards. ATSC was formed in 1983 by the member organizations of the Joint Committee on Inter-society Coordination (JCIC): the Society of Motion Picture and Television Engineers (SMPTE), the Consumer Technology Association (CTA), the Institute of Electrical and Electronics Engineers (IEEE), the National Association of Broadcasters (NAB), and the Internet & Television Association (NCTA).

ATSC continues to advance the technical foundation and international reach of next-generation broadcasting. Over the past year, during a period marked by expanding ATSC 3.0 deployments, international cooperation, and exploration of new broadcast applications, ATSC members progressed an extensive standards agenda while strengthening connections among broadcasters, manufacturers, standards organizations, and technology partners worldwide.

Standards Development

As ATSC 3.0 exercises its role as a critical infrastructure platform supporting television, public safety, data delivery, and other essential services, it is increasingly important to maintain a robust, interoperable, and adaptable standards foundation. ATSC has continued to advance the ATSC 3.0 standards suite this year, with significant work spanning the physical layer, signaling, redistribution, interactive services, security, and audio.

Completed Standards Work. The 2026 annual revision of A/300, **"ATSC 3.0 System,"** builds on the July 2025 revision, which coordinated updates to all 23 Standards and 10 Recommended Practices that then comprised the ATSC 3.0 suite. Notably, it included a new Annex B defining ATSC 3.0 operating configurations for commercially deployed services in the U.S. For the 2026 annual process, A/300:2026-04 expanded Annex B to include operating configurations for Brazil and Korea and coordinated updates across 23 Standards and 12 Recommended Practices then in effect. As the central system document, A/300 provides implementers with a defined, interoperable baseline while allowing ATSC 3.0 to evolve.

A substantial body of additional standards work has been completed over the past year. Signaling and delivery advanced through updates to A/331, **"Signaling, Delivery, Synchronization, and Error Protection,"** addressing time, User Agent strings, MPEG-H Audio, and the Common Data Service. A/337, **"Application Event Delivery,"** was revised to improve application-event delivery, while A/339, **"Audio Watermark Modification and Erasure,"** added guidance concerning watermark modification and erasure within the redistribution path. A/371, **"Delivery of ATSC 3.0 Services for Redistribution,"** established methods for delivering ATSC 3.0 services to MVPDs, virtual MVPDs and similar operators through direct feeds or over-the-air reception.

Interactive services advanced with publication of A/381, **"Use of ATSC 3.0 Interactive Content,"** a Recommended Practice providing practical implementation guidance for the interactive-content environment defined in A/344, **"ATSC 3.0 Interactive Content,"** including captions, T-commerce and content replacement. Physical-layer work included corrections and updates to A/322, **"Physical Layer Protocol,"** bootstrap clarifications in A/321, **"System Discovery and Signaling,"** and A/322, and provisions in A/327, **"Guidelines for the Physical Layer Protocol,"** addressing time-domain sharing with other broadcasting systems, including LTE-based 5G Broadcast.

ATSC also completed important security and audio work. It updated A/360, **"ATSC 3.0 Security and Service Protec-**

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tion," and A/361, **"Security and Content Protection,"** addressing security, service protection, and Online Certificate Status Protocol (OCSP). A/327, "Guidelines for the Physical Layer Protocol," was updated to improve descriptions of MIMO and to incorporate signal-propagation guidance.

ATSC also completed the first comprehensive revision since 2013 of its Emmy Award-winning A/85 Recommended Practice, **"Techniques for Establishing and Maintaining Audio Loudness for Digital Television,"** expanding its loudness guidance to address today's hybrid broadcast and streaming environment.

Open and Emerging Standards Work. At the close of the reporting period in August 2026, ATSC's technical groups were continuing work on several projects. These included revisions to A/332, "Service Announcement"; A/362, the Recommended Practice for Digital Rights Management; A/343, "Captions and Subtitles;" and an update to the Candidate Standard revision of A/324, "Scheduler/Studio to Transmitter Link." These projects demonstrate that ATSC 3.0 remains an evolving platform, with the standards process responding to implementation experience, new technologies, and emerging service requirements.

One significant new project launched during the report period is **Broadcast-to-Everything (B2X)**. Building on the capabilities and momentum of ATSC 3.0, **B2X can expand the reach of ATSC technologies into new verticals and markets**, more closely integrating broadcast and multicast delivery with 3GPP mobile networks and devices and opening new opportunities within an increasingly converged communications ecosystem. In July 2026, ATSC Technology Group 3 approved A/391, "B2X System Discovery and Signaling," for release to public review as a Candidate Standard. The new Candidate Standard defines the bootstrap that provides the entry point to a B2X Physical Layer waveform and supports independent discovery of B2X services in both broadcast and International Mobile Telecommunications (IMT) spectrum. B2X is envisioned to be documented as a series of standards, with A/391 the first to reach Candidate Standard status. ATSC welcomes feedback from the industry on this document and invites broad participation in the range of B2X work underway.

Global Engagement

ATSC's international activities have expanded substantially over the past 12 months. At ITU-R Study Group 6 and its Working Parties meetings in September 2025 and March 2026, ATSC participated for the first time as an Associate Member and helped advance seven ATSC-related documents. Three were approved for publication, bringing the number of ATSC contributions adopted by ITU-R to 23. ATSC also continued its engagement as a member of CITEL PCC. II,[i] where next-generation broadcasting, B2X, Direct-to-Mobile services and emerging smart-city applications received attention.

Brazil became a key member of the ATSC 3.0 international ecosystem following the August 2025 Presidential Decree establishing its DTV+ (TV 3.0) framework. Globo subsequently became ATSC's first Brazilian broadcaster member, joining a growing group of Brazilian companies participating as voting members. DTV+ builds on core ATSC 3.0 technologies while incorporating features developed to meet Brazilian requirements.

International alignment took another major step this May, when ATSC, Brazil's Sistema Brasileiro de TV Digital Terrestre (SBTVD) Forum and Korea's Telecommunications Technology Association (TTA) signed a strategic Memorandum of Understanding. The organizations agreed to collaborate on standards and recommended practices, testing and certification, technical information exchange, harmonization, and coordinated industry engagement. The agreement aims to strengthen interoperability while reducing market fragmentation as broadcasters transition to IP-based, integrated broadcast-broadband systems.

That collaboration was prominently demonstrated at KOBA Show 2026 in Seoul and SET Expo 2026 in São Paulo. ATSC joined SBTVD Forum and TTA leaders to discuss how the ATSC 3.0 technical foundation is supporting national implementations, including Brazil's DTV+, South Korea's UHD Broadcast, and NEXTGEN TV in the United States.

ATSC also significantly expanded its engagement in India and other emerging markets in 2026. As a member of the Telecommunications Standards Development Society, India (TSDSI), ATSC continued to strengthen its participation in international standards discussions and build relationships with broadcasters, policymakers, technology organizations, and other stakeholders in the region.

India's growing interest in Direct-to-Mobile (D2M) broadcasting has made the country an important forum for exploring the future relationship between broadcast and mobile technologies. During the year, ATSC followed developments surrounding India's D2M initiatives and engaged with stakeholders as technical, regulatory and commercial approaches continued to evolve.

Deployment, Products and New Services

Industry activity shows that ATSC 3.0 development increasingly extends beyond standards into products and commercial applications. At CES 2026, ATSC highlighted new home receivers and converter-box prototypes, along with technologies supporting Brazil's DTV+, immersive MPEG-H Audio,

i Permanent Consultative Committee II: Radiocommunications of the Inter-American Telecommunication Commission (CITEL). https://www.oas.org/ext/en/main/oas/our-structure/agencies-and-entities/citel/Structure/Details/about-3

dynamic advertising, broadcast-broadband integration, and new approaches to signal distribution.

At the 2026 NAB Show, nearly 40 ATSC members exhibited, while approximately 30 sessions and panels addressed ATSC 3.0 implementation and deployment. Demonstrations encompassed consumer receivers, interactive applications, cloud-based broadcast operations, datacasting, HDR, mobile reception, and cross-device delivery.

That spirit of innovation and collaboration was on full display during the ATSC NextGen Broadcast Conference held in June at NAB headquarters in Washington, DC. Industry leaders and technology experts explored the expanding possibilities of ATSC 3.0, with sessions highlighting datacasting applications and new service delivery models, global deployment updates, progress on the Broadcast Positioning System, Advanced Emergency Information, AI-powered tools for broadcasters, ATSC 3.0 and 5G convergence testing, the evolving Connected TV and FAST channel ecosystem, and next-generation network design strategies.

ATSC-related research was also highlighted at the **2026 IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB)** in Brazil. The ATSC Tower Network Implementation Team (IT-5) demonstrated geographically segmented "localcasting" in a single-frequency network, showing how advanced receiver processing can overcome co-channel interference when multiple localized services share the same frequency. Rather than simply treating the weaker local signal as interference, the demonstrated technology enabled reception of both local services. This approach has the potential to significantly improve spectrum reuse and efficiency, allowing broadcasters to deliver common programming across an SFN while simultaneously offering more localized content, advertising, emergency information, datacasting and other services from individual transmitters.

The expanding scope of the technology was further illustrated at SET Expo, where Electronics and Telecommunications Research Institute (ETRI) demonstrated a Broadcast Positioning System using synchronized ATSC 3.0 signals as a terrestrial complement to satellite navigation. The demonstration highlighted how existing broadcast infrastructure could potentially contribute resilient positioning, navigation and timing for future critical applications. HCLTech showcased an integrated approach to next-generation media and broadcast operations spanning content preparation, service orchestration, subscriber engagement and terrestrial delivery. Its Media Workflow Manager, Video Headend Manager, Universal Video Platform and Broadcast Core demonstrated how broadcasters and service providers can simplify operations and support new services and business models across broadcast, IPTV, OTT and ATSC 3.0 environments.

Leadership and Community

ATSC's progress ultimately depends on the technical experts and industry leaders who contribute to its collaborative standards process.

ATSC strengthened its leadership and international expertise during the year. **Anil Bhardwaj was appointed Director, Technology & Strategy for India and Emerging Markets,** bringing extensive broadcast and regulatory experience to ATSC's work with the Telecommunications Standards Development Society, India (TSDSI), and other stakeholders as Direct-to-Mobile commercialization gains momentum in India.

The ATSC Board of Directors also welcomed new members. The ATSC membership elected **Javier Ruano of Televes USA to his first term on the Board**, beginning January 1, 2026. **The ATSC also appointed Raymundo Barros, Chief Technology Officer of Globo, to the Board**, further strengthening ATSC's international perspective as Brazil moves forward with DTV+. These and many other board members reflect the breadth of expertise supporting ATSC as the organization continues to expand the reach and applications of next-generation broadcasting.

As the U.S. regulatory framework for ATSC 3.0 continues to evolve, ATSC remains focused on advancing its critical infrastructure mission—developing open, interoperable, and resilient standards that strengthen broadcasting's role in public safety, emergency communications, resilient positioning and timing, data delivery and other essential services, while fostering continued innovation across the broader communications ecosystem.

About the Author



Anh Ngo is Senior Manager of Communications and Member Engagement at ATSC. Previously, she served as Director of Administration for NABA and WBU, leading international collaborations across the broadcasting industry.

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