Consumer Technology Association Update

By Brian Markwalter

The television industry never ceases to amaze. Americans have been buying color TVs for more than 70 years. It took about 10 years for color TVs to reach sales of more than a million units per year. Today, Americans buy about 40 million TVs each year. Our enduring love of TVs is driven by two factors. One is the incredible value they provide. The other is the constant innovation and improvement the industry delivers every year.

Some of those innovations are in backlighting and quantum dot technology. Companies are introducing new combinations of backlight LED colors, quantum dots, and filter layers to reach new levels of color fidelity and range. In fact, CTA's Video Division Board recently defined a new display technology, RGB LED TV, as liquid crystal display (LCD) televisions that use separately controlled red, green, and blue light-emitting diodes (LEDs) at each element of the backlight source.

The best TVs now produce colors that span more than 90% of the gamut defined in BT.2020 or DCI P3, but how should the TV industry define and measure this capability so that it can be highlighted for consumers? CTA's Audio and Video Standards Committee was asked, and it formed a working group to study and report back its findings. The answer is not so simple. It raises questions about specifying the luminance at which to measure color volume, not to mention what the expectations are for the content and how it is graded and packaged. Despite excellent display metrology standards for nearly every aspect of performance, solutions are not fully worked out for the brave new world of high dynamic range TVs that can handle colors and luminance well beyond BT.709. CTA expects this working group to continue investigating this issue into 2027.

Now, a quick tour of other CTA video projects from the Technology and Standards team.

The WAVE Project

The CTA WAVE Project (Web Application Video Ecosystem Project) is now in its 11th year of working to improve the global interoperability of internet-delivered commercial video.

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The WAVE Project references accepted industry standards such as HTML5, MSE/EME, CENC, DASH, and HLS, and develops new specifications such as the popular CMCD (Common Media Client Data).

As a key aspect of the project, participants maintain a complete, normative specification of the streaming player environment and conduct interoperability tests to enable broad deployment of internet-delivered streaming media services. WAVE also enhances content delivery efficiencies and quality of service by introducing new protocols to exchange performance and route-tracing data between clients and upstream sources, such as Content Delivery Networks.

WAVE is working on content preparation, web media API device support, device playback quality and validation, and standardized performance metadata exchanged between media clients and servers. Some specifications are paired with free open-source test programs to verify both content and device performance.

WAVE maintains key industry specifications, including the Content Specification (CTA-5001-F), an annual update to the Web Media API Snapshot (CTA-5000-H), Device Playback Capabilities Specification (CTA-5003-C), and DASH-HLS Interoperability Specification (CTA-5005-B). WAVE supports specifications that improve media delivery to devices, including the Common Media Client Data Specification (CTA-5004-B), Common Media Server Data (CTA-5006), Common Access Token Specification (CTA-5007-B), and Request Tracing Specification (CTA-5010). WAVE also standardized the popular GeoHash specification as Fast and Readable Geographical Hashing (CTA-5009-B).

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WAVE has also released an updated version of the WAVE Streaming Media Test Suite—Devices, a free, open-source smart TV/media stick/set-top-box test suite for performance and compatibility verification of client platforms. The latest version of the Test Suite improved the installation process and includes more tests and content types. We use these tools to verify thousands of streams weekly. Development underway in 2026 includes performance enhancements (faster testing and reporting) and new capability categories such as subtitles, commercial DRM, and MPEG edit lists.

For more information on the innovative approach used in the WAVE Streaming Media Test Suite for Devices, see Dr. Louay Bassbouss' IBC Technical Paper entitled *Testing streaming playback at scale: The CTA WAVE test suite with GenAI-assisted analysis*: https://www.ibc.org/accelerating-innovation/reports/testing-streaming-playback-at-scale-the-cta-wave-test-suite-with-genai-assisted-analysis/22794.

Energy Efficiency

CTA, leading television manufacturers, operating system vendors, the American Council for an Energy-Efficient Economy (ACEEE), the Northwest Energy Efficiency Alliance (NEEA), and Pacific Gas & Electric Company (PG&E) have expanded the voluntary agreement on TV energy efficiency in the U.S. and Canada. With added participation and new on-mode measures, the program is now projected to cut consumer electricity bills by roughly $1.8 billion per year once fully implemented.

Coverage now includes all major TV brands, with Best Buy, Walmart and Skyworth joining. NEEA and PG&E have signed on as energy advocate signatories alongside ACEEE, a role intended to assure program rigor and transparency.

Beginning in 2028, manufacturer signatories commit to ensuring at least 90% of their new TVs sold in the U.S. or Canada meet or exceed on-mode efficiency levels developed with energy advocates. The levels use technology-specific formulas: backlit LCD TVs are measured by screen size, OLED TVs by how efficiently they produce light. This hybrid approach is expected to deliver an estimated 2 TWh in additional savings over the agreement's first seven years, on top of the projected 10 TWh in annual savings from the 2023 standby-mode commitments.

This is the first expansion since the 2020 agreement to develop an updated TV energy test method. In 2023, signatories committed to a 2-watt standby power limit for 90% of TVs sold in the U.S. or Canada, effective April 1, 2026.

The framework remains industry-led and voluntary, leaving product design decisions to individual manufacturers. That flexibility allows new efficiency approaches as features evolve, preserves differentiated products at varying price points, and demonstrates savings delivered without prescriptive regulation or federal mandates.

CTA-861 and Plugfest

2026 marks the 25th anniversary of ANSI/CTA-861, a milestone celebrating a quarter century of industry collaboration and innovation. Since its initial publication in 2001, CTA-861 (A DTV Profile for Uncompressed High Speed Digital Interfaces) has played a foundational role in the transition from analog to digital video, enabling interoperability across televisions, displays, and video source devices.

CTA continues to advance interoperability through its annual CTA-861 PlugFest, an industry event that brings manufacturers together to evaluate and improve product compatibility across technologies such as HDMI, HDCP, and CEC. First launched in 2003, PlugFest has been held annually, except during the COVID-19 pandemic in 2020 and 2021. In its early years, the event was held twice each year and attracted more than 400 participants.

Typically held each October in California, PlugFest provides a collaborative, semi-private environment where engineers can identify and resolve interoperability issues before products reach the market, helping to improve the consumer experience and accelerate industry adoption of new technologies.

New for 2026, PlugFest is expanding beyond traditional CTA-861 interoperability testing to include WAVE Streaming Media Testing. Participants will be able to evaluate device performance using CTA's WAVE Streaming Media Test Suite, with support from WAVE engineers, extending interoperability testing across both physical interfaces and streaming media ecosystems. Participants will also see a demonstration of how to measure TV energy efficiency in compliance with the TV voluntary agreement to improve the energy efficiency of TVs sold in the U.S. and Canada.

About the Author



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