TV Manufacturers and Digital Media Providers Explore Role of HDR in Delivering Next-Generation Entertainment Experiences

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Silver Spring, Maryland Dec 1, 2021 (Issuewire.com) - Broadcasters, streaming service providers, and Smart TV manufacturers alike are re-positioning themselves to address evolving customer expectations in North America for higher quality video experiences. A broader discussion surrounding viewing standards has emerged to integrate emerging technologies, improve ease of customer use, and ensure compatibility and interoperability with new and legacy services.

These were among the conclusions of a virtual media roundtable discussion hosted by **Advanced HDR by Technicolor, Sinclair Broadcast Group, Cobalt Digital, Cinnafilm, Hisense,** and **MediaTek.**

Over a dozen industry leaders, analysts, and journalists from leading media outlets covering the broadcasting, content streaming, consumer electronics, and production community gathered to explore:

- The state of ATSC 3.0 and the role high dynamic range (HDR) technology is playing in meeting consumer expectations for viewing quality;
- How advanced technologies are influencing the broadcast community in the United States; and

- The importance of establishing integrated ecosystems to deploy HDR services and solutions that enhances all content — including legacy standard dynamic range (SDR) content.

Advanced Picture Quality is Rapidly Penetrating the U.S. Market

The alphabet soup of HDR formats and standards (PQ, HDR10, HLG, etc.) has created marketplace confusion over how to deliver high-quality content and functions to consumers. However, according to Mark Aitken, senior vice president, advanced technology, and president ONE media 3.0 with the Sinclair Broadcast Group, a maturing technology landscape has triggered a massive uptick in sales of next-generation smart and connected televisions (SmartTVs and CTVs).

It bodes well for HDR adoption because the prevailing market trends are not only enhancing viewing experiences of live productions but also upgrading legacy content libraries.

“HDR rollouts are moving at a breakneck pace, on track to cover 50% of the U.S. public by the end of 2021. The exceptional video quality enabled by HDR is elevating experiences more than any resolution enhancements. The industry is rapidly concluding that HDR will have to be on the table to effectively grab consumers’ attention and engage them in a meaningful way,” he said.

This shift, he added, is reflected by the fact that the North American Broadcaster Association (NABA) recently proclaimed HDR10 as the unified emission format of choice for its members and explicitly mentioned SL-HDR1 (the technical term for Advanced HDR by Technicolor) as a conveyance vehicle for implementation.

“It resolves the debate of Hybrid Log-Gamma (HLG) frame rate versus PQ in terms of over-the-air signal formats,” Aitken adds. “Advanced HDR by Technicolor provides the opportunity to address the new generation of TV sets. This opens the door to the industry exceeding initial target penetration rates by 150% or more for ATSC 3.0 next-generation TV set deployment in the US.”

Similar expectations are set for 2022, approaching 70% coverage in the U.S. by the second half of the year.

Upgrading Legacy Content Key to Driving Adoption

As the distribution ecosystem supporting ATSC 3.0 and HDR matures, it will be critical to ensure that content captured and stored in SDR can be experienced in an enhanced state.

“When consumers see TVs that are on display in brick-and-mortars with images shot in HDR, they expect to have the same experience when they view content coming through their set-top box,” said Ernie Sanchez, co-founder of Cinnafilm, a global leader in innovative video optimization solutions for television, film, and multi-media delivery.

“The problem is that the vast majority of content in libraries today was filmed in SDR. This can be jarring to viewers who are left to wrestle with inconsistent experiences. It can leave many customers disappointed,” he said.

This, however, is changing.

The rollout of ATSC 3.0 opens the door for cable companies, broadcasters, and other content library owners to leverage solutions like Advanced HDR by Technicolor to upconvert movies and episodic

programming so that they can be re-experienced in an enhanced format that is consistent with consumer expectations.

“There are millions of SDR content hours in English caches alone. This is content that can be rapid -- and cost-effectively -- repurposed for the HDR ecosystem,” said Sanchez.

“Many technology solutions for conversion are manual. With Advanced HDR by Technicolor’s Intelligent Tone Management (ITM), automated upconversion often delivers better results than having professional colorists manually go scene by scene. It makes it possible to upconvert large libraries of video content quickly and in a high-quality manner, which will be very important to content owners that want to keep up with market demand,” he added.

An abundant supply of HDR content—or SDR content that can be rapidly upconverted to HDR—will play an important role in driving demand for next-generation TVs offered by companies like Hisense.

“Ensuring that consumers understand that there is a lot of content that can be experienced in HDR will be key. Current communications about HDR -- which tend to focus on technical specifications and formats -- can be very confusing to users. It is important to have a message that resonates with consumers who want to improve their viewing experiences at home with their next television purchase. I think that we're heading in the right direction, which is why we are working with Advanced HDR by Technicolor,” said Niko Savovic, senior manager in research and development of laboratory operations Hisense.

Automation and AI/ML

Artificial intelligence and machine learning (AI/ML) are playing a critical role in providing seamless backward and forward compatibility to deliver seamless consumption for customers without manual intervention.

The artists and scientists behind the development of Advanced HDR by Technicolor leaned into AI capabilities to create automated conversion tools, according to Alan Stein, vice president of technology at InterDigital, a technology research and development company that provides wireless and video technologies for mobile devices, networks, and services worldwide.

“Scientists at Technicolor spent years developing effective machine learning algorithms. The presets offered within Advanced HDR by Technicolor was developed with significant input from Technicolor colorists so that HDR content that is up to Hollywood standards is delivered to consumers,” he says.

Automatic upconversion will also be important for categories of content that surround live broadcasts, feature films, or episodic programming. Certain categories of commercials, for instance, are rarely filmed in HDR.

“Any consumer viewing experience that is interrupted by a down-converted ad will inevitably question the abilities of their device or service provider,” said Tony Bozzini, head of business development with Advanced HDR by Technicolor.

The good news is that a robust end-to-end AI/ML ecosystem is rapidly evolving to support the capture, production, distribution, and consumption of HDR content.

“That is why we are integrating Advanced HDR by Technicolor into our technologies to support the

broadcast of live sports," said Dr. Ciro Noronha, executive vice president of engineering at Cobalt Digital, a leading designer and manufacturer of award-winning edge devices that help live video production and master control client's transition to IP, 4K, HDR, the cloud, and beyond.

"These are extremely dynamic environments in which lighting conditions change as the day goes on. Moreover, the action is captured by a range of cameras -- including HDR and SDR equipment. Advanced automation technologies play a significant role in managing the complexity of available formats, including different forms of capturing content. It all has to be rationalized and optimized in real-time," said Noronha.

The same dynamic is at play on the receiving side of the equation.

"As a leading system on a chip (SoC) provider for 95 percent of all TV brands, MediaTek has been diligently working to leverage artificial intelligence (AI) to provide enhanced picture quality. Mediatek is currently deploying AI-based solutions such as Picture Quality enhancement and Super Resolution technologies which intelligently upscale high definition content to UHD/4K while improving contrast and sharpness. Next-generation TVs will be equipped with multiple high-performance AI processors to enhance the visual and audio experience of viewers," said Alfred Chan, vice president of the TV business unit for MediaTek, a Taiwanese fabless semiconductor company that provides chips for high-definition television and other devices, including handheld mobile devices like smartphones and tablet computers.

"AI and machine learning will be critical to enabling TVs to detect the content format and automate viewing settings that can learn and adjust to the preferences and desires of viewers to optimize their experience," he concludes.

To learn more about Advanced HDR by Technicolor visit:

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