

TVTechnology

SPECIAL
SUPPLEMENT

GUIDE TO

ATSC 3.0

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FUTURE

To Win with ATSC 3.0, You Can't

Video is only one half of the ATSC 3.0 picture. Dramatic improvements to the audio e

By **Larry Schindel**, The Telos Alliance

ATSC 3.0 promises to deliver a new and more engaging experience to viewers, including video content with higher resolution (UHD) and greater dynamic range (HDR). In addition to great video, there are significant improvements to the audio experience that you shouldn't ignore if you want to deliver the most impactful experience to your audience.

IMMERSIVE AUDIO FOR A COMPELLING AUDIENCE EXPERIENCE

Immersive audio (Dolby® Atmos here in North America) is one new feature that Next Generation Audio technologies deliver to broadcast systems like ATSC 3.0. Immersive audio adds additional channels overhead and creates an enveloping audible experience for the listener. If you haven't heard immersive audio for yourself, you really should. It delivers a compelling, all-encompassing experience that makes you feel like you have been pulled right into the middle of the program.

There are many ways for listeners to reproduce the immersive experience today without needing to install overhead speakers in their living rooms. TVs, soundbars, and upfiring speakers are simple and nonintrusive ways to obtain an immersive audio experience at home. Road warriors who watch favorite sporting events or programs while sitting at 35,000 feet, in

a hotel room, or even commuting on a train can enjoy an immersive audio experience directly from their cell phone, tablet, or laptop with a pair of headphones.

While many movies and other post-produced type shows are being offered with immersive soundtracks today, we are still in the early days for the production of live programs and events in immersive. There are broadcasters out there doing live immersive programming on a regular basis using Dolby Digital Plus™—and they're creating some very engaging content. It won't be long now until immersive content is available in an ATSC 3.0 broadcast.

GIVE YOUR AUDIENCE THE POWER TO PERSONALIZE

Personalization is another aspect of the new audio system defined in ATSC 3.0. Now that there's a compelling Dolby Atmos mix coming in from the venue that has you glued to your seat, why should you have to switch back to a stereo mix to hear the game called by your favorite team's announcer?

One of the hidden features in ATSC 3.0 audio is the ability for the consumer's

receiver to mix together elements of the audio service based on the listener's preferences and control information provided by the broadcaster. This allows the broadcaster to send a bed mix of music and effects (M&E) along with the individual dialog channels and have the receiver mix the user-selected dialog and the M&E bed into the final presentation that the listener hears. This type of workflow provides a much better experience for viewers.



Larry Schindel



Linear Acoustic UPMAX ISC Immersive Soundfield Controller upmixes from stereo or surround to immersive audio for a consistent soundfield and better audio experience.

Ignore Audio

experience will help attract and keep audiences.

With today's systems, when delivering programs in a second language or with a descriptive track for the Visually Impaired, the audio is delivered premixed, typically as either a mono or stereo track. Receiver mixing allows viewers who select an alternate language or require a descriptive audio track to receive the program in full surround or immersive. This saves valuable bandwidth for the broadcaster and provides all viewers with the best experience; they no longer have to sacrifice immersive audio in order to hear their preferred audio tracks.

THE TOOLS YOU NEED FOR NEXT-GEN AUDIO WORKFLOWS

Tools are becoming available to enable these next-generation audio workflows. Upmixing is a useful tool broadcasters can use to get an immersive audio service on the air quickly and easily while they are planning out and implementing a true immersive audio workflow.

Once a broadcaster is producing content natively in immersive audio, upmixing still has a place and will remain a valuable part of the system. You

sive audio. It can also be configured to upmix stereo to 5.1 for surround program formats.

The Linear Acoustic LA-5291 Professional Audio Encoder is designed to enable live Dolby Atmos workflows. It can encode Dolby Atmos streams (Dolby Digital Plus) from PCM, or transcode from Dolby ED2.

The Linear Acoustic LA-5300 Broadcast Audio Processor is designed to get broadcasters on the air quickly with their ATSC 3 services. It can accept a Dolby



Linear Acoustic LA-5300 Broadcast Audio Processor is designed to get broadcasters on the air quickly with their ATSC 3.0 services.

Additionally, the audio codecs used in ATSC 3.0 (Dolby AC-4, or MPEG-H from Fraunhofer) also include technology to enhance the dialogue, making it easier for the Hearing Impaired, or those watching late at night with family members asleep in the house, to understand the program.

Consumers who have experienced what ATSC 3.0 can deliver are excited by features that make their experience more interactive and personalized. On the audio side, immersive audio and enhanced dialog are some of the highest-rated features of this TV format.

can use it, for example, as a creative element during the production of a program. Additionally, not all content and sources used in a typical broadcast will be in an immersive format. Music, effects, or legacy video pieces will still be in stereo or 5.1, as will many commercials and interstitials. Upmixing that content will give viewers a consistent soundfield, because it's very disconcerting to watch a program and have the soundfield change between stereo, surround, and immersive! The Linear Acoustic UPMAX ISC Immersive Soundfield Controller provides upmixing from stereo or surround to immer-

Digital input from an ATSC 1 service and transcode that directly into Dolby AC-4, or encode Dolby AC-4 directly from PCM. It is fully capable of inserting watermarking into the audio stream, and upmixing content to provide a consistent soundfield output.

At Linear Acoustic, we're ready to deliver the most exciting and engaging Next Generation Audio experiences imaginable. Are you?

Contact Larry Schindel at larry.schindel@telosalliance.com for the tools to maximize the ATSC 3.0 audio experience.

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www.telosalliance.com

Video Is Only HALF the ATSC 3.0 Picture



The visual benefits of ATSC 3.0 are easy to see, but the promise of a better experience for your audience can only be fully realized by engaging their eyes AND their ears. ATSC 3.0 is filled with exciting new aural features like immersive audio, personalization, dialog enhancement, and more.

Only Linear Acoustic has the tools you need to bring immersive and ATSC 3.0 audio to life.

**Contact Us Today.
We'll Help You Get Ready
for ATSC 3.0!**

IMMERSIVE SOUNDFIELD CONTROLLER



UPMAX® ISC

Upmix from stereo or surround to immersive audio for a consistent soundfield and better audio experience.

BROADCAST AUDIO PROCESSOR



LA-5300

Everything you need to be ready for ATSC 3.0, including loudness control, upmixing, encoding, transcoding, audience measurement watermarking, switching & monitoring.

PROFESSIONAL AUDIO ENCODER



LA-5291

Deliver an amazing Dolby Atmos® experience where Dolby AC-4 is not required.

SHAPING THE FUTURE OF AUDIO

THE TELOS ALLIANCE®