

## **AUDIO**

**THURSDAY, 23 JULY ■ 9:00AM – CONFERENCE ROOM I**

**Title: Broadcast Audio Processing and Transmission**

**Presenter: Tim Carroll  
Linear Acoustic Inc.**

### **Abstract**

Greatly increased audio dynamic range, channel count, and accurate metadata can combine to produce spectacular audio results. Unfortunately, they have proven more likely to combine to produce significant loudness and soundfield inconsistencies between different program elements and to an even greater degree between different broadcast outlets much to the detriment of consumers. Loudness consistency remains the number one area of complaint for HD viewers and existing problems threaten to be compounded as SD viewers will increasingly be hearing an audio signal created for HD and re-purposed for SD.

This presentation will review the most common television audio coding systems and the standards that implement them, showing how inconsistencies actually start at this most basic level. Ingest and quality control of surround audio and metadata will be discussed along with the challenges of managing the audio within file-based content. Some practical strategies for managing program loudness along with format and level metadata inside the broadcast plant will be presented.

Equally applicable to the local station or the national network operations center, this presentation will provide an overview of recent world-wide developments and an inside look at how smart broadcasters large and small are meeting the challenges of DTV audio production, distribution and transmission in a cost-efficient and effective manner.

### **Bio**

Tim Carroll is president of Linear Acoustic Inc., a company he founded to offer innovative, customer-centric solutions for managing multichannel surround sound audio and loudness issues in digital broadcast. The company has several award-winning products and technologies including the AERO-series of television loudness control systems and UPMAX stereo to 5.1 channel upmixing- a technology that is also licensed into several 3<sup>rd</sup> party products.

Previously, he was the Product Manager for the Professional Audio Division of Dolby Laboratories in San Francisco where he helped define and develop Dolby Digital (AC-3), Dolby E, metadata, and Dolby Surround products for Digital Television, DVD, Digital Radio, and Digital Cinema applications. He was later recognized by the Academy of Television Arts and Sciences with an Emmy® for his work on the Dolby E system. He is also an inventor of several patent-applied-for audio technologies.

Mr. Carroll remains actively involved in the creation of digital broadcast standards and practices. He is a member of IEEE, AES, SBE, SMPTE, and BKSTS and is an active participant in the work of the ATSC.