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## Audio Engineering Society – New York Section

### MEETING NOTICE

Tuesday, November 15, 2005 – 7:00 P.M.

Please come to the “Meet and Greet” at 6:30 PM.

Jazz Performance Space

### The New School University

55 West 13<sup>th</sup> Street, 5<sup>th</sup> floor (bet. 5<sup>th</sup> & 6<sup>th</sup>) New York, NY 10011

# Test & Measurement of Digital Audio

What is happening to your digital audio between point A and point B?

Presenters: **Ken Hunold**, Broadcast Applications Engineer, Dolby Laboratories, Inc.  
**Graham Boswell**, co-founder, Prism Sound

Host: **Jonathan Abrams**, Nutmeg Audio Post

When transmitting digital audio, or cloning a digital audio source, do you know for certain that the data at the receiving device is what originated at the transmitting device? Does your AES3 bitstream conform to AES3 specifications? If the audio is not what you intended at the destination, what is it a symptom of? Where should you begin your search for the problem? What known, good quantity can you use as a reference for tracing what happens between the source and the destination? Once you find the problem, where should you focus on a solution?

This meeting will provide insights into the above questions and beyond. Since anomalies in digital audio transmission could happen anywhere, the methods for finding these anomalies must be applied in those possible locations. To that end, the products that will be discussed are portable test and measurement devices for digital audio.

**Ken Hunold** is a Broadcast Applications Engineer for **Dolby Laboratories, Inc.** here in New York City. Dolby's DM100 Bitstream Analyzer is designed to monitor and analyze digital audio bitstreams and basic properties of the AES3 interface. It can also simultaneously analyze and generate digital audio signals, including Dolby Digital (AC-3) and Dolby E datastreams. It includes a speaker for monitoring the signals under test.

**Prism Sound Ltd** was originally founded in 1987, the brainchild of two engineers, **Graham Boswell** and Ian Dennis. They first met when working at world-renowned console manufacturer AMS-Neve in Cambridge, England. The concept was to develop an R&D consultancy, specializing in digital audio applications. Prism's DSA-1 is a hand-held AES/EBU transmission analyzer that is unique as a hand-portable, battery-powered instrument for electrical, timing and data analysis of digital audio signals, as well as a speaker for monitoring the signals under test.

The AES NY Section is pleased to thank our underwriters for their continued support, **Innovative Audio, NHT** and **Studio Consultants, Inc.**

We also appreciate the support and assistance of **Christopher Hoffman** and the **New School University**.

Remember to check our web site for the latest updates and information <http://www.aes.org/sections/ny/>

**PLEASE POST... This is an open meeting ... EVERYONE IS WELCOME TO ATTEND**

## Hardware Emulation, Software Magic with **Bomb Factory Digital** - October 18<sup>th</sup>

Dave Amels & Erik Gavriluk of Bomb Factory Digital discussed how hardware could be modeled in a DAW plug-in. Projecting a Fairchild 660 schematic, Dave identified the critical sections and then wrote code in Visual C++ that would model those sections. To determine the mathematical equations for the C++ code, he used a spreadsheet. It was noted that the modeling used for a commercial product would involve bench testing, and in some cases, computer modeling of a schematic. He then played a piano recording through the plug-in he created at the meeting. Focusing on GUI design, Erik showed how he took a bare faceplate, then added knobs, switches, and the scratches that would accumulate over time. Subtle effects such as light origin and shadows were shown as well, and how those effects make the appearance have depth. In some cases, Bomb Factory Digital would approach a hardware company to model their products, and in others the hardware manufacturer would approach them to discuss modeling. Dave and Erik also discussed more of what goes on within the computer and how it affects a plug-in as well. That discussion touched upon fixed and floating point mathematics, what is the same with the different plug-in architectures, and why the turning of knobs used to be so difficult with a mouse. The one point that had a lot of interest during Q &A was what the switch to Intel-based Macintosh systems would mean, and it was their opinion that it would be chaos for developers. The most enlightening statement was that Mac OS 9 was much more friendly for audio. Many were surprised to hear that the kernel based, multithreaded, non-real-time environment of Mac OS X was a hindrance. The largest downfall of OS X was that its aforementioned characteristics make it difficult to play tricks with the OS and the audio. Bomb Factory Digital may return in 2006 for an A/B comparison of a plug-in and the hardware it was modeled after.