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Upcoming Events

AES:

2008 October 2-5
125th AES Convention
San Francisco CA

AES — DC Section:

2008 August 7
NPR Presentation and Tour



AUDIO ENGINEERING SOCIETY

Washington DC Section

7 August 2008 Meeting:

PREVIEW OF NEW NPR HQ AND TOUR OF PRESENT FACILITIES

Joint meeting with Acoustical Society of America

DC Section

The Washington DC chapter of the Acoustical Society of America and the Washington DC section of the Audio Engineering Society are pleased to announce your next local joint event at the NPR Headquarters in Washington, DC. This event will focus on the preview of the new NPR building, presented by Bud Aiello and Maury Schlesinger, followed by a facility tour led by Jan Andrews and colleague. There is no charge to attend and no reservation required. Please forward this announcement and invite others. Students are welcome. Membership in the ASA or AES is not required to attend.

When: Thursday, 7 August 2008

Where: NPR Headquarters, 635 Massachusetts Ave NW, Washington, DC 20001

Directions:

- The most convenient way is by Metro: Gallery Place / Chinatown Metro Stop on the Yellow, Green, and Red Lines.

- For those who drive, parking is available and free after 6:00 pm. The garage entrance is to the right of the main building entrance on Mass. Ave. Use the call box to have security open the door. If you get lost, please call the front desk at 202-513-3333.

Agenda:

6:30pm to 7:30pm: Welcome (Complimentary food and beverages).

7:30pm to 9:00pm: Presentation on the preview of the new NPR facility by Bud Aiello and Maury Schlesinger, followed by a facility tour guided by Jan Andrews and colleague.

Synopsis of Recent AES DC Section Meeting Business

AES-DC/ASA-DC/SMPTE-DC Joint Meeting of 17 May 2008:

THE ART AND SCIENCE OF LOUDSPEAKERS IN ROOMS

The AES DC section, along with the DC sections of the Acoustical Society of America and the Society of Motion Picture and Television Engineers, enjoyed a presentation by Frederick Ampel of Technology Visions, a consultancy serving the professional and consumer audio/video industry worldwide.

The subject was "The Art and Science of Loudspeakers in Rooms", a four-hour seminar extracted from two of his courses- "Learn to Listen" and "Surround Sound Alive". The host, Greg Lukens of Washington Professional Systems provided a meeting room for the 37 attendees; the room was set up with a 5.1 theater playback A/V system using 5 Genelec 8050 speakers and a Meyer Sound subwoofer. In the center was a microphone used to set up the system for accurate timing and equalization. Completing the equipment was a high resolution projection video system.

Dave Weinberg, AES DC chairman opened the meeting by welcoming the three organizations and explaining their respective areas of audio/acoustic focus, and inviting the several guests attending to consider joining.

Fred Ampel began his presentation by emphasizing that the goal of a residential or commercial surround installation is entertainment, not science. Indeed the science of setting up the system can go only so far, and the test of the science is in the hearing by our own ears. He summarized his surround philosophy in the following 10 points:

- There is no need, or budget for science projects
- It is the size of the room, and not the size of speakers that matters
- Distortion is distortion regardless of the explanation or name, and is not to be tolerated
- Rooms can't be "tuned", only the signal feeding the room can be altered to improve the result in the room
- Boost equalization is seldom needed, and may cause system stress. Cut equalization is preferred.
- Chop peaks, don't fill valleys. The lack of sound energy causing the valleys cannot be replaced
- Bad loudspeakers are bad loudspeakers and can't be "fixed" by equalization.
- Precise arrival time control is the key to accurate surround sound reproduction. Accuracy in terms of milliseconds, even microseconds, is important to achieve
- Measure a lot, but trust your ears
- The only good system is one that the customer is willing to pay for

Point #8, the importance of accurate timing, was demonstrated using several movie DVD clips, after some fundamental refresher study of room modes. This included the driving of the room at 50 Hz and walking around to find the locations of energy peaks and dips.

Next, Fred described the process of timing the energy arrival from each of the speakers to the measurement microphone. He stressed that timing by tape measure is insufficient, since the room reflections act to produce a net timing value for each individual speaker. The path exhibiting the greatest delay is taken as $t=0$ and the others are delayed individually as needed to match. The second procedure involves balancing the levels of the various speakers and matching the subwoofer to the other speakers in terms of relative level and adjusting their low frequency rolloff points. The third procedure is finally equalization to make the response of the overall speaker plus room system as flat as possible. He stressed that these steps are undertaken using a combination of measurements and ear-checking.

To illustrate the importance of each of the procedures, Fred played several movie clips, starting with the cornfield scene from "Field of Dreams". These various clips were each played three times, as follows: First, with no adjustments, merely plug and play out of the box; second, with timing adjustment plus balancing, and third, the total treatment by including the EQ. The results could be summarized as "good", "better", and "best", the latter version effectively transferring the audience into the scene. It was easy to imagine that we were actually there in the scene; no artificial aspects remained in the sound to degrade the experience. The attendees were invited to visit the "sweet spot" occupied by the measurement microphone in order to experience the improvement to the maximum.

In the process of listening to the clips, or any surround installation, Fred Ampel suggested several things to listen for: these are

- Space (ambience of the physical places represented on the screen)
- Accuracy (even soundfield with no artifacts)
- Dialog (actors must sound "real", not thin or boxy)
- Colored/Uncolored (no harmonics or resonances)
- Naturalness (voices and ambience must sound "real")

Although this was a lengthy program, many stayed behind to ask questions and discuss various surround sound topics with Mr. Ampel.