



AES Technical Committee on Loudspeakers and Headphones



Meeting REPORT:

AES 149th (New York) On-Line 26/October/2020 11:00 (EDT New York)

Chair: Steve Hutt,

Vice-Chair: Juha Backman

NOTE: *Meeting comments in italics*

Trends:

- Active
 - textreme, graphene – *no discussion*
 - meta materials – *reminder: made from conventional materials, geometric applications can make the properties somewhat unusual, eg. negative refraction index. Practical applications in electro-magnetic antenna, now some acoustics research in process.*
 - hearables – *innovation seems slow.*
 - ANC speakers – *no transducer advances noted*
 - Electric Vehicle warning systems – *no transducer advances noted*
 - AMT / planar / electrostatic headphone. - *some low cost development were in process, not sure of status, Warwick doing a high end es headphone, Shure also have some in-ear es ear buds.*
 - sound bars & steering to be zoned. – *still trending*
 - soundscaping – *definition reminder: An atmosphere or environment created by or with sound: the raucous soundscape of a city street; a play with a haunting soundscape. [sound + (land)scape.] - applicable to virtual reality.*
 - mems – *how can piezo benders give enough displacement???* *Would be nice if someone will volunteer to do a paper or workshop?*
 - dml – *Sony using dml in oled tvs.*
dml derivative.... not conditional on boundary conditions. In vehicles, Continental, carry over Lear IP (expired) offered to some vehicles, status unknown.
 - haptics – *relative to virtual reality, mobile devices important for UI.*
 - Hi Resolution Audio – *no transducer developments noted*
 - smart speakers – *transducer & DSP improvements (?) - still trending*
 - new trends - *none reported*

Workshop Concepts:

- How can we support on-line workshops? - *ideas are welcome for future online or hybrid conventions*
- Revisit the topic proposed by Hans van Maanen for a workshop on time domain measurement and analysis. - *Ideally, this workshop would be in person in Europe*
 - *Power Capacity Measurements and Terms ??? - note of SC04-03A, SPLmax measurement standard development*

Conferences:

- Automotive Audio 2021 - *currently planning for October 2021, transducer papers welcome*

- Loudspeakers / Headphones – *ideas?* - *wait for pandemic to end.*

Liaisons:

Standards Liaison:

- SC04-03:
 - AES2-R has begun discussion - drivers only.
 - x168 (systems) first draft is launched - in parallel discussion with AES2-R. Waiting publication of IEC 60268-22 ~December, 2020
 - AES56:
 - Sound source modeling - Loudspeaker polar radiation measurements
 - Reaffirmed version published 2019
 - x223 - test chambers
 - Released
 - x241 - driver end of line test standard
 - will refer to x223 for chambers
 - Input suggestions in process
 - x250 Measuring maximum linear peak SPL using noise
 - SC04-03A sub-committee formed
 - scope: This standard specifies a method for measuring the maximum linear peak SPL of a loudspeaker driver or system. It uses a mathematically derived test signal that effectively emulates the dynamic characteristics of music as a function of frequency as well as its spectral content.
 - draft target 2020-21
- IEC
 - IEC 60268-5 update to 60268-21 (*published*) and -22 – *publish ~Dec/2020*

Definitions of terms:

AES has the <https://www.aes.org/par/guide/> reference glossary slast updated Aug/2016. We also often refers to the much more comprehensive IEC <http://www.electropedia.org/>, though AES may benefit from some additional term definitions. The idea was considered to liaise with IEC should we consider some specific AES definitions to be prudent.

Machine Learning (ML) / Artificial Intelligence (AI)

The Technical Council is reviewing a request to consider setting up a new TC for machine learning. We expect overlap with a number of TCs including TC-LH

ML: David Prince working with David Blore on Mean opinion score and potential to utilize neural networks or other ML applied to loudspeaker preference ratings
