

In partnership with:



Seminar Agenda

Subject: Open Loop Testing – The Challenges of Testing Speech Controlled Audio Systems

Date: Tuesday 25th September 2018

Location: The Sharnbrook Hotel, Park Lane (off A6), Sharnbrook, Bedfordshire, MK44 1LX

Registration and coffee is from 9.00am with the first session starting at 9.30am. Lunch and refreshments will be provided. The day will finish by 4.30pm

• Introduction to Open Loop Testing

- o What is it?
- o What Kinds of Analysis Can Be Done?
 - Classic Acoustic Testing: Frequency Response and Distortion
 - Stimulus Signals
 - Distortion Methods: THD, THD+N, Rub and Buzz, Perceptual Rub and Buzz, Non-Coherent Distortion

- o Mixing Digital and Analog Units

- o Capturing Signals Asynchronous to the Stimulus

- o Dealing with Triggering, playback and recording Delays, digital clock Resampling, and corresponding Frequency Shift

• Open Loop Applications for Playback

- o Smart Devices

- Frequency Response and Distortion
- Directionality

- o Automotive

- 6 Mic Array for Audio Tuning
- Distortion methods
- HATS for Impulse Response Testing @ seated position

- **Open Loop Applications for Recording**

- o Smart Devices

- Frequency Response and Distortion
 - Voice Recognition
 - Directionality

- o Automotive

- Frequency Response and Distortion (general and to ITU P.11xx)
 - SNR placement study
 - Impulse Response function from HATS mouth -> microphone
 - Directionality

- **Test equipment for Smart Speakers**

- o How to measure sound quality
 - o Sound source for voice recognition
 - o How to test self-noise

- **Handsfree Communications**

- o Terminology for Handsfree Communications
 - o Introduction to Telephony Metrics

- **Microphones**

- o A view of measurement microphones for electroacoustic applications