



AES

SWISS SECTION NEWSLETTER

130th Issue

INFORMATION ON NEXT EVENT

light&sound: Schweizer Fachmesse für Veranstaltungs- und Medientechnik

Location: Messe Luzern, Horwerstrasse 87, 6005 Luzern

Sunday, 21st of October 2012, 1100h – 1800h

Monday, 22nd of October 2012, 1000h – 1700h

Tuesday, 23rd of October 2012, 1000h – 1700h

ORGANISER: Christoph Jäger

We would like to inform you that from Sunday, 21st of October to Tuesday, 23rd of October, the light&sound will be held in Lucerne.

This time we won't run a booth but we cordially invite you to visit the exhibition.

The light&sound is an exhibition for professional audio, broadcast, DJ equipment, home recording and musical instruments. There will be about 80 exhibitors.

We recommend you to join the lectures organized by Tontechnikschule (hall 2a, Rigisaal):

www.tontechnikschule.ch

You find the program here:

<http://www.lightandsound.ch/htm/fachvortraege.htm>

We also recommend you to visit the stage and lounge organized by ffton (in hall 2, Foyer):

<http://www.ffton.ch/iframe/home/index.html>

You find the program here:

<http://www.lightandsound.ch/htm/sonderschauen.htm>

We are sure your visit will be pleasant and informative.

For tickets, send an email to:

committee@swissaes.org

with the subject "light&sound" and your delivery address. We will send you 2 free tickets.

REPORT ON PREVIOUS MEETING

Audio 3D
(SGA-SSA and SFA joint meeting)

10th of May 2012, Salle Soutter, Radio Télévision Suisse, Geneva

SPEAKERS: Rozen Nicol, Orange Lab, Lanion, France
Andreas Walther, EPFL
Charles Verron, INRA, Nice, France
Ramon de Marco, Idee und Klang, Basel
Beat Hohmann, SUVA
Etienne Corteel, Sonic Emotion, Research Lab, Paris
Clemens Kuhn-Rahloff, Michael Gerber, Gartenmann Eng.ag
Terry Nelson, Studio Equipment, Yverdon-les-bains
Patrick Boehm, RTS, Geneva

REPORTER: Véronique Adam

Around 70 people gathered for this half-day meeting in the RTS premises in Geneva. This meeting was organized by the SGA-SSA, SFA and Swiss AES section.

The presentations were about different ways of grasping and using 3D Audio methods and implementations.

The schedule began with the presentation of Rozen Nicol (Orange Lab) who made an introduction on 3D Audio. She reviewed various domains using 3D Audio as well as different theories put into practices.

Andreas Walther (EPFL) carried on with a speech about the perceptive effects related to loudspeaker 3D reproduction. He talked also about 3D Audio description possibilities.

The next presentation, carried out by Charles Verron (Inra), was about interactive sound synthesis in the domain of virtual reality.

Ramon de Marco (Idee und Klang) spoke then about “acoustimatic” room orchestration and Beat Hohmann (Suva) closed the first part with the presentation of a project called “Audio 3D am Tag gegen Lärm 2012”.

The second part began with the presentation of Etienne Corteel (Sonic emotion). The subject was about 2D and 3D spatialized sound system using wave field synthesis.

The meeting went on with the presentation of Clemens Kuhn-Rahloff (Gartenmann Eng. ag) about the optimization of announcement systems according to spatial criteria.

And finally, Terry Nelson (Studio Equipment) spoke about the 3D Audio in cinema domain. After explaining the history of 3D sound in cinema, he discussed about the 3D audio trends, i.e. a life style effect or a necessity...

The meeting closed with a discussion about the 5.1 format used in broadcasting. Patrick Boehm (RTS), our day’s host, chaired this presentation.

The day concluded with a nice aperitif dinner served in the RTS premises.

The Swiss AES section would like to thank warmly Mr Hervé Lissek (SGA/SSA) for the co-organization of this very interesting event, as well as Mr Patrick Boehm for his warm welcome in the RTS premises.

REPORT ON PREVIOUS MEETING

***AES42 Digital Microphones and Controllers
- Technology and Application -***

Wednesday, 16th of May 2012, at tpc HD studio 6, Zurich

SPEAKERS: Dr. Helmut Wittek (SCHOEPS Mikrofone GmbH)
Stephan Flock (DirectOut GmbH)

REPORTER: Gabriel Leuzinger

About 25 audio professionals gathered at tpc's HD studio 6, which hosted the AES42 event with Helmut Wittek (SCHOEPS) and Stefan Flock (DirectOut).

Helmut Wittek started his presentation with the often-raised questions concerning the advantages of digital microphones. In his opinion, the dynamic capability of digital microphones is often overestimated and that in practice, it is not easy to reach the dynamic performance of analogue microphones feeding separate converters. In fact, the signal chain of a digital mic is the same as with its analogue predecessor but with the challenge of less power and limited space in the actual microphone housing. To handle the more or less 120 dB dynamic range of the capsule, the amplifier/converter combination is the bottleneck and needs to provide more than 140 dB dynamic range in order not to limit headroom. One solution to this problem is the well-known gain ranging technique, such as that implemented in StageTec's TrueMatch converter.

A clear advantage of the digital microphone is, of course, its high immunity against electromagnetic interference, which could possibly be present on the XLR cable. Helmut Wittek went on to explain the AES42 interface, which is a kind of extension to AES3. In order to power the mic, a 10V / 250mA power supply is part of the spec. Furthermore, AES42 supports two modes of operation: Mode1, where the mic is always clock-master and Mode2, which synchronizes the mic to a system clock without the need of an SRC. SRC's

are no problem today but would introduce the majority of latency (about 0.5... 2 ms).

He went on to present the SuperCMIT, a digital microphone from SCHOEPS that reaches a level of performance not possible with an analogue microphone. Analogue shotgun microphones are usually lacking frequency-independent directivity at the low end. Thanks to its two capsule system combined with a DSP running a special algorithm, the SuperCMIT features high frequency-independent directivity. Special sequences with critical material or difficult environments demonstrated the real advantage of the digital implementation. The live presentation of the SuperCMIT provided a very natural, smooth sound - very unusual for shotguns.

Stefan Flock delved deeper into the AES42 standard, as well as providing the history of the standard and how it has developed to its current release. As design engineer of the RME DMC842 (during his former position at RME), he concentrated on the control side of AES42, of which an important part is the control and status of the microphone. Control signals are modulated onto the power supply voltage and run at a maximum of 750 bps. These signals are organized in a simple control set with basic features and an extended control set providing 31 further parameters. For Mode2, a special "distributed" PLL (Phase Locked Loop) is used, as the discriminator is located in the controller and the VCXO (Voltage Controlled Crystal Oscillator) is located in the microphone. Control signals for the VCXO are sent as control pulses, which are then

integrated and smoothed to control the VCXO. Stefan Flock visualized the locking process of the PLL with a short video of his oscilloscope. The result of this architecture is a very low jitter, phase aligned sampling clock used for the AD converter inside the microphone.

The demonstration setup consisted of a DMC842, where digital microphones from different manufacturers were connected to its 8 available inputs, with the output being part of a MADI fiber ring, together with an RME Micstasy for analogue microphones. All RME MADI devices were remote-controlled by MIDI over MADI through the same fiber via a MADiface ExpressCard inserted into a Notebook located in the audience. This meant that the digital microphones were remote-controlled in cascade from the PC through the DMC842. Additional monitor signals from the DAW running on the PC were brought back through the MADI ring to the DMC842, which then extracted the audio from the MADI stream and fed it to the speakers. Stefan Flock also brought a 2 RU MADI router, DirectOut M.1k2, which provides independent routing of audio and control data. Unfortunately, lack of time prevented this device being part of the setup.

The DME842 is the first device worldwide to support all features of AES42. This enabled Stefan Flock and Helmut Wittek to demonstrate the different remote control and inventory features of several microphones, such as the basic functions as pre-attenuation, directional pattern, low-cut filter, muting, gain and limiting. Status information concerning mode, level, locking and sampling frequency, SRC, limiter indication, delay, LED indicators and microphone remote inventory was also demonstrated. In particular, the limiter demonstration impressed the audience, who saw that it was not possible to overload the signal chain. Other functions such as compressor settings, MS and polarity plus other extended commands concluded the demonstration.

Following the presentations and Q+A, the discussion continued in a nearby restaurant. As well as our two speakers, we would like to thank tpc ag for providing HD studio 6, Alfio Di Fazio and Gerard Koch for their support and Decibel S.A., MusicNetwork AG, SLG Broadcast AG and DirectOut GmbH for providing demo equipment.

Dr. Wittek's presentation, the AES42 White Paper and other publications can be downloaded from the [hauptmikrofon.de](http://www.hauptmikrofon.de) website:

http://www.hauptmikrofon.de/index.php?option=com_content&view=article&id=69&Itemid=80

> Powerpoint, Webcast etc.



Dr. Helmut Wittek



Stephan Flock



(Pictures: Gabriel Leuzinger)