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Calrec Console Mixes World's First Live Broadcast Demonstration of Interactive and Immersive TV Audio

Artemis Console used for mixing live sports with MPEG-H Audio objects and immersive sound at NAB Show

Las Vegas, Nevada, USA, April 10, 2015 – NAB, South Upper Hall, SU3714: The MPEG-H Audio Alliance will present their world's first live broadcast demonstration of interactive and immersive next-generation TV audio system based on MPEG-H Audio at the Fraunhofer NAB booth SU 3714. Integral to the demonstration will be a live mixing session of an extreme sports event from a major network using the Calrec Artemis console.

Fraunhofer IIS was present at the sports event and recorded all of the microphone signals and video feeds, as well as some additional microphones placed for immersive ambience. The recorded signals will be played back through the Calrec console and mixed live during the show by the Alliance's A1 Jim Hilson and sound designer Dennis Baxter.

As explained in the Alliance's Sports Video Group presentation last year (<http://www.mpeg-haa.com/presentations/SVG%20Dec%2014%20Presentation%20v5.pdf>), today's consoles can easily be adapted for MPEG-H Audio broadcasts with accessory equipment to provide monitor control, downmixing, and loudness metering for the new audio system's additional height channels and audio objects. For this demonstration, these features will be provided by a Jünger Audio MPEG-H Audio Monitoring and Authoring Unit connected to the console's MADI outputs.

"We are pleased to work with Calrec on this demonstration since their consoles are in the majority of remote trucks used for U.S. broadcasts. Our A1's are familiar with them, and we had the console interfaced to the Jünger unit and on the air in a few

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hours," said Robert Bleidt, Division General Manager at Fraunhofer USA Digital Media Technologies.

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"We are delighted to be part of this demo of leading edge technology," said Dave Letson, Calrec's Vice President of Sales. "Not only does it demonstrate to broadcasters the impact audio has in the industry, it also gives them the peace of mind that their Calrec console is more than capable of dealing with future developments such as immersive sound."

The demonstration will feature three static audio objects for commentary, to allow the viewer to switch between the network commentary, venue PA commentary, and a foreign language commentary. Sound effects from the event will be panned using MPEG-H Audio's dynamic audio objects.

Qualcomm Technologies, Inc. is also demonstrating an end-to-end live simulated broadcast of MPEG-H immersive, scene-based audio, showing every stage of HOA production from live capture, through transport through a TV plant (NoC to affiliate), through an emission encoder (MPEG-H) to consumers devices with various speaker configurations. See this demo at South Upper Hall, room S201LMR.

For more information about the MPEG-H Audio Alliance demonstration at NAB, please visit the Fraunhofer booth SU3714 at NAB or browse www.mpeghaa.com/nab2015.

About Fraunhofer

When it comes to innovative audio technologies for the rapidly evolving media world, Fraunhofer IIS stands alone. For more than 25 years, digital audio technology has been the principal focus of the Audio and Multimedia division of the Fraunhofer Institute for Integrated Circuits IIS. From the creation of mp3 and the co-development of the AAC to the future of audio entertainment for broadcast, Fraunhofer IIS brings innovations in sound to reality.

Today, technologies such as Fraunhofer Cingo for virtual surround sound, Fraunhofer Symphoria for automotive 3D audio, AAC-ELD for telephone calls with CD-like audio quality, and Dialogue Enhancement that allows television viewers to adjust dialogue volume to suit their personal preferences are among the division's most compelling new developments.

Fraunhofer IIS technologies enable more than 8 billion devices worldwide. The audio codec software and application-specific customizations are licensed to more than 1,000 companies. The division's mp3 and AAC audio codecs are now ubiquitous in mobile multimedia systems.

Fraunhofer IIS is based in Erlangen, Germany and is a division of Fraunhofer-Gesellschaft. With nearly 24,000 employees worldwide, Fraunhofer-Gesellschaft is comprised of 66 institutes and research units making it Europe's largest application-oriented research organization.

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