PRESS RELEASE

Google selects HE-AAC Multichannel from Fraunhofer IIS for Google Play Movies in Surround

Android users to enjoy Google Play movies in cinema-quality surround sound at home or while on the go.

Google and Fraunhofer IIS deliver the first movies with a true 5.1 channel surround sound experience from Google Play. The immersive sound quality consumers have come to expect from TV, Blu-ray disc or DVD is now available with movies streamed or downloaded from Google Play directly to their Android devices running 4.1 or later. Google chose HE-AAC Multichannel as Android's only surround sound codec due to its open-standard nature and excellent bit-rate efficiency.

When connected to a surround sound system and TV with an HDMI cable, Android users will be able to play high quality audio and video from their smartphones and tablets in surround. On the go, Android devices will play movies in great stereo quality and selected Nexus products will also include the Fraunhofer Cingo virtual surround rendering technology, which will play movies in realistic surround sound on earphones or tablet stereo speakers.

Android's HE-AAC Multichannel implementation includes full support for loudness and downmix metadata commonly known from the broadcast TV world, as well as other features that allow the sound to be tailored for an optimum user experience in any listening mode and environment.

"Google Play movies in 5.1 HE-AAC Multichannel sound are the first realization of our vision of bringing true theatrical surround sound to mobile devices," said Robert Bleidt, Division General Manager at Fraunhofer USA Digital Media Technologies. "The Google and Fraunhofer partnership creates a tremendous value for consumers by offering one format that delivers a high quality experience both in-home and while mobile. Consumers may experience surround sound over headphones while on their way home from work, and finish the movie in true, exciting surround in their living room," he added.

HE-AAC Multichannel is part of the Fraunhofer FDK AAC codec library for Android since version 4.1 and a required feature of all Android-compatible devices. This

software makes open-source Fraunhofer implementations of the MPEG audio codecs AAC, HE-AAC, HE-AACv2, and AAC-ELD available to the Android community.

HE-AAC is today's most efficient high-quality surround and stereo audio codec deployed in over 5 billion devices and used in TV, radio, and streaming services worldwide. The codec is natively integrated into most operating systems, streaming platforms and consumer electronics devices. In addition to its unique coding efficiency, HE-AAC has the dynamic ability to change audio bit-rates seamlessly in order to adapt to changing network conditions as consumers stream content to a variety of devices. It can be used with any adaptive streaming technology including MPEG-DASH, Apple HLS, Adobe HDS and Microsoft Smooth Streaming.

For more information, visit http://www.iis.fraunhofer.de/amm.

About Fraunhofer IIS

The Fraunhofer IIS Audio and Multimedia division, based in Erlangen, Germany, has been working in compressed audio technology for more than 25 years and remains a leading innovator of technologies for cutting-edge multimedia systems. Fraunhofer IIS is universally credited with the development of mp3 and co-development of AAC (Advanced Audio Coding) as well as technologies for the media world of tomorrow, including Fraunhofer Cingo for virtual surround, Fraunhofer Symphoria for automotive 3D audio, AAC-ELD for telephone calls with CD-like audio quality, and Dialog Enhancement to allow TV viewers to adjust dialog loudness as they desire.

Through the course of more than two decades, Fraunhofer IIS has licensed its audio codec software and application-specific customizations to at least 1,000 companies. Fraunhofer estimates that it has enabled more than 5 billion commercial products worldwide using its mp3, AAC and other media technologies.

The Fraunhofer IIS organization is part of Fraunhofer-Gesellschaft, based in Munich, Germany. Fraunhofer-Gesellschaft is Europe's largest applied research organization and is partly funded by the German government. With 22,000 employees worldwide, Fraunhofer-Gesellschaft is composed of 66 Institutes conducting research in a broad range of research areas. For more information, contact Matthias Rose, matthias.rose@iis.fraunhofer.de, or visit www.iis.fraunhofer.de/amm