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Ecma publishes the world's first 3D audio standard ECMA-407: "Scalable Sparse Spatial Sound System (S5) – Base S5 Coding"

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Ecma International has approved at its June 2014 General Assembly in Heidelberg, Germany, a new standard that specifies a high efficient audio coding system, which may be used to extend in a compatible way 2D audio systems to 3D with little data overhead.

S5, "Scalable Sparse Spatial Sound System" is a scalable multichannel coding system for high-efficiency spatial audio data compression. S5 is codec-agnostic and may incorporate a wide range of state-of-the-art audio codecs like AAC and HE-AAC, currently found in more than six billion devices, or USAC. S5 can handle complex 3D audio signals, for example NHK 22.2.

With audio codecs, which offer encapsulation for external data, S5 data may be carried inside the audio coder stream with very little overhead and a compatible bit stream syntax. Ecma S5 may, for instance, be easily, carried inside an MP4 file.

ECMA-407, as the common basis for the S5 family, specifies the base S5 encoder and decoder in terms of configuration data, downmix, inverse coding parameter data and upmix. ECMA-407 provides reference and guidance to the engineer on how to incorporate further components to form a scalable, lightweight multichannel coding system. Based on static spatial models, S5 offers highest possible compression.

ECMA-407 ("Scalable Sparse Spatial Sound System (S5) – Base S5 Coding") is available free of charge from the Ecma International website: <http://www.ecma-international.org/publications/standards/Ecma-407.htm>.

Mr. Clemens Par, the editor of the standard, stated: "We are proud to present the world's first 3D standard, which is able to work with codecs like AAC - currently found in more than six billion consumer devices. The first commercial S5 implementation is lightweight, with amazing perceptual quality. We expect the resulting ECMA-407 codec to fully meet the demand of satellite industries, public broadcasters and consumer device manufacturers when showcased in the "Future Zone" of IBC 2014 in Amsterdam. Ecma will continue its 3D audio standardization work as a service to growing demand in 3D content delivery over a wide range of networks."

As an IT standard, ECMA-407 is directly linked to a URL registry for loudspeaker configurations, which are relevant for the marketplace, to foster the global demand for 3D audio. **Mr. Par**: "We wish not to bet, which loudspeaker format will conquer the world, at a still experimental stage of immersive audio within a number of public broadcasting corporations and cinema industry. We have designed Ecma S5 as a flexible standard to cope with any future format, which might emerge on the market place."

ECMA-407 also includes new features in line with public broadcasters' upcoming needs, as **Mr. Matthieu Parmentier**, R&D project manager at France Televisions, underlines: *"A modern audio codec has to respect the loudness level of incoming sources whenever they are reproduced in various conditions such as on TV, Smartphone, transportation, over speakers or headphones and so forth. It also has to embed thin synchronization words to face new broadcasting schemes, where streams cross different kind of networks to reach the listener. All these key features are already part of the new ECMA-407 standard and, welcoming the third dimension, we are proud to open this new audio codec era!"*

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About Ecma International

Ecma is a non-profit industry association of technology developers, vendors and users. Since its inception in 1961, Ecma International (Ecma) has developed standards for Information and Communication Technology (ICT) and Consumer Electronics (CE). Experts from industry and other organizations work together at Ecma to develop standards. Ecma collaborates with, and contributes to the technical work of, ISO, IEC, ISO/IEC JTC 1 and ETSI. Ecma makes significant use of the fast-track process to elevate its specifications to the status of International or European Standards through the standardization process in these organizations. Ecma publications can be downloaded free of charge from the Ecma International website www.ecma-international.org.

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