FRAUNHOFER INSTITUTE FOR INTEGRATED CIRCUITS IIS

SYMPHORIA®

THE CONCERT HALL FOR ON THE GO

Fraunhofer Symphoria is a high-quality rendering technology for 2D/3D surround sound in cars. It significantly improves the audio quality perceived in every seat. Passengers enjoy a realistic audio experience with a broad, clearly defined sound stage and perfectly balanced surround sound. Symphoria can be customized for different hardware configurations.

How Symphoria works

Symphoria can detect the original room characteristics included in the audio at the time of recording. This is based on a semantic analysis and extraction of relevant signal components. In this process, information on direct sound, early reflections, reverberation or acoustical ambience is acquired from the input signal.

Since Symphoria makes use of the sound components already present in the signal, no artificial effects (such as reverb) have to be added. This intelligent analysis and signal distribution creates a realistic audio experience. In addition to the intelligent algorithm, Fraunhofer Tonmeisters also optimize the sound for each vehicle by precisely tuning key parameters. This makes it possible to optimally adjust the stage size and position, surround intensity, and listener envelopment for each seat.

Symphoria 3.0

Discrete 3D Audio Playback

Room Simulation/ Virtualization

Symphoria 2.0

3D sound on all seats

Flexible positioning and configuration of 3D loudspeakers

Symphoria 1.0

2D/3D processing & rendering algorithm

Stage lifting

3D sound on front seats

Sonamic product family

Sonamic Panorama
Surround Sound newly defined

Sonamic Loudness
Consistent loudness on various sound sources

Sonamic Timescaling
Seamless switching in hybrid radio

Sonamic Enhancement
Intelligent detection and correction of audio artefacts

The Symphoria algorithm, which is currently available as release 3.0, has been constantly updated and improved. The interfaces to the new Sonamic Pan-orama product family enable seamless integration of these technologies to enhance the in-car entertainment experience even beyond 3D sound.

Features

– Upmix any audio content to 2D or 3D surround sound
– Customizable stage size and position, surround intensity and envelopment
– Playback and rendering of discrete 3D audio material
– Virtual room simulation

Expandability

Symphoria is undoubtedly the best solution for 3D sound in cars, and the Fraunhofer Sonamic product family extends the automotive product range by offering numerous other enhancements to the in-vehicle entertainment system. These technologies can be seamlessly combined with Symphoria.

Availability

Since the launch of the Audi TT with Fraunhofer Symphoria in 2014, there are now more than 20 Audi models in which Symphoria is available as part of the Bang & Olufsen sound system. That same sound system lets you enjoy Symphoria in the Lamborghini Urus. In addition, there are eight Mercedes-Benz models that offer Fraunhofer Symphoria as part of the 3D-Burmester sound system.

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