



Putting Artists in the Driver's Seat



Throughout the history of recorded music, advances in technology have enabled musicians to get closer to attaining their artistic vision. However, the fidelity of the earliest music recordings was poor and, even as quality improved, the artist was often held back by technology.

Dolby and Sennheiser are working together to change that. They've collaborated to bring the artist's intent to life in one of the most challenging listening environments: the automobile. Dolby Atmos can deliver a truly immersive mix while Sennheiser is using AMBEO technology to render and optimize the experience for the automotive environment.

"Dolby has looked at how we can apply Dolby Atmos to the music industry. And we started doing experiments a few years back," says Andreas Ehret, Director of Automotive at Dolby Laboratories. "Now we're ready to put the artist in the driver's seat, so to speak."

Sennheiser and Dolby are collaborating to bring artists' creative vision into the vehicle like never before. This is an extension of Dolby Atmos Music, an initiative by Dolby to help artists and producers create music using Dolby Atmos, allowing for an immersive listener experience.

"Creating a good listening experience inside automobiles isn't easy," explains Johannes Kares, Audio Experience Designer at Sennheiser. "The car is a really,



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really bad starting point for an acoustic environment. Half of the surface – the glass – is very reflective, and that is a given."

"Furthermore," says Kares, a tonmeister by training, "there is road noise, wind noise, and engine noise to deal with as well."

But change is on the way and original equipment manufacturers (OEMs) will need to up their audio game, or else get left on the side of the road.

"In-vehicle entertainment is growing in importance as the way people experience vehicles is changing," says Luca Brambilla, Project Manager for Sennheiser's AMBEO Mobility team. "More electric vehicles means quieter cabins, and that's more conducive to high quality audio. And as autonomous vehicles come into service, there will be even more demand for immersive audio experiences – either music, audiobooks or a movie soundtrack."

A new way of creating

Dolby Atmos has changed the way artists create music. Rather than recording in stereo, with a limit of only two channels, Dolby Atmos allows for each sound –

each instrument or vocal – to be placed anywhere in three-dimensional space. "This creates a lot of excitement in artists," says David Ziegler, Content Engineer for Dolby Laboratories, who helps artists and sound studios get set up in Dolby Atmos

"Dolby Atmos gives them a new tool that allows them to use that space to place the sounds where they want, and we don't dictate how to use it. They can fully realise their artistic intent. Some paint a traditional picture, with the band maybe in front of you, and use surround sound and the overheads to produce the feel of the room. Other artists sort of use the room as an instrument, with musical elements moving all around you. Artists are just very creative using the tools," says Ziegler.

Metadata encoded in the recording tells the device the best way to play back the audio, where the sound should be located, and which speakers to use to achieve the desired result. That's where Sennheiser steps in, optimizing playback in the vehicle, says Kares. "Our job is to take that information and deliver an experience that is as close as possible to the perfect environment of the studio in the imperfect environment of the automobile."



Replicating that perfect listening experience is something Sennheiser and Dolby have worked on before, notes Veronique Larcher, Director of AMBEO Immersive Audio at Sennheiser. The companies collaborated during the development of Sennheiser's AMBEO soundbar, an all-in-one unit that delivers full Dolby Atmos sound to the home user. "This is a natural fit. AMBEO aims at leveraging the best of every available format, and Dolby Atmos music is a fantastic new way to distribute immersive music. It's very important to us that we do that without distorting the artist's creative vision."

Sennheiser, unlike many other brands in the automotive space, doesn't use any kind of artificial reflections or reverberation for rendering. "We try to bring the artistic intent to life, we don't invent a sound profile, artificial room acoustics and those things.

We take the information that's on the recording to deliver the experience the artist wanted to share with you," says Sennheiser's Kares. "And I think Dolby Atmos is the perfect format for that. We're both committed to that immersion and that respect for the artist."

Dolby Atmos works for artists and OEMs

Luckily for OEMs, it's relatively straightforward to bring Dolby Atmos into their vehicles. As Sennheiser's Kares explains, if a vehicle owner opts for a sound system enabled with Dolby Atmos, all the required hardware components are already in the car. Just add audio – mixed in Dolby Atmos, and the Sennheiser AMBEO renderer, of course.

"For OEMs, a premium audio experience enhances the consumer's perception of the vehicle and the brand overall," says Sennheiser's Larcher. "Surveys indicate that a good audio system is important to buyers, regardless of their age. Furthermore, the very nature of how people experience vehicles is changing and that is going to drive demand for better in-car entertainment."

"The good news," says Dolby's Ziegler, "is that Dolby Atmos and Sennheiser are bringing the artist's creative intent from the studio, straight into the vehicle."

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Car buyers can expect to see systems that use the combined expertise of Dolby and Sennheiser first appear in premium vehicles. But the intention is to broaden availability, eventually reaching mass-market cars, likely as an optional upgrade. That’s possible because the benefits of Dolby Atmos in the creation of content and the skill of Sennheiser in optimizing playback together mean Dolby Atmos Music is not restricted to vehicles with dozens of speakers.

“We can optimize for the hardware. That means the OEM can also reduce the number of speakers that are needed for an immersive sound experience. So thanks to the software, the hardware is no longer a limitation, but just a tool,” says Sennheiser’s Brambilla.

Whether it’s a daily commute, a holiday, or a ride in an autonomous taxi, the in-car audio experience is going to be more immersive than ever. Thanks to the experts at Dolby and Sennheiser, listeners will finally be able to experience music exactly as artists meant for it to sound. And that is something to celebrate.

