

Stellantis partners with Genelec to create immersive audio reference lab



Stellantis has recently opened its own state-of-the-art Dolby Atmos 9.1.6 qualified immersive audio lab in Bengaluru, powered by Genelec Smart Active Monitors. The new lab, unique in India among OEMs, focuses on audio reference, production and quality assurance and plays a key role in Stellantis' initiative to define unique audio strategies. The newly established lab also creates roadmaps for each of its brands, internalizes automotive acoustic R&D capabilities, and supports its "Dare Forward" plan to achieve carbon net zero by 2038.

Yves Bonnefont, Chief Software Officer at Stellantis, highlights the significance of the lab, stating: "Audio plays a vital role in our customers' satisfaction and enjoyment of their vehicles, as well as alerting them to key functions and driving situations. This brand-new lab demonstrates our commitment to class-leading automotive acoustics - and highlights India's pivotal role in Stellantis' global strategy."

Spearheaded by Akshay Khanna, Director and Space Leader in Acoustics Engineering, the lab aims to refine Stellantis' in-car audio systems. "The lab was created to help develop our in-house audio signature for cars," Khanna explained. "It ultimately aids in fostering programs, affording Features Over the Air and faster time to market."

Boasting an array of features, the lab includes remarkable control over reverberation time, achieving an impressive 0.5 seconds in low frequencies and maintaining a linear 0.2 seconds from mid to high frequencies. It also aligns seamlessly with stringent IEC and Dolby acoustical standards, earning a 100% score in several criteria, complemented by a Noise Criteria value of less than 20.

The room's acoustics are crafted through advanced computational simulation modelling, including Finite Element Analysis, Boundary Element Method and Raytracing for a conducive time-domain response, which is paramount in realizing the extraordinary, emotional potential of immersive recordings. The lab also sets new standards in air and structure-borne insulation, achieving an outstanding Sound Transmission Class score of 68. These methods enabled an accelerated 53-day project turnaround and the optimal use of materials, resulting in an impressive space that showcases the progress of automotive and mobility solutions.

Selecting the right audio technology for this meticulously engineered project was crucial, and Genelec emerged as the monitor brand of choice. Local Genelec partner Sound Team was involved with supplying the system, and provided both pre-sales and post-sales support, ensuring a smooth and successful implementation of the project.

The system relies entirely on Genelec Smart Active Monitors, with 8361s in the L-C-R positions, 8351s taking care of the surround and height channels, and a 7382 subwoofer handling the low frequencies. A 9301 AES/EBU interface provides multichannel digital audio connectivity, seamlessly integrating the 7382 subwoofer into the immersive audio system. Finally, GLM software enabled precise calibration of frequency response, playback level and distance delay, ensuring that the Genelec solution seamlessly met Stellantis' technical and aesthetic demands. Khanna noted: "Genelec is an industry benchmark, and ticked all the boxes for sonic quality, envelopment, timbre, and SPL."

Meeting Dolby's high standards for reverberation time, sound transmission class and noise reduction coefficient proved to be quite challenging. However, the team's approach, combining detailed evaluations, careful planning and sophisticated simulations, ensured its success. "It was a demanding process, but our team's expertise and commitment were key to achieving these standards," Khanna explains.

"Genelec's technology is playing a vital role in meeting our requirements," Khanna adds. "It offers us an unobtrusive footprint without compromising on bandwidth, tonality, or SPL. It's one of the few monitors that provides AES digital inputs, reducing cabling needs and enabling digital up-sampling. This alignment with our needs was essential for the project."

The collaboration with Genelec has proved highly successful and after meeting all Dolby Atmos 9.1.6 requirements, Khanna expressed his satisfaction, stating: "We share our joy and excitement with our partner Genelec, who has helped

tremendously in securing this great feat.”

Looking ahead, Stellantis plans to continue developing the audio reference lab, leveraging it as a core component of its audio innovation strategy and driving forward the company’s vision of sound quality, sustainability, and an enhanced driving experience.

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