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Loudspeakers simulation of sound environments for the car industry

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Car manufacturers are strongly interested in sound quality: they need to understand the expectations of their customers in terms of engine sound signature, door closure noise, etc... In order to allow engineering teams of research departments to perform psychoacoustics tests under controlled and realistic conditions, GENESIS supplies high fidelity listening 3D simulators on loudspeakers. Based on binaural recordings, these simulators, called transaural, are calibrated to obtain the best fidelity in terms of spatial and spectral components. In this presentation, we will discuss the requirements regarding sound system and room installation and present the precision reachable in terms of frequency response. Measurements and results achieved on such systems will be shown, with a particular focus on the two systems built for RENAULT and GENESIS. Finally, in order to perform equivalent psychoacoustics tests on both RENAULT and GENESIS sites, we will develop the procedure of comparison and validation of both transaural systems.