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Study of the perceptive space linked to dashboard tapping sounds

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It was observed that dashboard tapping sounds can be produced by customers exploring static vehicles. To master the perceived quality of the dashboard, a global sound design process has thus been engaged. The specific aim of the present study was to identify the acoustical and technological characteristics being major determinants in the discrimination of the sounds and in the evaluation of the sound sources.

47 sounds were used for a perceptive test in laboratory. They were recorded in 22 vehicles by hand-tapping on different dashboard parts. In a same session, each subject performed 3 different tasks : categorisation (free sorting of sounds), description (free verbalisations) and evaluation (the score of a freely selected prototype was attributed to the whole group). Data analysis took advantage of the combination of various multidimensional analysis techniques, already used in psychoacoustics or sensory analysis.

This low-cost methodology allowed us to describe a wide range of product samples with complementary psychological data. Results will help us to propose a sound metric which represent the evaluation of dashboard quality evoked by the sound. Furthermore, they give first hypotheses for the technological variables that could be decisive in the design process.