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**An Ambiophonics system for the study of intelligibility in the  
virtual classrooms**

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In recent years the investigations on the intelligibility has profited by the increasing efficiency of the simulation and rendering technologies of virtual acoustics. In particular the latest systems are well suited to reproduce sound fields whose tri-dimensional characteristics are quite close to the real ones both objectively and subjectively. In this framework the Ambiophonics system, consisting of the merging of a double stereo-dipole and of an first order Ambisonics system, has gained particular attention. In the configuration used in this work the system employs twelve loudspeakers and is fed either with measured binaural and B-format data or by simulated ones. Based on this apparatus listening tests have been prepared in the Italian language to investigate the acoustics of classrooms and to focus on the effect of the directional characteristics of noise (i.e. fan-coils or tapping from the upper floor) on the intelligibility of words. The whole apparatus is driven by a Labview application which has also the aim of collecting the responses by the testers.