

Virtual Reflections in Electronic Acoustic Architecture

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Abstract

In the era of the ancient Greeks and Byzantines, the first attempts for increasing the reverberation time are noted. In the 1950s, the Ambiophonic system accomplished this by means of an electronic device, for the first time. The early systems only increased the reverberation time by delaying the picked up reverberation. With the introduction of multichannel feedback based systems also the reverberation level could be increased. Later it was understood that it was important to also fill-in the missing reflections, address reflection density, frequency dependence, etc. This resulted in the development of the SIAP concept.

Current DSP technology led to the development of a processor whereby density, length, level and the frequency content can be controlled for different areas in the same room or different rooms, leading to the concept of the Acoustic Server. Electronic Acoustic Architecture has become the current state-of-the-art approach for solving acoustic deficiencies in, among others, rehearsal rooms, theatres, churches and multipurpose venues. Incorporation of complementary passive acoustic solutions provides an optimum solution for all room problems.

This paper discusses the utilisation of virtual reflections in the new approach of electronic acoustic architecture for different environments. Measurements performed in the Sejong Performing Arts Centre, Seoul, South-Korea show the power of this approach.