



[Press release]

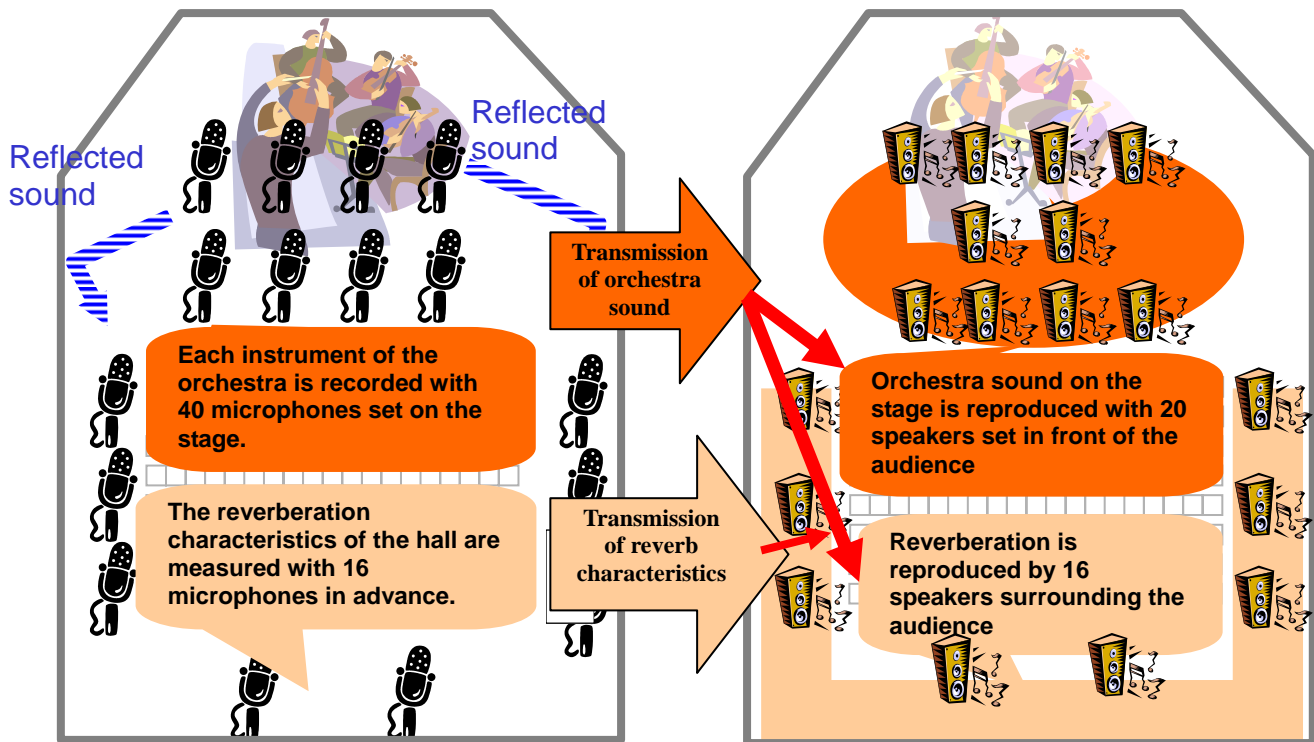
January 21, 2009

NHK develops immersive sound system that lets listeners at a remote site feel as if they were at a symphony orchestra concert.

- NHK will conduct an experiment on natural reproduction of symphony orchestra music in cooperation with the Tokyo Philharmonic Orchestra. The experiment will use NHK's advanced multichannel live sound system to reproduce immersive sound from the concert at a remote site.
- The Tokyo Philharmonic Orchestra's 43rd concert will be held in Takemitsu Memorial Hall at Tokyo Opera City on January 29, 2009, and the Recital Hall in the same building will be the remote site for the immersive sound presentation.
- The advanced multichannel live sound reproduction technique was developed by the NHK Science and Technical Research Laboratories. The technique records the sound of the orchestra (direct sound) and the reverberation (indirect sound) separately, and it can reproduce the sound field of a concert hall, which has its own unique sound characteristics, with complete fidelity at the remote site.
- By controlling the direct sound and indirect sound separately, the sense of depth and spatiality of the sound field can be reproduced throughout the listening area. Clear sound in the front rows and rich sound in the back rows of the actual hall where the orchestra is performing can be reproduced at the remote site.
- This experiment is part of NHK's ongoing effort to create high-fidelity, immersive audio-video systems for next-generation broadcasting systems.

Takemitsu Memorial Hall (Live)

Recital Hall (Reproduction)



Advanced Multichannel Live Sound Reproduction

Advanced Multichannel Live Sound Reproduction

-Preparations

The reverberation characteristics are measured at many positions in an empty concert hall. The measured characteristics are sent to the receiving site in advance.

-During the performance

Sound from the orchestra's instruments (direct sound) is picked up with microphones placed on the stage. The direct sound data are transmitted to the remote site and processed as follows.

- 1) After adjusting its level and frequency characteristics, the direct sound is reproduced through speakers placed in front of the audience at the remote site.
- 2) The indirect sound is produced in accordance with the listening positions by using the reverberation characteristics. The reverberations are reproduced through speakers surrounding the audience at the remote site.

Other sounds in the concert hall, such as applause, are also reproduced at the remote site.