
Experimental Study of 1/20 Acoustic Scale Model for Concert Hall

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Generally, 1/10 acoustical scale models are adopted in order to estimate the acoustic conditions of concert halls. We used a 1/20 scale model to investigate the acoustic conditions of a multipurpose concert hall. The development of high-resolution audio devices and CNC machine tools have contributed to the use of this method. Fundamental acoustic parameters were measured using the scale model. From the results of echo time patterns in the scale model, a flutter echo was observed on the second floor according to the side wall. So, the wall shape was changed.

The reverberation time with reflectors was predicted accurately using the scale model. But the reverberation time without reflectors did not match because the scale model did not reproduce the complex facilities around the stage such as stage curtains, batons, lighting equipment and reflectors.

Nonetheless, the 1/20 scale model is very compact and easy to handle in the experimental stage, so we confirmed its usefulness for investigating the acoustics of concert halls.