

ABSTRACT

Audio Visual Room is a room equipped with audio and visual systems. Audio visual room has another function which is a room for speech or to convey information through conversation. The acoustic performance of a room is determined by the sound field generated by the room. Geometric shapes and materials used to build up the room affects the formation of the sound field.. The formation of the sound field is determined by the propagation path as well as the amount of energy in the space. The resulting sound field has pre-determined acoustic. Acoustic parameters which being analyzed are Listening Level, Reverberation Time and RASTI.

In this study, a modeling simulation of audio-visual space is conducted by using CATT acoustic software with ray-tracing method and COMSOL software with finite element method. Simulation with ray-tracing methods conducted to imitate the room for speech. The parameters tested in the study include changing the absorption coefficient, changing the geometric shapes into a symmetrical and testing the ceiling formation for symmetric with as asymmetric and symemetric ceiling.

Simulations are carried out to determine the effect of asymmetric geometry to an acoustic performance and the formation of sound field in the room. From the measurement results one of acoustic parameters reverberation time is obtained with value range from 0.47 to 0.53 s and this means that the room is not yet an eligible room for speech. Based on the measurement results performed simulation to meet the criteria of room for speech and compared with symmetric geometry.

Keywords : Simulation, Acoustic Parameter, Asymmetric and Symmetric geometry