ANALYSIS OF SOUND PRESSURE LEVEL (SPL) EFFECTS ON VARIOUS ROOM MODES IN UiTMPP

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MAY 2008

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ABSTRACT

The acoustic quality in certain room depends on its dimension and will response to the room modes for example the axial, tangential and oblique mode of the room. Sound of pressure level (SPL) is a parameter that can be affected by room modes and it is important to design a room or multipurpose hall. This project is focused in FKE's meeting room (7.22) and in a class room (3.57). These two rooms are analysed by using the MATLAB 7.0 to determine the SPL values towards the room modes and room's dimension. The dimension of the room should not have same width, length or height to avoid the same eigentone frequencies exists. The best room designed with a good sound quality must have several of eigentone frequencies range which are evenly distributed, rather than just groups of eigentones that clustered together. The room should not be too small or too large for a good distribution of eigentones through out the room. The worst condition of room dimension is a perfect cubic for example (3.5x3.5x3.5) meters because the equally dimensions can caused the same eigentone frequencies exist. The small room produces higher eigentone frequencies while the larger room produces lower eigentone frequencies. Each eigentone frequency has its own SPL which will deteriorate with the increase of the distance from the source.