

# OPTIMIZATION OF ACOUSTIC CONDITIONS IN MUSIC PRACTICE ROOMS

*Gígja Gunnlaugsdóttir*

Línuhönnun  
Suðurlandsbraut 4A, 104 Reykjavík, Iceland  
gigja@lh.is

## 1. INTRODUCTION

This project is a master degree project carried out in 2007 at the Acoustic Technology Department, Ørsted•DTU. The project is divided into two parts, a measurement part and an experimental part. The acoustic characteristics do vary from one room to another and often depend on the use of the room. A music practice room is a good example of a room where the acoustic conditions are important. The optimal conditions of a practice room varies from musician to musician, often depending on their instrument. The opinions of musicians playing the same instrument does also vary. The purpose of the project was to try to optimize the acoustic conditions in music practice rooms. This was done by attempting to simulate several music practice rooms. Measurements of the impulse response were made at the Royal Danish Academy of Music (Det Kongelige Danske Musikkonservatorium) to obtain objective measures to use as reference in the simulation. From the impulse response, a wide range of objective measures can be derived. The main objective parameters used in the simulation are the reverberation time and the strength. The simulation was carried out in an anechoic room with four loudspeakers and a microphone. Processors and attenuators were used to control the reverberation and strength and thereby simulate a music practice room. Musicians were asked to play in several different setups of music practice rooms and give their opinion on the acoustic conditions on a specially designed evaluation form. The subjective measures obtained from the evaluation forms were then compared to the objective measures to see if there is a relation between them. From these comparisons the optimal acoustic conditions of a music practice room were to be obtained.