Room Acoustics – Homework 3

Record an impulse response in an arbitrary room with (when available) omnidirectional source and microphone. For the fixed source and receiver locations acquire the impulse response once with a source of impulse sound and once with the logarithmic swept sine sequence (for example, using the function *chirp* in Matlab or Python).

Create a code which reads in the recordings of the impulse responses and calculates values of the following descriptors of room acoustics: T_{30}, T_{20}, T_{10}, EDT, T_{160}. t_s, D_{50}, C_{80}, and BR. With the exception of BR, the values should be calculated broadband and in octave bands from 31.5 Hz to 8 kHz.

Describe the room, measurement setup and procedure, and comment the obtained values of the descriptors and their validity, in particular with regard to the achieved signal-to-noise ratio.

Optional: repeat the procedure for different source and receiver locations, durations, or numbers of repetitions of the swept sine sequence and compare the results.