TT3010 - Audio technology and room acoustics.
Exercise 5 - Microphones and loudspeakers.

September 13, 2021

All tasks are based on chapter 20 and chapter 25 in "Science of Sound". It is recommended that the student will try to do every task, but tasks marked *Mandatory* are to be handed in for approval (online). The deadline is specified in blackboard.

Tasks

1. *Mandatory.* Compare the voltage outputs from two microphones, when they are expose to the same sound pressure: Microphone A has a sensitivity -60 dB reference at 1 V per 1 Pa and microphone B has a sensitivity of -66 dB compared to the same reference.

2. *Mandatory.* Calculate the actual voltage output of microphone A for a sound pressure of 1 Pa.

3. *Mandatory.* Suppose that two loudspeakers, each 30° from the median plane, play the same program material, but the loudspeaker on the left has twice the signal amplitude of the one on the right. Describe the location of the image. (Calculate $\sin \theta_l$, and look in a set of tables or use a pocket calculator to determine the angle θ_l corresponding to your value of $\sin \theta_l$; $\sin 30° = \frac{1}{2}$)