Beamforming with a circular microphone array for localization of environmental noise sources - DTU Orbit (31/12/2018)

Beamforming with a circular microphone array for localization of environmental noise sources
It is often enough to localize environmental sources of noise from different directions in a plane. This can be accomplished with a circular microphone array, which can be designed to have practically the same resolution over 360. The microphones can be suspended in free space or they can be mounted on a solid cylinder. This investigation examines and compares two techniques based on such arrays, the classical delay-and-sum beamforming and an alternative method called circular harmonics beamforming. The latter is based on decomposing the sound field into a series of circular harmonics. The performance of the two signal processing techniques is examined using computer simulations, and the results are validated experimentally.

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