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**Reconstruction of acoustic field horizontal layer in diffusive
ambience**

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This study introduces a method how to minimize the number of acoustic measurements in the diffusive ambience in order to reconstruct the horizontal layer of primary acoustic field. This reconstruction means determination of the level of the sound pressure at any point of surface, e.g. worker's occupational place, where there are a lot of sound sources. A mathematical modeling, based on regularity of sound spread, is used in the study. The elements of active experiment are applied in the research, the adequacy of mathematical model is evaluated by Fisher criterion, and the mathematical model of horizontal layer of the acoustic field is based on the polynomial of the regressive equation. The results are compared to the measurements received in the real experiment. This study also pays great attention to local and the EU legal regulations about the noise standards at the worker's occupational place and the measures to be taken to lower the noise level. The device of sound measurement INVESTIGATOR type 2260 and MAPLE 11 mathematics software tool have been used in the research.