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ABOUT SCOPE EXPANSION OF THE ENGINEERING METHOD FOR SOUND POWER LEVELS DETERMINATION OF NOISE SOURCES BY GOST R 51401 DUE TO THE NEAR FIELD INFLUENCE ACCOUNT

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Under certification tests of polygraph equipment it is shown, that the engineering method in essentially free field over a reflecting plane, established by GOST R 51401 (ISO 3744), cannot be applied for determination of sound power level in many cases. The reason of impossibility of the standard method application is the failure to meet requirements to the environmental correction: $K_2 < 2$ dB. As a result in the most cases it is necessary to apply the survey method in accordance with GOST R 51402 (ISO 3746). That makes impossible to conduct the declaration of noise emission in accordance with GOST 30691 (ISO 4871).

The opportunity of the method scope expansion is evaluated due to approaching the measurement surface to the noise source surface and accounting the near field influence. On the basis of near field effect estimation with the help of empirical parameter \square at calculation of the expected noise levels, it is offered to use the specified equations for the environment conditions and the sound power level. For the considered example of polygraph equipment such specification allows to expand the scope of the method more than twice especially for machinery of large sizes.