

Health and Safety Requirements for the Working Environments Affected by Noise, Maximum Noise Limits for the Working Environments and the Noise Measurement Procedure¹

Government of the Republic Regulation No. 108 of 12 April 2007

The Regulation is established pursuant to § 3 (4) and § 6 (6) of the Occupational Health and Safety Act.

Chapter 1 GENERAL PROVISIONS

§ 1. Scope of application

This Regulation establishes the maximum noise limits for working environments, the procedure for measuring the noise, and the obligations of employers to prevent or reduce health risks caused by noise.

§ 2. Definitions

The following definitions are used in the Regulation:

- 1) *sound* – pressure (deformation) waves in an environment;
- 2) *noise* – sound that is detrimental to the health of the workers;
- 3) *infrasound* – sound with frequency under 20 Hz;
- 4) *ultrasound* – sound with frequency over 20 kHz;
- 5) *sound pressure* – additional pressure of sound in gas or liquid, unit: Pascal (Pa);
- 6) *sound pressure level (noise level)* – relative sound pressure, measured in decibels (dB) per sound pressure at the threshold of audibility;
- 7) *equivalent noise level* – energetic equivalent of a sound present during a period of time (sound exposure), unit: dB(A);
- 8) *normalised noise exposure level* L_{EX} (hereinafter: *noise exposure level*) – equivalent noise level exerting influence on workers during a working day (daily noise exposure level $L_{EX,8h}$) or working week (weekly noise exposure level $L_{EX,40h}$), calculated according to the following formula:

$$L_{EX,T_0} = L_{Aeq,T_e} + 10 \log(T_e/T_0),$$

where

L_{Aeq,T_e} – equivalent noise level during the period T_e ,

T_e – time (in hours) daily/weekly spent by worker in noise field,

T_0 – duration of working day/working week (in case of a working day $T_0=8h$, in case of a working week $T_0=40h$);

9) *impulsive sound* – sound with duration less than 1 second;

10) *peak sound pressure* (p_{peak}) – maximum value of the "C"-frequency weighted instantaneous sound pressure.

§ 3. Maximum noise limits and exposure action values in the working environment

(1) The daily noise exposure level exerting influence on the worker (in case of 8-hour working day) must not exceed 85 dB(A) and the peak sound pressure (in case of impulsive sound as well) must not exceed 137 dB(C).

(2) Once a worker's noise exposure level exceeds 80 dB(A) or peak sound pressure exceeds 135 dB(C) (hereinafter: *exposure action values*), measures should be taken to reduce the impact of noise.

(3) The following limits shall be applicable to infrasound:

1/3 octave band medium frequency Hz	2	2.5	3.15	4	5	6.3	8	10	12.5	16	20
Sound pressure level dB	130	126	122	118	114	110	106	102	98	94	90

(4) Ultrasound limit in the frequency range 20–25 kHz shall be 105 dB and in case of frequencies over 25 kHz, the limit shall be 115 dB.

(5) If in some activity the daily noise exposure varies markedly from one working day to the next, it shall be permitted for the purposes of applying the maximum noise exposure limit values and the exposure action values to use the weekly noise exposure level ($L_{EX,week}$) in place of the daily noise exposure level on condition that:

- 1) the weekly noise exposure level does not exceed 85 dB(A);
- 2) appropriate measures are taken in order to reduce health risks.

(6) The determination of the worker's daily exposure level shall take account of the attenuation provided by the individual hearing protectors worn by the worker.

Chapter 2 OBLIGATIONS OF EMPLOYERS

§ 4. Working environment risk assessment

(1) The employer shall identify significant noise sources in the course of the working environment risk assessment.

(2) During the risk assessment, particular attention should be paid to the following:

- 1) the level, type and duration of exposure to noise, incl. any exposure to impulsive noise, taking account of the information on the noise level of work equipment submitted by the manufacturer or supplier of equipment, the noise level determined with an indicator device, or the results of noise measurement;
- 2) the maximum noise limits and exposure action values laid down in this Regulation;
- 3) possible effects of noise on the health of workers at particularly sensitive risk (e.g., pregnant or breastfeeding women, minors);
- 4) as far as technically achievable, any effects resulting from interactions between noise and work-related ototoxic substances, and between noise and vibrations;
- 5) any indirect effects arising from the combined action of noise and alarm signals or any other audible warnings used to reduce the risk of accidents;
- 6) the existence of alternative work equipment or methods designed to reduce the noise emission;
- 7) the availability of hearing protectors with adequate attenuation characteristics;
- 8) the possibility of exposure to noise outside working hours when the worker remains in the employer's area of responsibility (e.g., while staying in rest areas or changing rooms);
- 9) appropriate information obtained following the workers' health surveillance.

§ 5. Reduction of health risk

(1) Risks related to exposure to noise should be eliminated at source or reduced to a minimum according to the principles of prevention laid down in § 12¹ of the Occupational Health and Safety Act.

(2) If the risk assessment indicates that the noise level of the working environment is 80 dB(A) or more, the employer shall prepare and implement a programme of technical and organisational measures to avoid or reduce exposure to noise. When preparing the programme, attention should be paid to the following:

- 1) the choice of working methods and work equipment with as low noise level as possible;
- 2) reduction of noise in the workroom, at workplace or work equipment by technical means (e.g., reducing airborne noise by shields, enclosures or sound-absorbent coverings and reducing structure-borne noise by damping or isolation);
- 3) organisation of work to reduce workers' exposure to noise by limiting the duration and intensity of exposure or preparing appropriate work schedules with adequate rest periods or noise-free work assignments;
- 4) measures to prevent background noise from disturbing the performance of work assignments (e.g., assignments requiring concentration or communication) or giving of verbal signals;
- 5) ensuring proper working order and maintenance of the workplaces and work equipment.

(3) The employer shall identify with proper warning signs all noise sources and danger zones involving noise level equal to or above 80 dB(A). Access to danger zones should be restricted where this is technically feasible and the risk of exposure so justifies. The obligatory sign "Wear Hearing Protectors" should be installed at the entry into the danger zone or next to the device generating the noise if the noise level is equal to or exceeds 85 dB(A).

(4) Where workers use rest areas or other non-work rooms, the noise in these facilities shall be reduced to minimum level compatible with their purpose and conditions of use.

(5) The employer shall check the effectiveness of the measures taken to reduce the noise level.

(6) If the maximum noise limit is exceeded, despite the measures taken, the employer shall immediately identify the reasons why the maximum limit was exceeded and improve the protection and prevention measures in order to avoid exceeding the maximum noise limit in the future.

§ 6. Use of hearing protectors

(1) The employer shall make individual hearing protectors available to the workers if the noise exposure level exceeds 80 dB(A) and cannot be reduced by collective protection measures, and shall demand use of hearing protectors if the noise exposure level is equal to or exceeds 85 dB(A). The hearing protectors shall be so selected as to eliminate the effects of the noise posing a risk to hearing or to reduce the noise to a minimum.

(2) If the working environment risk assessment indicates occurrence of such situations or work processes at workplace where proper use of individual hearing protectors arising from the nature of the work would pose a greater risk to the health or safety of the worker than the omission of use, the employer may provide for exceptions from the provisions of paragraph 1.

(3) The employer may implement the exception referred to in paragraph 2 only in case of urgent need and shall also consult with an occupational healthcare professional to obtain an assessment of justifiability of this exception and find a suitable solution for the protection of hearing of the worker in question.

§ 7. Worker instruction and training

The employer shall ensure that the workers exposed to noise and the working environment representative receive adequate instruction and training concerning, in particular:

- 1) detrimental health effects of noise;
- 2) early detection and reporting of hearing damage associated with noise;
- 3) the necessity and procedure of workers' health surveillance;
- 4) the results of noise measurement in the company;
- 5) the maximum noise limits and exposure action values;
- 6) measures taken at workplace to prevent or reduce health risks from noise;
- 7) the correct use of hearing protectors;
- 8) the use of work equipment to minimise exposure to noise generated by them (safe working practices).

§ 8. Health surveillance of workers

(1) The purpose of health surveillance is prevention and early detection of the workers' hearing damage from noise.

(2) The employer shall ensure that all workers exposed to noise undergo health surveillance pursuant to the procedure laid down in compliance with § 13 (1) 7) of the Occupational Health and Safety Act. Workers whose exposure to noise, according to the results of the risk assessment, exceeds the exposure action values specified in § 3 (2) must undergo audiometric testing.

(3) Where health surveillance reveals that a worker has damage to health from exposure to noise, the employer shall review the working environment risk assessment and the measures taken to reduce the risk and, if necessary, assign the worker to alternative work or position where there is no risk of further exposure to noise, taking into account the advice of the occupational healthcare professional.

(4) Where health surveillance reveals that a worker has damage to health from exposure to noise, the other workers working in similar conditions must also undergo health surveillance.

Chapter 3 MEASUREMENT OF NOISE

§ 9. Measurement of noise

(1) The noise shall be measured if the noise level determined with an indicator device exceeds the exposure action values specified in § 3 (2), or if so required by the labour inspector.

(2) The noise measurement results should have proved traceability within the meaning of the Metrology Act.

(3) The devices and measurement methods used to measure noise should be appropriate for the particular noise conditions.

(4) Comparison of noise with the maximum limit shall be based on the noise exposure level L_{EX,T_0} or peak sound pressure p_{peak} taking account of uncertainty of measurement, which shall be documented as expanded measurement uncertainty at the 95 % confidence level.

(5) If the noise has been measured according to the requirements of the ISO 9612 standard, it shall be assumed that the requirements for noise measurement, comparison with maximum limits and formalisation of measurement records have been complied with.

(6) The employer shall preserve the measurement records together with the results of risk assessment.

(7) Noise measurement shall be repeated if modifications made at the workplace may raise the noise level.

Chapter 4
IMPLEMENTING PROVISION

§ 10. Amendment of Regulation

Chapter 2 "Audible Area Sound, Infrasound and Ultrasound" of the Government of the Republic Regulation No. 54 of 25 January 2002 «Limits for Physical Risk Factors Present in the Working Environment and the Procedure for Measuring the Parameters of Risk Factors» (RT I 2002, 15, 83; 2004, 82, 556) is repealed.

¹ Directive 2003/10/EC of the European Parliament and of the Council on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (noise) (seventeenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC) (OJ L 42, 15.02.2003, p. 38–44).

Prime Minister Andrus ANSIP

Minister of Social Affairs Maret
MARIPUU

State Secretary Heiki LOOT