

## Inter-municipal regulation of noise from ships

Based on a recommendation from the national association of municipalities, in an email on 22 November 2021, these regulations were approved at a city council meeting in Fuglafjarðar municipality on 25 November 2021

  
Davur Juul, mayor

Fuglafjarður, Desember 16, 2021



Fuglafjarðar kommuna

Í Støð 5

FO-530 Fuglafjarður

+298 66 80 00

www.fuglafjordur.fo - info@fuglafjordur.fo

  
Henrik Weihe Joensen, administrative director

### 1. Object and Scope

- 1.1. The object of this regulation is to reduce the disturbance of low-frequency engine noise from ships in harbours. Moreover, the object is to assign common rules about unnecessary noise.
- 1.2. The Port Authority shall always ensure that docked ships and other shipping activities in the harbour do not produce unnecessary noise.
- 1.3. The Port Authority can order ships to reposition, postpone or stop noisy activities. When a port authority stops an activity, orders expulsion of a ship or similar, the other port authorities must respect and adhere to the same assessment, unless underlying conditions have changed.
- 1.4. This regulation is a shared regulation for municipal harbours. The Municipality entitles the National Association of Municipalities – after consulting with the municipal port network and giving at least 14 days' notice – to make changes and adjustments in this regulation and/or appendix, although the authorization will always fall back to the governing municipality. The regulation will be evaluated no later than 31st of January 2023 together with the Ministry of Environment, Industry and Trade.
- 1.5. This regulation is based on structured noise measurements taken during a testing period in the summer and autumn of 2021. All relevant ships, shipping companies and/or their representatives will be informed about this regulation if for example the noise measurement during the testing period was higher than the set limit value, or if the port authority for some reason assesses a high likelihood of not adhering to this regulation. The announcement should take place as soon as possible after the municipal agreement and no later than January 1st, 2022.

### 2. Definitions

- 1.6. In this regulation and appendix, the following terms should be understood as:
  - 1.6.1. *Municipal harbour*: a harbour owned or administered by a municipality

- 1.6.2. *Port authority*: the municipal authority of port(s), usually the harbourmaster in the relevant municipality.
- 1.6.3. *Noise measurement*: the measurement of noise from ships, made in line with the appendix of this regulation.
- 1.6.4. *Engine noise*: noise from ship engines.
- 1.6.5. *Unnecessary noise*: this term should be broadly understood in relation to the services that are offered by the harbour and the work that most effectively happens alongside the quay. Work such as loudspeaker communications (rather than earphones/headsets), hammering rust or similar activities can be concrete examples of unnecessary noise – especially if the work happens during the night or on Sundays and holidays.
- 1.6.6. *Low frequency noise*: Noise in the frequency range from 10Hz to 160 Hertz (Hz)
- 1.6.7. *LpAeq, LF (10-160 Hz)*: the A-weighted average noise level in the frequency range 10-160 Hz.
- 1.6.8. *Ambient noise*: Noise measured from all other sources than the ship in question, such as wind, waves, other operations, other ships, or equipment.

### 3. Limit value

- 1.7. The low frequency engine noise of a ship mooring alongside the quay for more than 2 hours should not exceed these limit values:

<b>TABLE 1: Limit value (single ship, 25 m from the ship's side)</b>	From 1 January 2022	From 1 July 2023	From 1 January 2025
Hours 23-07	58 dB	56 dB	54 dB
Hours 07-23	60 dB	58 dB	56 dB

- 1.8. The combined low frequency engine noise from several ships that are mooring alongside each other at the quay for more than 2 hours should not exceed these limits:

<b>TABLE 2: Limit value (several adjacent ships, 25 m from the ship's side)</b>	From 1 January 2022	From 1 July 2023	From 1 January 2025
Hours 23-07	60 dB	58 dB	56 Db
Hours 07-23	60 dB	60 dB	58 dB

- 1.9. The limit value is exceeded when the measured or calculated value, having removed elements of uncertainty (appendix 1.11) and potentially corrected ambient noise levels (appendix 1.12), is higher than the limit value.
- 1.10. With two or three adjacent ships, the combined engine noise must not exceed this limit value (table 2). The combined noise is measured using recognised common templates (see appendix 1.6)
- 1.11. The port authority will not permit ships with a noise level higher than the limit value (table 1) to berth. The port authority shall in such situations act according to a relevant registered measurement, if available, no matter which port authority, environmental authority or approved company did the

noise measurement. During night hours, the port authority must also always assess whether work can be postponed.

#### 4. Administration and inspection of limit values

- 1.12. The port authority administers this regulation in their municipal harbour and checks that the limit values are kept. The administration and inspection are carried out in the same way in all ports.
- 1.13. If a complaint is received about a ship's engine noise, the port authority will make a noise measurement in line with the appendix of this regulation. The port authority can also decide to make a measurement at their own initiative. The representatives of each relevant party, including citizens, shipping companies, governing bodies and interest groups, may be present by request during the noise survey.
- 1.14. A noise measurement will not be needed if the port authority has already registered a relevant noise measurement from the ship within the same operating environment. Neither will a sound measurement be needed in cases where for example weather conditions make it impossible to capture the correct level of noise complained about.
- 1.15. If there are signs that the engine noise differs from a previous measurement, the port authority should take another measurement that will become valid for the operating environment.
- 1.16. If the measurement of the engine noise exceeds the limit value, the port authority will consult with the ship, shipping company or relevant representative so that the situation can be rectified. In addition, the port authority immediately instructs the ship to alter operations so that noise levels are reduced most effectively, provided it is workable and technically achievable. If needed, the port authority can take further steps to reduce the engine noise, for example provide shoreside electrical power or reallocate the ship, if possible.
- 1.17. If for technical and/or operational reasons it is impossible for the ship to reduce its engine noise, the port authority must first give the ship notice to reduce the noise within a time limit or else ensure that the ship cannot return to the harbour covered by this regulation after the time limit has passed, unless the ship can prove that they are keeping within the noise limit or will otherwise receive electrical power supply that will reduce the noise from the ship substantially. The time limit can be up to 6 months, but in a time of upheaval it can be extended until 31st of December 2022. The port authority can under certain circumstances approve of a longer time limit. The port authority informs the port authority network about all orders given according to this regulation. The port authority jointly registers the noise measurements of the ships, and what orders and time limits have been given. The Environment Agency is provided with access to this registry.
- 1.18. The port authority can permit ships to arrive in port to carry out a noise survey. If the ship arrives in port for a noise measurement, and the result shows that the limit value is still being exceeded, the port authority shall order the ship to leave the harbour once the measurement is completed. If difficult circumstances make it impossible to perform an accurate noise measurement in accordance with point 4.2, the ship should be inspected next time it arrives in one of the ports covered by this regulation.

## Appendix

### to the inter-municipal regulation of noise from ships

All noise measurements discussed in this regulation of noise from ships will need to follow the procedures outlined in this appendix.

#### 5. Method of investigation

- 1.1. The noise from ship engines will be measured in line with the standards of “DS/ISO 2922:2020: Acoustics – Measurements of airborne sound emitted by vessels on inland waterways and harbours”
- 1.2. In chapter 10.2 in the standard “LpAeq” is changed to “LpAeq, LF (10-160 Hz)”.
- 1.3. The noise survey should be carried out by an approved company, environmental agency or one of the port authorities where this regulation applies. The measuring equipment must fulfil the requirements of a Class 1 tool according to the standards of IEC 61260-1 (Ch. 5.1).
- 1.4. A suitable windscreen should be used to mitigate wind noise. If the wind is estimated to make a signal that is less than 10 dB from the average noise level of the ship, a suitable windscreen must be used (chapter 5.2).
- 1.5. The sound from the ship should be measured 25 m ± 2 m away from the ship’s side. Measurement should be taken from where the noise appears to be loudest. If it is unclear where most of the noise originates, the noise should be measured across different places around the ship, and note should be taken of the highest level of measurement (Ch. 9.4)
- 1.6. The noise from several ships is combined (logarithmically) to find the combined noise level from the ships as follows:

#### Example calculation for three ships:

*Source distance of 25 meters:*

- Ship A: 55 dBA
- Ship B: 56 dBA
- Ship C: 59 dBA

$$\text{Combined noise} = 10 * \text{Log}_{10}(10\text{exp}(A/10) + 10\text{exp}(B/10) + 10\text{exp}(C/10))$$

$$= 10 * \text{Log}_{10}(10\text{exp}(55/10) + 10\text{exp}(56/10) + 10\text{exp}(59/10)) = 61,8 \text{ dBA}$$

- 1.7. If the distance  $d$  between the microphone and ship deviates from the reference point of 25 meters, the measurement must be adjusted in line with this formula (ch. 10.1.4):  $LpAeq,25m = LpAeq,d + 20 * \log_{10} [d/25] \text{ dB}$
- 1.8. The time of measurement should be at least 30 seconds for each measurement (ch. 10.2).

- 1.9. Within 30 m distance from the microphone there should be no sound reflective barriers, such as buildings or the like (ch. 6.2.2). If conditions make this impossible, a measurement can be made that registers the place and assesses whether it counts as a “+3 dB measurement”. If classified as a “+3 dB measurement”, the measured level is lowered by 3dB.
- 1.10. Wind speed above 7 m/s can interfere with the noise distribution, therefore measurements should not be made under such conditions (ch. 6.3.1). Moreover, measurements should not be made when it rains or snows (ch. 6.3.2.).
- 1.11. The measurement uncertainty is 3,4 dB. (ch. 11, formula 6 and table 2)
- 1.12. Ambient noise from the surrounding environment, including waves, other ships, local operations, and other engines, should be substantially lower – that is at least 6 dB lower than the noise level. The same applies for individual frequencies when a frequency analysis is made. In most cases, it is impossible to measure ambient noise separately when the ship is in harbour. In such cases, one should instead assess the level of the ambient noise. If the difference between the ambient noise and engine noise is estimated to be too low (less than 6dB, that is  $\frac{1}{4}$ ), the measuring of the engine noise should not proceed. If the ambient noise can be measured, it should be measured for 5 minutes and be adjusted for noise in accordance with the table below (ch. 6.4.2.2.).

Difference between measured noise and ambient noise	Adjusted P-value
≥11	0
10	-0,5
9	-0,6
8	-0,7
7	-1,0
6	-1,3