

Appendix 2

Acoustic Measurement and Assessment of Motorised Craft on the Surface of Rivers and Lakes

REFERENCES: IEC 61672-1:2002, IEC 60942:2003, ISO 2922:2000, ISO 14509-1:2008

All motorised craft operating on the surface of lakes and rivers within the District must have and display a current acoustic certificate of fitness. Testing shall be undertaken on a strictly controlled "test" day, and shall be conducted by an enforcement officer appointed pursuant to the Act.

The measured sound pressure level shall not exceed a maximum A weighted level:

- (a) 77 dB L_{ASmax} for vessels to be operated between the hours of 0800 to 2000;
- (b) 67 dB L_{ASmax} for vessels to be operated between the hours of 2000 to 0800.

Retesting will be undertaken at not more than 12 monthly intervals. Additional monitoring measurements shall be performed in order to check that the noise of the craft remains within the prescribed limits and no noticeable changes have occurred since the previous testing of the craft and/or allowing modification to the same.

All sound measuring equipment and methods used shall be in compliance with the standards stated in the above references.

The following **test conditions** shall be complied with as closely as possible, but if unavoidable variations have to be made, these must be stated in the test report. In no instance shall the integrity of the test be compromised.

The noise emitted by warning devices and the like are excluded, however ancillary noise generated or associated with the operation of the craft, other than the motive device, may be measured separately or in conjunction with the test.

TEST CONDITIONS

The following instrument shall be used:

- (i) A class 1 sound level meter and an acceptable wind screen.
- (ii) A sound level calibrator.
- (iii) A wind speed anemometer.
- (iv) An engine speed tachometer.

Measured Quantities - "A" weighted, slow response sound level, expressed in decibels (dB).

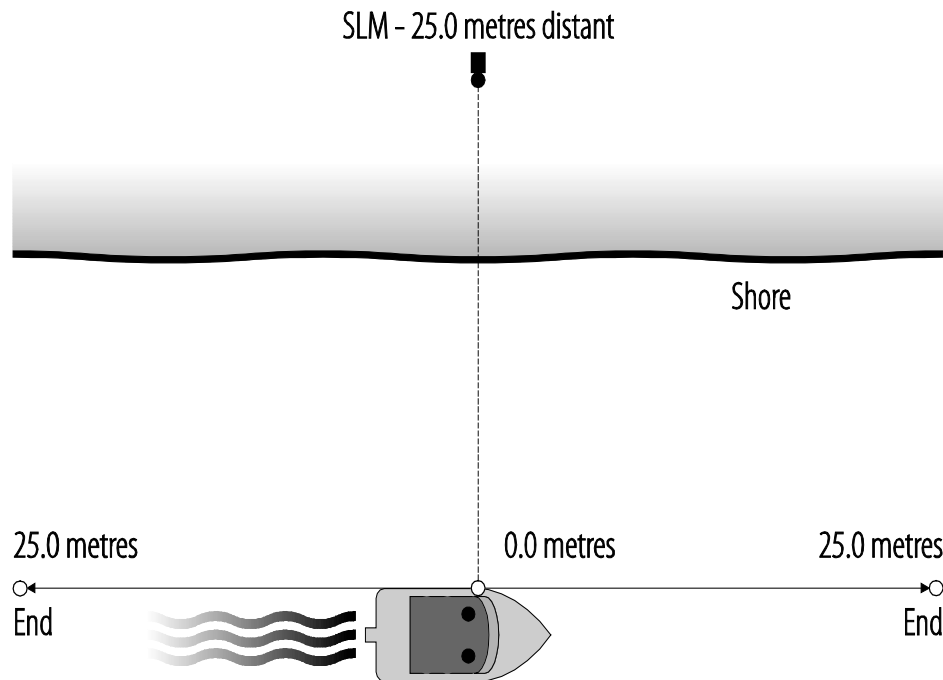
Acoustic Environment - The test site shall be such that sufficient free field sound propagation exists, (ie 30m clearance from reflective surfaces).

There shall be no obstacles between the craft and the microphone and the area between shall be open and free from sound absorbing materials. Meteorological conditions shall be within standard acceptable limits and the wind velocity shall not exceed 5m/sec.

Test Course - The depth of water must be sufficient for the normal operation of the craft.

Craft shall run either against the stress or current or in slack water.

A set straight line course shall be used to ascertain the acoustic measurements, as detailed:



Operating Conditions -

The test run shall commence at sufficient distance downstream to obtain stabilised engine conditions when the craft passes the microphone. The craft shall be driven by a competent person who is mutually acceptable

Test Procedure -

to the operator of the craft and the enforcement officer. The loading condition of the craft shall be stated in the report. All openings and hatches shall be set and located in their normal operational condition and the craft's engine system shall be at normal operating temperature.

The boat shall pass all three markers on a straight course at wide-open throttle with the engine operating at the midpoint of the manufacturer's recommended full throttle rpm range.

The engine speed tolerance shall be +/- 100rpm if this falls within the full throttle speed range. If a single top speed rpm is recommended, the tolerance shall be +0, -100rpm.

Boats which are sold with the power units installed (for example, outboards and stern drives) shall be tested in this combination. Outboard motorboats shall be tested with a motor or motors for which the boat is rated, since sound level is dependent upon boat design and construction.

The boat shall pass within 0.5m to 1.0m on the far side of all three markers.

Principally that the maximum A – weighted sound pressure level indicated during the passage of the craft be retained. The sound level will be accumulated as the craft passes at right angles to the microphone and will be measured until the craft has travelled a distance of 25 m. The meter shall be set for slow response.

Two passes shall be made and the mean value of the measurements rounded to the nearest integral decibel shall be obtained. If the sound intensity is louder along one side of the craft, then the measurements shall be conducted at this side. The background noise level shall be recorded and shall be at least 10dBA lower than measured level for the boat being tested.

All craft may not be able to be recorded according to the above method and any deviation shall be in compliance with ISO 2922:2000 or ISO 14509-1:2008. Other statistical and accumulated sound levels may also be recorded and retained for evaluation.

- The presence of pure tones or noise of an impulsive character.
- A conclusion, evaluating the test results and considerations.

The craft shall, upon compliance and following testing exhibit a current acoustic certificate label in a prominent place, which will be issued by the enforcement officer.

All craft shall be retested, should any modification be made to the craft or engine componentry that could alter the acoustic integrity and another certificate, upon compliance, will be issued.

TEST REPORT

The test report shall include a reference to the Standards and all relevant details concerning:

- The nature of the tests.
- The craft design or make, operator, engine and exhaust system.
- The test site locality, water conditions, meteorological conditions, for example temperature, and wind velocity, if relevant.
- The measurement equipment.
- The background noise level.
- The loading of the craft.
- The A-weighted sound pressure levels.