

# NOISE LEVEL CERTIFICATE

WHITE BAY CRUISE TERMINAL  
August 2019

## MEASURED NOISE LEVEL SUMMARY

The representative vessel noise level in August 2019 complied with the 58dBA reference level outlined in the White Bay Cruise Terminal (WBCT) Noise Impact Mitigation Strategy (NIMS). This noise level for August is presented in the table.

During the period from 1 August to 31 August 2019 there was one cruise ship visit to WBCT. This was the Pacific Explorer.

Table – Representative noise levels from WBCT

Vessel Name	Representative L <sub>Aeq</sub> noise level (dBA)	Arrival Time	Departure Time	Complies with 58dBA reference level
Pacific Explorer	57	8/08/2019 4:53	8/08/2019 19:56	Y

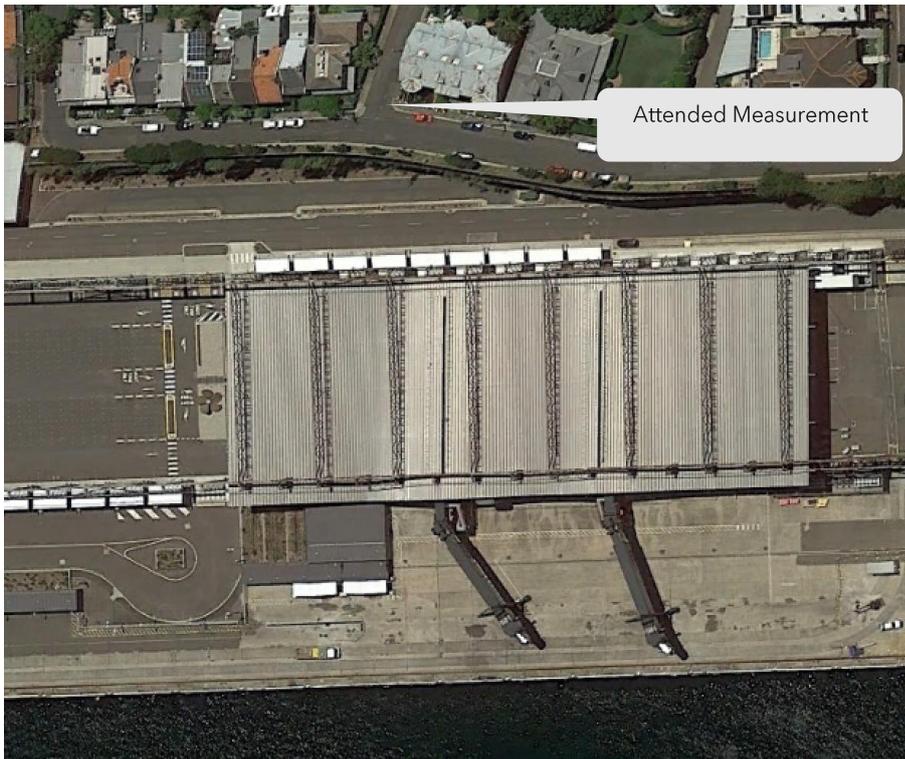
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## METHODOLOGY AND MEASUREMENT LOCATION

An attended measurement was completed between 10:00am and 10:30am on 8 August 2019 during calm to light wind conditions. Measurements were completed on Grafton Street at the reference location indicated in the Figure below.

Figure – Measurement location



Source: Google Earth

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## MEASUREMENT EQUIPMENT

The measurement was completed with a Class 1 Svantek 977 sound level meter with a current National Association of Testing Authorities, Australia (NATA) calibration certificate. Field calibration was also completed before and after the noise measurement with a Pulsar type 105 acoustic calibrator. The calibrator has a current NATA calibration certificate. The pre and post field calibration confirmed there was no significant change in calibration over the measurement period and that results are representative.

## ADDITIONAL OBSERVATIONS

Spoke completed attended measurements between 10am and 10:30am and consistently measured 57dBA  $L_{Aeq}$  from the vessel throughout.

Overall noise levels were in the low 60dBA range due to wind, distant vehicles and intermittent and distant aircraft. This dropped to 57dBA when only the vessel was audible.

All observations indicated that the noise levels from the Pacific Explorer were typical for this vessel. The measured noise level of 57dBA is consistent with all data obtained for this vessel since regular measurements began at White Bay Cruise Terminal in October 2017.

Noise levels from the vessel complied with the NIMS reference noise level of 58dBA.

Yours faithfully



Dr Simon Kean  
Director

# GLOSSARY

TERM	DESCRIPTION
Representative noise level	<p>A representative noise level is the typical noise level from a vessel during its visit and excludes short term events which may be louder.</p> <p>The typical noise level from a vessel occurs from a combination of ventilation, air conditioning systems and onboard power generators.</p> <p>Higher short term noise levels may occur during arrival/departure or due to a change in an operational procedure. These are not representative of the longer term noise exposure from the vessel while in port. Where they are unreasonable they may be addressed by amending the vessel's procedures.</p>
dBA	<p>The term dBA is an abbreviation which indicates the noise levels have been expressed in decibels (dB) using an A-weighting filter which approximates how the human ear perceives the loudness of complex noise sources with both low frequency (chugging of engines), medium (fans and engine exhaust flow) and higher frequency aspects.</p>
58dBA reference level	<p>The approval for the White Bay Cruise Terminal called for the use of feasible and reasonable noise mitigation to manage potential noise impacts. In response the Port Authority of NSW has developed a Noise Impact Mitigation Strategy which considers potential noise impacts for typical vessels with noise levels up to 58dBA.</p> <p>Based on the approach in the Noise Impact Mitigation Strategy, 58dBA has become the baseline or reference level against which all vessels are assessed.</p> <p>Representative noise levels of 58dBA and lower from a vessel are deemed acceptable as the Noise Impact Mitigation Strategy has approaches to manage these noise levels by mitigating houses.</p> <p>Representative noise levels above 58dBA are deemed unacceptable and the vessel operations are reviewed under the Port Authority's three strikes policy.</p>
$L_{Aeq}$	<p>In general, noise levels in any location vary continuously and any sound level meter will show this changing decibel level on the display. To make sense of the range in noise levels that may occur within a standard time period, various statistics are used in acoustics.</p> <p>The simplest are the <math>L_{A90}</math>, <math>L_{A50}</math> and <math>L_{A10}</math> descriptors. The number in each of these descriptors indicates the percentage of time that noise levels exceed the indicated value. For example an <math>L_{A90}</math> is the noise level that was exceeded 90% of the time, and <math>L_{A50}</math> is the noise level that was exceeded 50% of the time (also the median) and <math>L_{A10}</math> is the noise level that was exceeded 10% of the time.</p> <p>The <math>L_{Aeq}</math> is more complex to derive from changing noise levels and is an averaging process. The averaging process results in a single equivalent number for the measurement period that has the same total sound energy as the changing noise levels over the time period.</p>

# GLOSSARY

TERM	DESCRIPTION
Adverse wind and rain	Conditions are described as adverse when noise levels from wind or rain are high enough to influence noise measurement. Adverse noise may result from direct noise generation on the microphone or from wind and rain impacting other items such as the ground, pavements, structures, vegetation etc.
Noise logger	A noise logger is an automated sound level meter which repeatedly saves noise statistics for defined noise sampling periods. In NSW statistics are usually obtained for every 15 minute period each day starting at midnight.
Class 1	Sound level meters are available with different levels of accuracy. A class 1 instrument is a high precision instrument suitable for acoustic measurement of noise levels at the White Bay Cruise Terminal. To achieve a Class 1 rating the meter must comply with Standard IEC61672. Most meters that are available through retail electronics stores (including smartphone apps with claimed calibration curves) are not accurate or stable enough to achieve a class rating. Testing by Spoke Acoustics has found that noise levels measured using smartphone apps may commonly be wrong by 8dBA or more.
NATA calibration certificate	The sound level meter must have a current calibration certificate issued by a National Association of Testing Authorities (NATA) accredited laboratory for noise measurements to be valid in Australia. The certificate confirms that the meter is in good working order and complies with Standard IEC61672 and others as relevant.
Field calibration	A field calibration is conducted with a hand held acoustic calibrator and confirms the meter is working correctly and also permits minor adjustments to account for significant changes in temperature and atmospheric pressure.
Acoustic calibrator	An acoustic calibrator is used to conduct a field calibration. For the calibration to be valid the calibrator must have a current calibration certificate issued by a National Association of Testing Authorities (NATA) accredited laboratory.