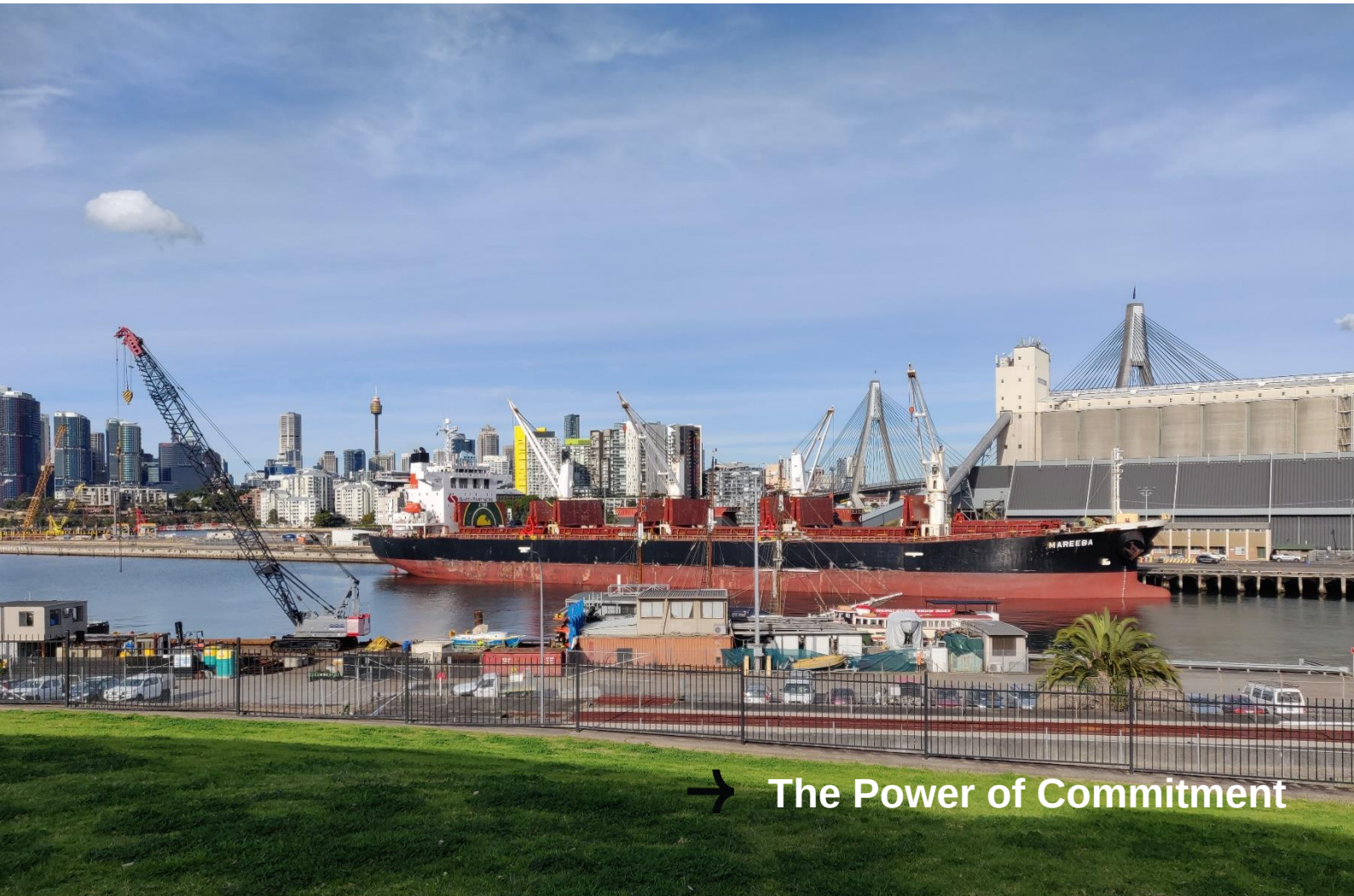
Monthly compliance noise monitoring report

Glebe Island / White Bay

Port Authority of New South Wales

June 2022



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Client name	Port Authority of New South Wales
Document title	Monthly compliance noise monitoring report – June 2022
Revision version	Rev 0
Project number	12540862

Document status

Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S4	0	C Gordon	V Lau		E Milton		20/07/2022

1. Introduction

GHD Pty Ltd (GHD) has been engaged by Port Authority of New South Wales (Port Authority) to undertake compliance noise monitoring, as required by the *Port Noise Policy (Port Authority, 2020).*

This report provides the details of the compliance noise monitoring for all vessels at berth during June 2022, as determined using the noise monitoring system. A detailed description of the permanent noise monitoring system including a map of monitoring locations is provided in the Noise Monitoring Plan, available on Port Authority's website.

2. Noise monitoring details and vessel schedule

Client	Company details	Noise monitor name	Noise monitor location	Noise monitor details / settings	Noise monitor serial numbers	Monthly calibration variance
Port Authority of New South Wales	GHD Pty Ltd Member of the Association of Australasian Acoustical Consultants (AAAC) Lead staff are Members of the Australian Acoustical Society (AAS)	L01	Grafton Street, Balmain	**Meter details** Norsonic Nor145 Sound Level Meter with Nor1297 Noise Compass **Meter settings** A-weighted Fast time response 15 minute intervals	14529640	**Initial calibration level 92.6 dBA** Min. deviation = 0.3 dB Max. deviation = 0.3 dB
		L02	Maintenance Building on White Bay		14529642	**Initial calibration level 91.5 dBA** Min. deviation = 0.2 dB Max. deviation = 0.3 dB
		L03	Adjacent to White Bay 2		14529643	**Initial calibration level 91.7 dBA** Min. deviation = 0.1 dB Max. deviation = 0.2 dB
		L04	Onsite at Glebe Island		14529644	**Initial calibration level 91.4 dBA** Min. deviation = 0.4 dB Max. deviation = 0.5 dB

Vessel name	Arrival date and time	Departure date and time	Berth location	Applicable noise monitoring location/s
Pioneer	June 12, 2022 / 12:48	June 16, 2022 / 10:00	GLB7	L03
Mareeba	June 16, 2022 / 13:36	June 21, 2022 / 22:00	GLB7	L03
Kondili	June 20, 2022 / 15:18	June 22, 2022 / 17:00	GLB8	L03

3. Compliance summary

Vessel	Dates at berth	Monitor location	Vessel Noise Level, dBA (inclusive of any modifying factor penalties)			Vessel Noise Trigger Levels, dBA			Compliance[1]	
			Day[2] $L_{Aeq(15\ hr)}$	Night[3] $L_{Aeq(1\ hr)}$	Night[3] L_{Amax}	Day[2] $L_{Aeq(15\ hr)}$	Night[3] $L_{Aeq(1\ hr)}$	Night[3] L_{Amax}	Day	Night
Pioneer	Jun 12 – Jun 16	L03	57	55	62	60	55	65	Yes	Yes
Mareeba	Jun 16 – Jun 21	L03	54	52[4]	67	60	55	65	Yes	No[5]
Kondili	Jun 20 – Jun 22	L03	55	54		60	55	65	Yes	Yes

Note: 1) If non-compliance is detected, a detailed investigation of the results will be undertaken and reported separately if required

Note: 2) Daytime period (7 am to 10 pm) – 15 hour logarithmic average

Note: 3) Night-time (10 pm to 7 am) – worst case 1 hour period

Note: 4) 52 dBA when only Mareeba at berth. The maximum measured level was 56 dBA, however the Kondili was also at berth during this time. Sec Section 4.4 for discussion.

Note: 5) One exceedance only during the entire 6 day visit.

4. Detailed results

4.1 Pioneer – June 12 – June 16, 2022 (GLB7)

4.1.1 Daily noise monitoring results

Date	Time period	Monitor location	Noise descriptor	Vessel noise level dBA[2]	Tonal	LFN[3]	Vessel Noise Trigger Levels, dBA	Compliance
June 12, 2022	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	53	No	No	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	55	No	No	55	Yes
			L_{Amax}	61	-	-	65	Yes
June 13, 2022	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	54	No	No	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	55	No	No	55	Yes
			L_{Amax}	60	-	-	65	Yes
June 14, 2022	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	54	No	No	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	51	No	No	55	Yes
			L_{Amax}	62	-	-	65	Yes
June 15, 2022	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	57	No[4]	No	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	54	No	No	55	Yes
			L_{Amax}	62	-	-	65	Yes
June 16, 2022	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	57	No[4]	No	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	-	-	-	55	Yes
			L_{Amax}	-	-	-	65	Yes

Notes

1) Daytime period (7 am to 10 pm) – 15 hours

Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) IMS flagged that tonal noise was present for 2 hours on June 15 and 1 hour on June 16. On review, this was likely from extraneous noise and not associated with the vessel.

4.1.2 Additional information

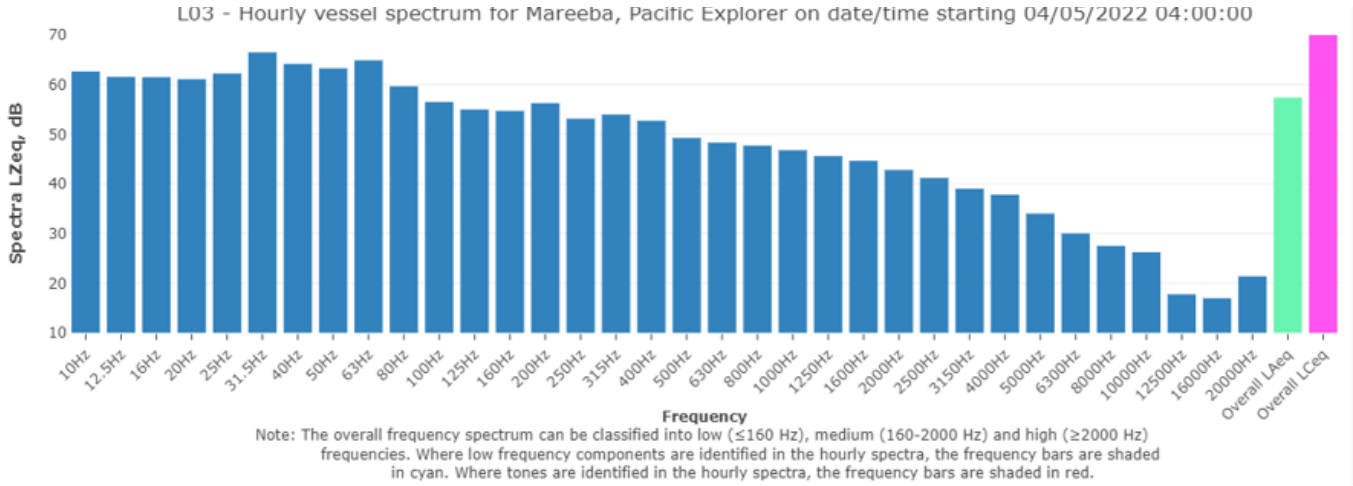

Figure 4.1 Typical vessel spectrum – noise level at L03

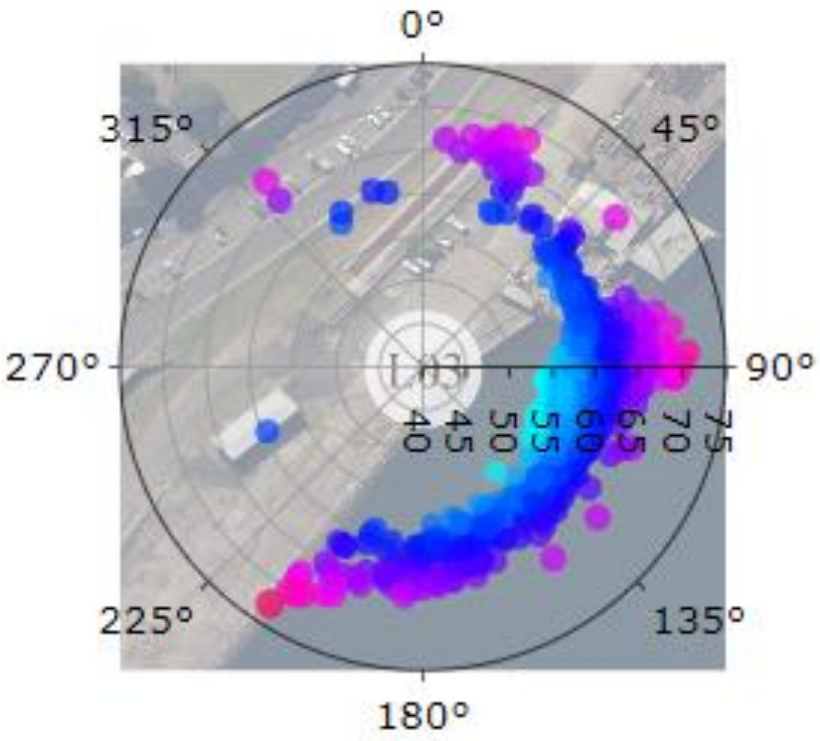

Figure 4.2 Typical vessel polar (directional) plot

4.2 Mareeba – June 16 – June 21, 2022 (GLB7)

4.2.1 Daily noise monitoring results

Date	Time period	Monitor location	Noise descriptor	Vessel noise level dBA[2]	Tonal	LFN[3]	Vessel Noise Trigger Levels, dBA	Compliance
June 16, 2022	Day	L01	$L_{Aeq, 15\ hour}$[1]	54	No	No	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	52	No	No	55	Yes
			L_{Amax}	67	-	-	65	No[5]
June 17, 2022	Day	L01	$L_{Aeq, 15\ hour}$[1]	61	No	Yes[4]	60	NA[6]
	Night		$L_{Aeq, 1\ hour}$[1]	52	No	No	55	Yes
			L_{Amax}	64	-	-	65	Yes
June 18, 2022	Day	L01	$L_{Aeq, 15\ hour}$[1]	54	No	No	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	51	No	No	55	Yes
			L_{Amax}	58	-	-	65	Yes
June 19, 2022	Day	L01	$L_{Aeq, 15\ hour}$[1]	52	No	No	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	52	No	No	55	Yes
			L_{Amax}	56	-	-	65	Yes
June 20, 2022	Day	L01	$L_{Aeq, 15\ hour}$[1]	56	No	No	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	56	No	No	55	Yes[7]
			L_{Amax}	61	-	-	65	Yes
June 21, 2022	Day	L01	$L_{Aeq, 15\ hour}$[1]	57	No	No	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	-	-	-	55	Yes
			L_{Amax}	-	-	-	65	Yes

Notes

1) Daytime period (7 am to 10 pm)– 15 hours
Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) The Port Noise Policy does not currently apply the Noise Policy for Industry (NPfI) method modifying factor for low frequency noise. A 2 dB penalty for daytime and a 5 dB penalty for the evening/night-time period would apply when assessed in accordance with Fact Sheet 3 Corrections for annoying noise characteristics from the EPA's Noise Policy for Industry Further investigation is currently being undertaken to determine impacts from low frequency noise from vessels.

5) See discussion in Section 4.2.2 below.

6) The data during this period was influenced by extraneous noise south-west of the noise monitor and does not represent noise levels from the vessel

7) Mareeba and Kondili were present simultaneously during this period. See discussion below

4.2.2 Details of max level exceedances

A review of the maximum noise level data for Mareeba indicated only one max level criteria exceedances was measured during this visit. Given the maximum noise levels at all other times were less than the criteria, it's probable that these measured events were from other activities onsite. Nevertheless, if the maximum noise level events were associated with the Mareeba, given the small number and times that these occurred, it is unlikely that these maximum noise events would negatively impact the surrounding community.

The L_{AFmax} histogram from the night period of 16 June is provided in Figure 4.3, demonstrating that there was only one exceedance of the 65 dBA criteria, with the majority of L_{Amax} events between 40 and 50 dBA.

The time trace for the period between 12 am to 1 am on 16 June where the exceedance was observed is provided in Figure 4.4. The time trace shows that the exceedance of the L_{Amax} vessel trigger noise level was a single occurrence.

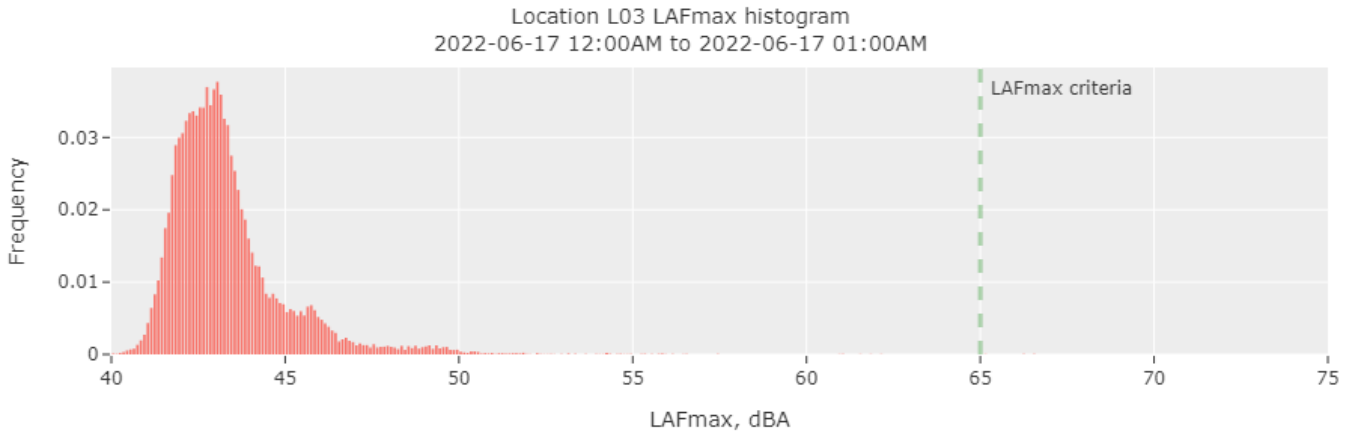

Figure 4.3 *LAFmax histogram – Mareeba – 16 June 2022*

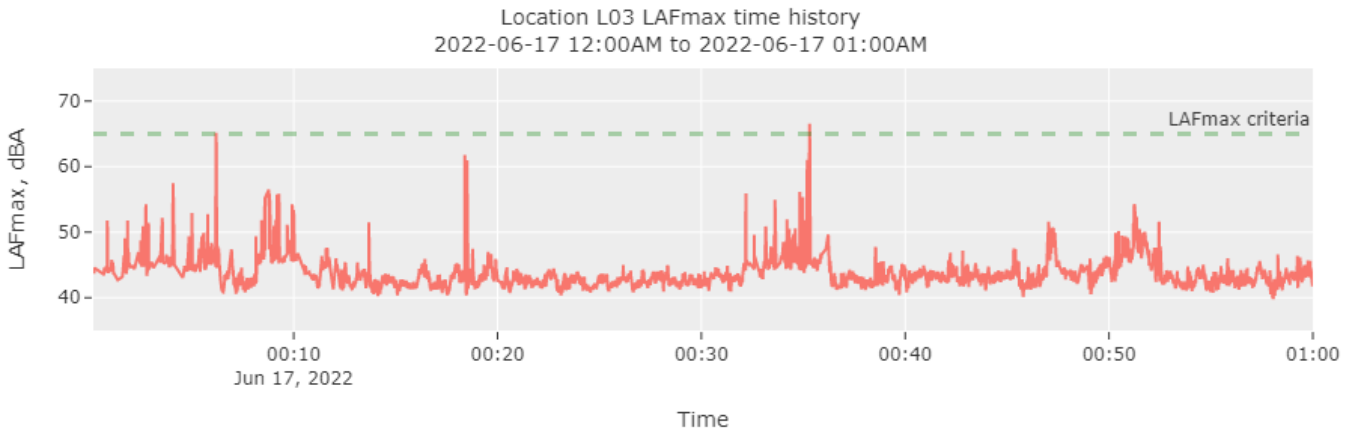

Figure 4.4 *LAFmax time history – Mareeba – 16 June 2022*

4.2.3 Additional information

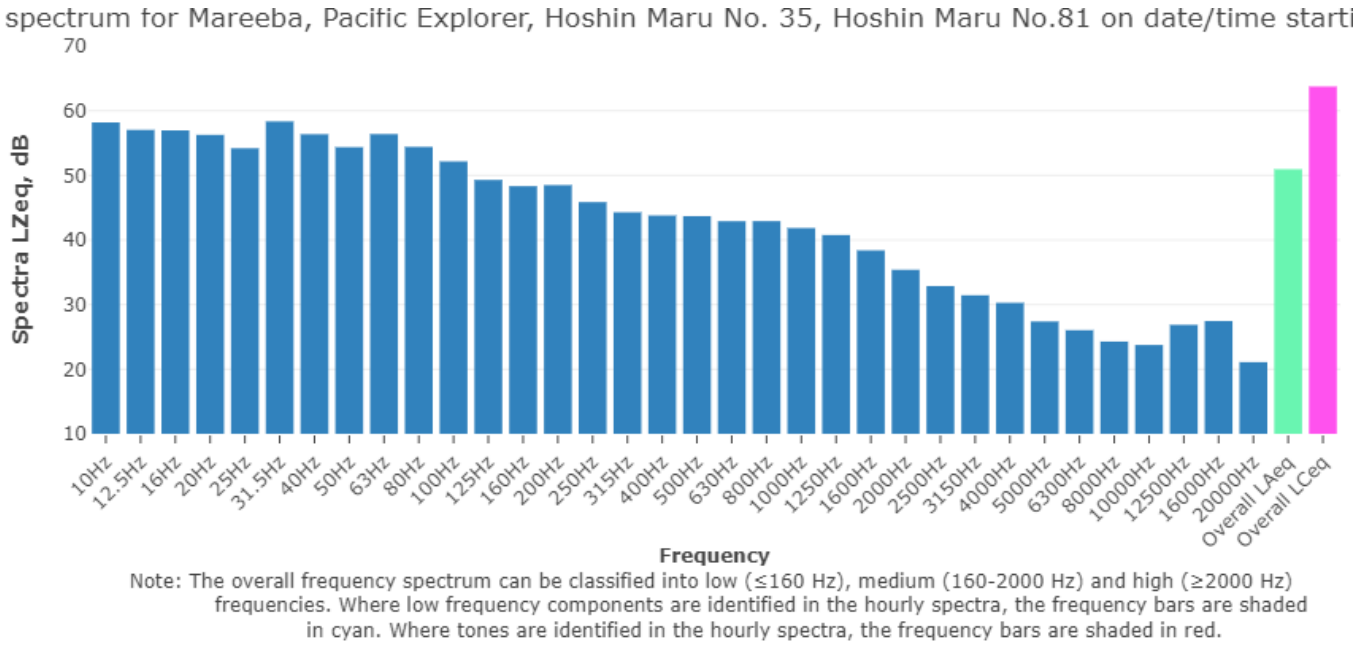

Figure 4.5 *Typical vessel spectrum – noise level at L03*

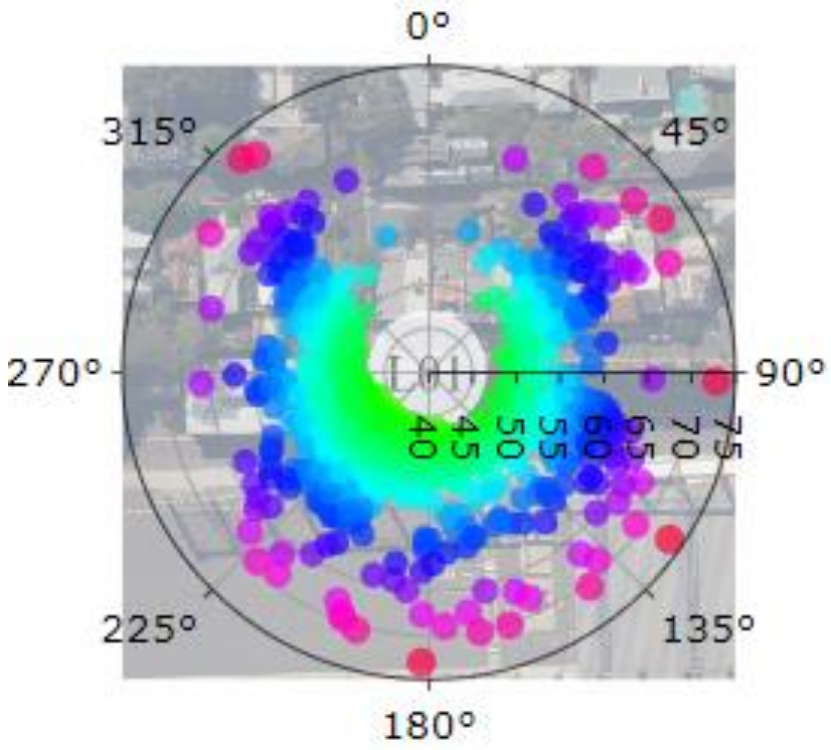

Figure 4.6 Typical vessel polar (directional) plot

4.3 Kondili – June 20 – June 22, 2022 (GLB8)

4.3.1 Daily noise monitoring results

Date	Time period	Monitor location	Noise descriptor	Vessel noise level dBA[2]	Tonal	LFN[3]	Vessel Noise Trigger Levels, dBA	Compliance
June 20, 2022[4]	Day	L03	Mareeba (GLB7) and Kondili (GLB8) were both present at this time. See discussion in Section 4.4 below. Noise was attributed to the Mareeba at this time					
	Night							
June 21, 2022[4]	Day	L03						
	Night		$L_{Aeq,\ 1\ hour}$[1]	55	No	No	55	Yes
			L_{Amax}	-	-	-	65	Yes
June 22, 2022[4]	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	60	No	No	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	53	-	-	55	Yes
			L_{Amax}	-	-	-	65	-

Notes
1) Daytime period (7 am to 10 pm)– 15 hours
Night-time period (10 pm to 7 am) – worst case 1 hour
2) Inclusive of any penalties for modifying factors
3) LFN = Low Frequency Noise

4.3.2 Additional information

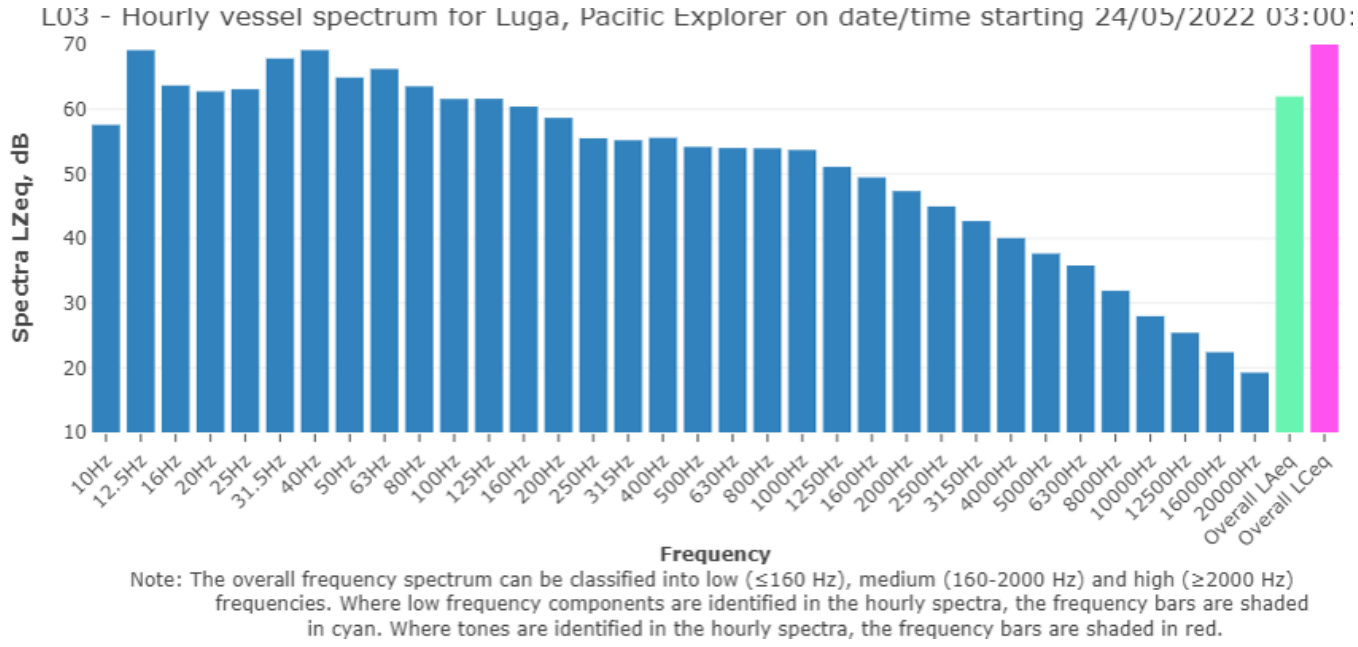

Figure 4.7 Typical vessel spectrum – noise level at L03

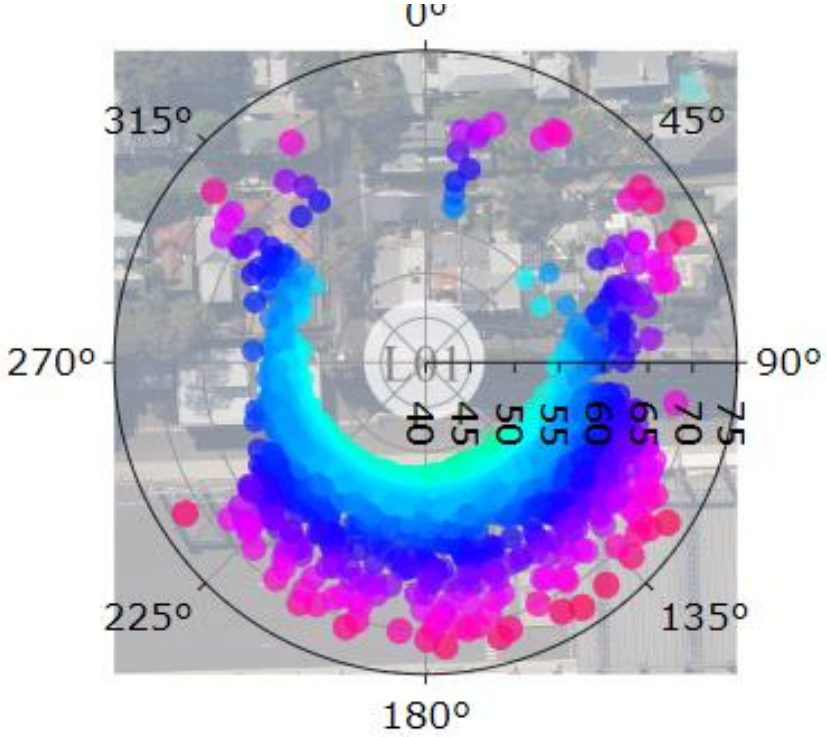

Figure 4.8 Typical vessel polar (directional) plot

4.4 Discussion regarding Mareeba and Kondili

On June 20 and June 21 2022, the Mareeba (GLB7) and Kondili (GLB8) were simultaneously at berth. During this period, the Kondili vessel location was not being recorded by the vessel therefore the noise monitoring system was not able to identify whether the Kondili was berthed. All measured noise levels during this period were attributed to the Mareeba. The noise monitoring system indicated that there was a potential exceedance of the Vessel Noise Trigger Levels, therefore a detailed analysis was undertaken to determine the contribution from each vessel.

A review of the data was undertaken from this period, along with previously measured data. The contribution of each vessel has been estimated based on the following:

- Analysis of the measured noise levels from historical visits of both vessel
- Analysis of the measured noise levels from 20-21 June 2022 when both the Mareeba and Kondili were berthed.

The estimated contributions are as follows:

Vessel	Assessment period	Estimated contribution, dBA
Mareeba	Day	54
	Night	52
Kondili	Day	60
	Night	53

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