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ACOUSTICAL REPORT

DA APPLICATION

SHOP 8, 38-42 THE CORSO, MANLY NSW

Date: Monday, 22 June 2020

File Reference: 4200R20200622mfcS8N38-42TheCorsoManly_DA.docx

DOCUMENT CONTROL

Project title	Acoustical Report DA Application Shop 8, 38-42 The Corso, Manly NSW
Project number	4200
Document reference	4200R20200622mfcS8N38-42TheCorsoManly_DA.docx
Document path	G:\Shared drives\KA Acoustics 2020\REPORT\Clubs and Restaurants\4200 (mfc) Shop 8, 38-42 The Corso, Manly\4200R20200622mfcS8N38-42TheCorsoManly_DA.docx

Version	Date	Author	Review	Notes
V1	22/06/2020	MFC	NK	Report version 1 available for issue

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ACOUSTICAL REPORT

DA APPLICATION

SHOP 8, 38-42 THE CORSO, MANLY NSW

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1.0 INTRODUCTION

Koikas Acoustics Pty Ltd has been engaged by Fishbowl Services to prepare an acoustical report to accompany a Development Application (DA) to the Northern Beaches Council seeking approval for the operation of the restaurant at Shop 8, 38-42 The Corso, Manly NSW on the ground and mezzanine floor levels.

The applicable criteria and assessment procedures are referenced from the Manly Development Control Plan 2013 Amendment 11 and Environmental Protection Authority's (EPA) Noise Policy for Industry (NPfI).

This report presents the results and findings of an acoustic assessment for the subject proposal. In-principle acoustic treatments and noise control recommendations are included (where required) so that the premises may operate in compliance with the nominated acoustic planning levels.

2.0 BACKGROUND INFORMATION

Koikas Acoustics has been advised that the current trading hours are between 11 am and 9 pm daily, and the maximum indoor dining capacity of around 20 patrons. No alcoholic beverage is served. This subject restaurant does not hold a liquor license.

The subject site and surrounding properties are identified on the aerial photograph included as Figure 1.

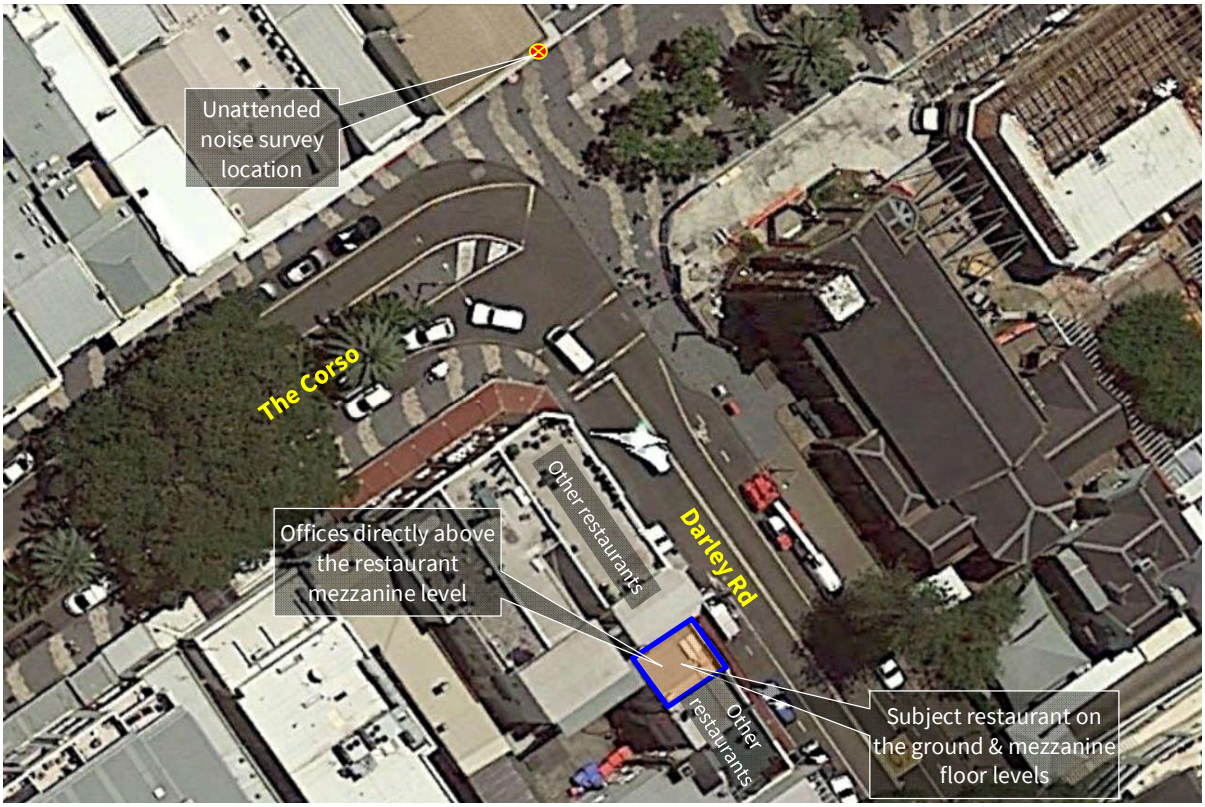

Figure 1. Aerial photo of the subject site and surrounding area (image source – Google Earth)

The identified nearest and most noise-impacted premises are the offices directly above the mezzanine level of the subject restaurant as shown in Figure 1 above.

Following the recent site inspection and consultation with the neighbours, this acoustic report assesses the dominant sound source of music from the subject restaurant and the resulting impact on nearby sensitive land uses, in this case, the office premises directly above. The noise control recommendations proposed are necessary to ensure that the subject premises comply with the nominated noise criteria. Other noise sources including mechanical plant are deemed to be insignificant on account of the high ambient noise level in the area (from other restaurants and retail/commercial activities).

3.0 NOISE MEASUREMENT

3.1 AMBIENT NOISE LOGGING

Existing external ambient noise levels were measured by installing a sound level meter data logger on top of the pedestrian awning along The Corso (See Figure 1). A Type 1 precision Svantek 977 noise logger was used for the survey. The installed location on the awning meant that the microphone was approximately 4.5 metres above the natural ground level.

The instrument was set-up to measure A-frequency and 'Fast' time-weighted noise levels. Noise level data was stored within the logger memory at 15-minutes intervals for one week between Wednesday 20 and Tuesday 26 February 2019.

Calibration readings were taken before and after each survey with a NATA calibrated and certified Larson Davis CAL200 precision acoustic calibrator. No system drift was observed for this meter.

BOM (Bureau of Meteorology) weather records for the nearest available weather station indicate that inclement weather conditions did not adversely impact on the noise survey.

The noise survey results are used to derive the project noise criteria applying to the premises. Full band noise levels are used to establish the criteria relevant to mechanical plant noise that is assessed under the NSW EPA Noise Policy for Industry 2017. Assessing noise from licensed premises requires a more detailed understanding of the spectral composition of the existing background noise. Tables 1 and 2 are summaries of the full band and 1/1 octave band noise survey results.

Table 1. Noise logging summary results [dB]

Location	EPA assessment period	RBL [LA90, Period]	Ambient [LAeq, Period]
The Corso (above the shop awning)	Day	57	63
	Evening	57	63
	Night	47	60
Notes: 1.	RBL – Rating Background Level as determined in accordance with the NPfI		

Table 2. Background noise levels in Octave Bands, $L_{A90,period}$ [dB]										
Period[1]	**1/1 octave band centre frequency [Hz]**									**Total**
	31.5	**63**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**	
Daytime	24	33	41	45	49	51	51	50	44	57
Evening	22	32	41	45	50	51	51	50	44	57
Night-time	12	23	35	40	42	41	40	37	27	47
Notes: 1.	The NSW EPA Industrial Noise Policy refers to the following periods: **Day** 7 am to 6 pm Monday to Saturday and 8 am to 6 pm Sunday and public holidays, **Evening** 6 pm to 10 pm Monday to Sunday, **Night** 10 pm to 7 am Monday to Saturday and 10 pm to 8 am Sunday and public holidays.									

Unattended noise survey summary is attached as **Appendix A** of this report.

3.2 ATTENDED NOISE MEASUREMENT

To further assist with the noise assessment, attended measurements were conducted on-site to establish typical music noise levels in the restaurant and within the offices directly above.

Music noise levels from the subject restaurant were measurement simultaneously on the mezzanine level of the restaurant and within the commercial offices above.

All measurements were conducted between 1400 and 1500 hours on Friday 12th May 2020 with two NATA certified and calibrated NTi Audio XL2 sound level meters. A summary of the survey results is included below:

Table 3. Music noise levels in Octave Bands, L_{Aeq} [dB]										
Music level	**Location**	**1/1 octave band centre frequency [Hz]**								**Total**
		31.5	**63**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**	
High	Mezzanine level	35	49	53	62	68	65	63	60	58	71
	Commercial offices	16	27	**40**	34	35	37	39	34	26	45
Medium	Mezzanine level	37	47	52	61	63	64	61	55	50	69
	Commercial offices	17	29	**38**	34	36	37	38	33	25	44
Low	Mezzanine level	33	45	50	54	59	60	58	55	51	65
	Commercial offices	13	27	31	32	34	36	39	35	27	43
-	Commercial offices (ambient noise level)	13	28	36	34	34	37	38	33	23	44
-	Commercial offices (ambient background noise level)	7	24	28	31	32	32	33	27	19	40

The above music noise levels were measured based on the repeated playing of a typical music track namely “LA PAZ X FISHBOWL 003” from an IPad. The music level on the IPad was set to:

- 80% for high;
- 60% for medium, and
- 40% for low.

The audible thumps described by the occupants of the offices have been identified as being 125 Hz octave band centre frequency.

4.0 NOISE IMPACT ASSESSMENT OF RESTAURANT MUSIC NOISE

4.1 ACOUSTIC REQUIREMENTS

4.1.1 EPA Noise Policy For Industry

Noise emission design targets have been referenced from the NSW Environmental Protection Authority Noise Policy (EPA) for Industry (NPfI). The NPfI replaces the former Industrial Noise Policy, also prepared by the EPA.

The NPfI is designed to assess environmental noise impacts associated with scheduled activities prescribed within the Protection of the Environment Operations (POEO) Act 1997, Schedule 1. It is also commonly used as a reference tool for establishing suitable planning levels for noise generated by mechanical plant and equipment and noise emission from commercial operations.

The guideline applies limits on the short-term intrusive nature of a noise or noise-generating development (project intrusive noise level), as well as applying an upper limit on cumulative industrial noise emissions from all surrounding development/industry (project amenity noise level).

The most stringent of the project intrusive noise level and project amenity noise level is applied as the **project noise trigger level**. The project noise trigger level is the point, above which noise emission from a source or development site would trigger a management response.

To be able to define the more stringent of the intrusive and amenity noise levels, the underlying noise metrics must be the same. As the intrusive noise level is defined in terms of an $L_{Aeq\ 15\ minutes}$ and the amenity noise level is defined in terms of an $L_{Aeq\ Period}$, a correction +3dB correction is applied to the project amenity noise level to equate the $L_{Aeq\ Period}$ to $L_{Aeq\ 15\ minutes}$. Generally, "offensive noise" is unlikely to occur when compliance with the EPA's NPfI is achieved.

4.1.2 Offensive Noise (POEO Act 1997 Definition)

The Protection of the Environment Operations Act 1997, defines 'offensive noise' as noise:

a) that, by reason of its level, nature, character or quality, or the time at which it is made, or any other circumstances:

1. *is harmful to (or is likely to be harmful to) a person who is outside the premises from which it is emitted, or*
2. *interferes unreasonably with (or is likely to interfere unreasonably with) the comfort*

or repose of a person who is outside the premises from which it is emitted, or

b) that is of a level, nature, character or quality prescribed by the regulations or that is made at a time, or in other circumstances, prescribed by the regulations.

4.1.3 Offensive Noise Checklist - EPA Noise Guide For Local Government (NGLG) 2013

The Environment Protection Authority (EPA) NGLG provides a checklist that is proposed to assist with establishing if a particular noise is offensive. The checklist is summarised as follows (with the inclusion of comments from Koikas Acoustics in blue based on noise measurements and inspection conducted on Friday 12th May 2020):

- Is the noise loud in an absolute sense? Is it loud relative to other noise in the area?
  The low-frequency music noise level (at 125 Hz) emanating from the subject restaurant creates thumps that would be perceived by a person as being annoying especially over prolonged periods.
- Does the noise include characteristics that make it particularly irritating?
  Yes, low-frequency thumps at 125 Hz.
- Does the noise occur at times when people expect to enjoy peace and quiet?
  No, the restaurant does not operate after 9 pm and the offices directly above normally operate until 6 pm.
- Is the noise atypical for the area?
  There are other noise sources from kitchen exhaust fans and refrigeration units from other nearby commercials/restaurant premises, however, the music noise level in question with low thumps is from the subject restaurant only.
- Does the noise occur often?
  The subject restaurant is reported being operating between 11 am and 9 pm daily.
- Are several people affected by the noise?
  Yes, many people from the offices above have reported the thumps noise as being offensive.

Based on the above comments, the noise from the current restaurant music noise is "offensive" and further noise mitigation measures are required (provided in Section 4.3 of this report).

4.1.4 AS 2107:2015

Further to the above external noise criterion level which is applicable at the affected external boundaries, the *Australian Standard AS2107-2016 Recommended design sound levels and reverberation times for building interiors* has been referenced to determine appropriate indoor noise levels for the surrounding industrial premises which may include office areas. Koikas

Acoustics has adopted the recommended indoor design sound levels for offices in AS2107-2016. A summary of the applied indoor noise planning levels is also included in Table 2.

4.1.5 Project Noise Targets

The derivation of mechanical plant noise criteria is summarised in Table 1 below.

Table 4. Derivation of noise criteria – $L_{Aeq,15minutes}$ [dB]

Description	Ambient background L_{A90} noise level	Intrusive L_{A90} + 5 dB criterion level of NPfI	Recommended internal design level of the AS 2107
Within the offices	40	45	40~45

4.2 NOISE COMPLIANCE TESTING ASSESSMENT OF MUSIC NOISE LEVELS AND RECOMMENDATIONS

The music noise levels measured within the offices and shown in Table 3 of this report have indicated the compliance ($L_{Aeq} \leq 45$ dB) at all music playing levels (high, medium at low). However, considering that there is a low-frequency thump that will occur at 125 Hz, it is the opinion of Koikas Acoustics that music is played at “low” (40%) volume or the low-frequency component of music be reduced. This can be achieved with the installation of an RMS compressor limiter after the audio system and calibrated to reduce the 125 Hz component. All input devices must be connected to the RMS compressor limiter and a security cage be installed to minimse the potential for unauthorised personnel to tamper with those settings.

5.0 CONCLUSION

This report provides an assessment of noise emission from the restaurant at Shop 8, 38-42 The Corso, Manly concerning the Development Application (DA) as required by the Northern Beaches Council. The application seeks permission to operate between 11 am and 9 pm daily with music playing.

The basis for the assessment is to ensure that noise amenity is maintained for surrounding premises (in this case, offices directly above) as per the NPfI and AS 2107.

Noise level measurements and calculations derived from the subject premise to the offices indicate that music levels emanating from the subject restaurant will comply with the relevant acoustic criteria when the sound system is playing at “low” (40%) volume. As this volume is unlikely to be satisfactory, it is recommended that an RMS compressor limiter is installed between the audio system and the speakers to reduce the discrete frequency band (125 Hertz). This will allow music to be perceived by patrons as being satisfactory and limiting the bass beats to not louder than the background noise. All musical input devices must be connected to the RMS compressor limiter. The rms compressor limiter should be caged and padlocked to ensure unauthorised personnel do not tamper with the settings.

Koikas Acoustics believes that the above assessment report addresses the Council’s acoustic requirements.

APPENDIX A

APPENDIX A

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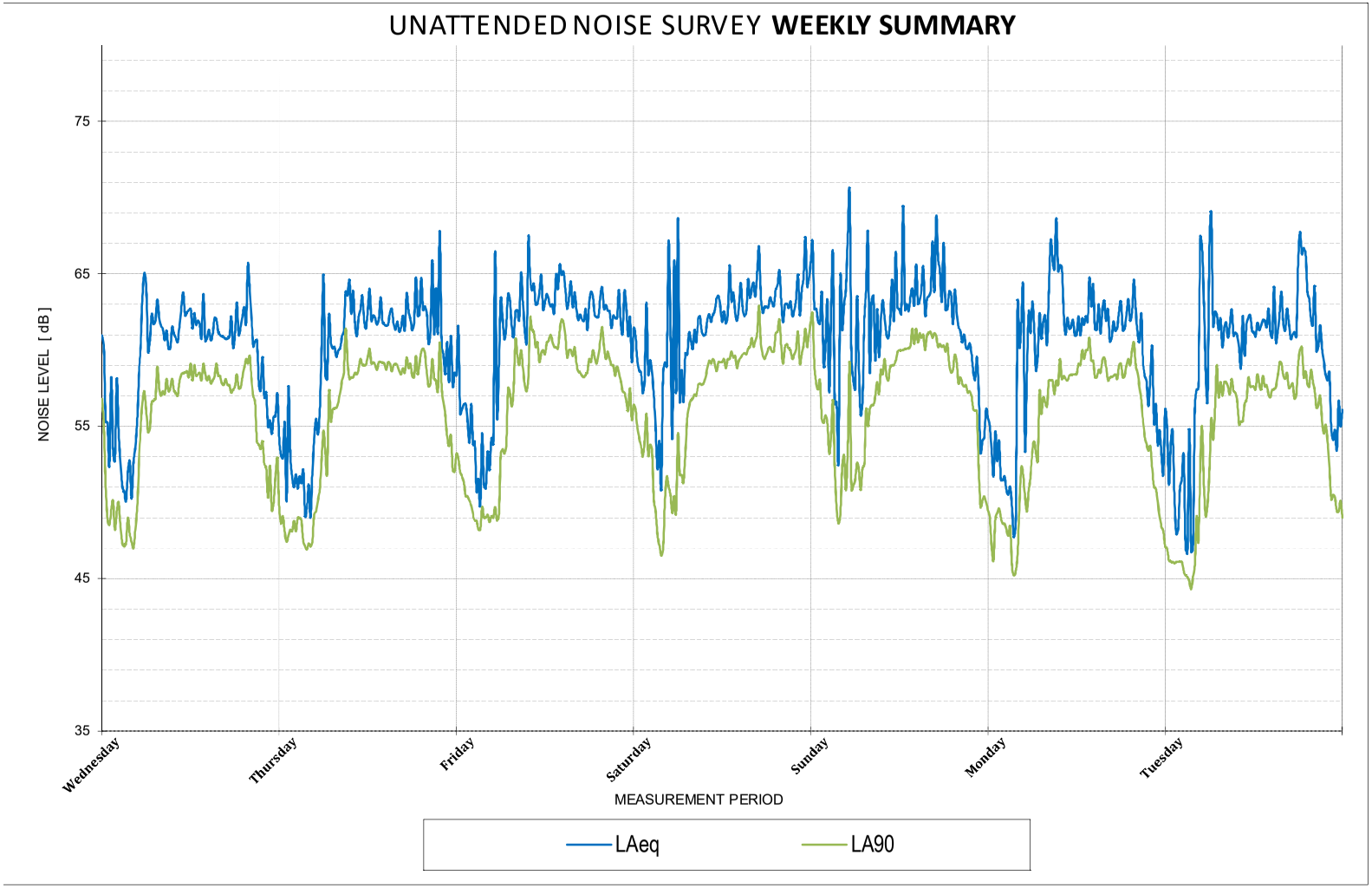
WEEKLY SUMMARY **LOGGER LOCATION:** 27 The Corso, Manly **PERIOD:** 20-26 February 2019



Sundays and Public Holidays the hours change to 0800

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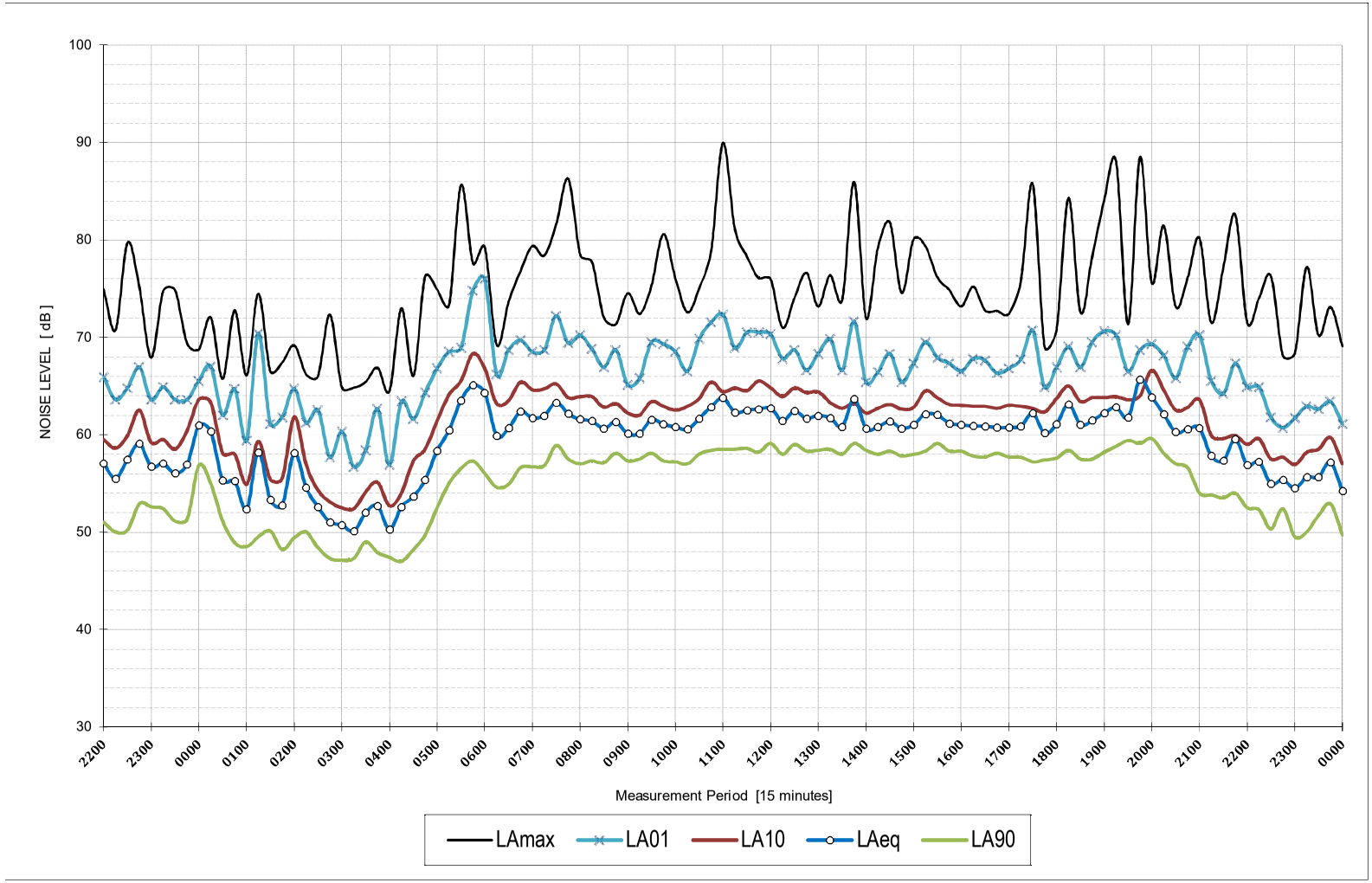
DAY 1 **LOGGER LOCATION:** 27 The Corso, Manly **DATE:** Wednesday, 20 February 2019



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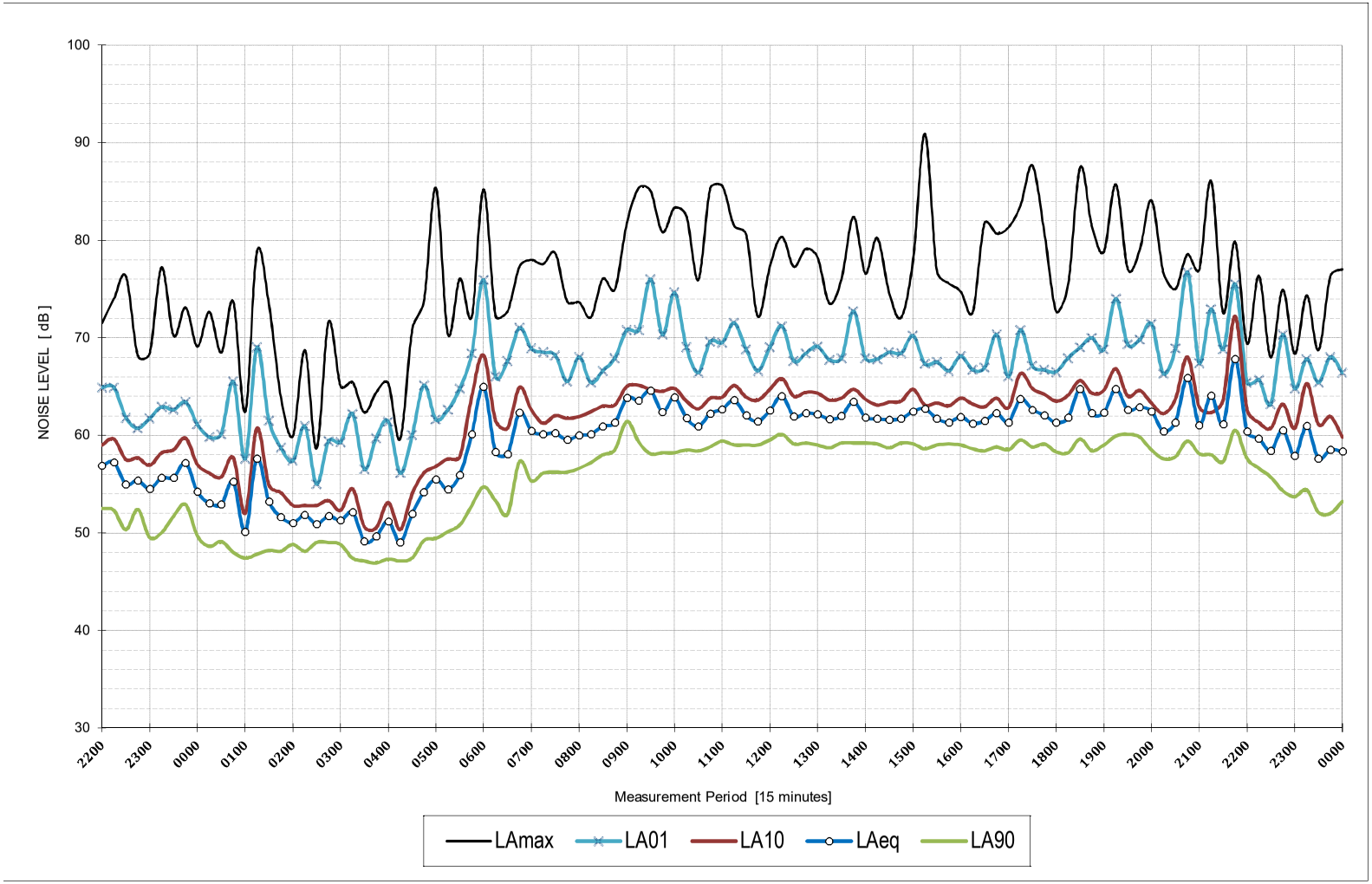
DAY 2 **LOGGER LOCATION:** 27 The Corso, Manly **DATE:** Thursday, 21 February 2019



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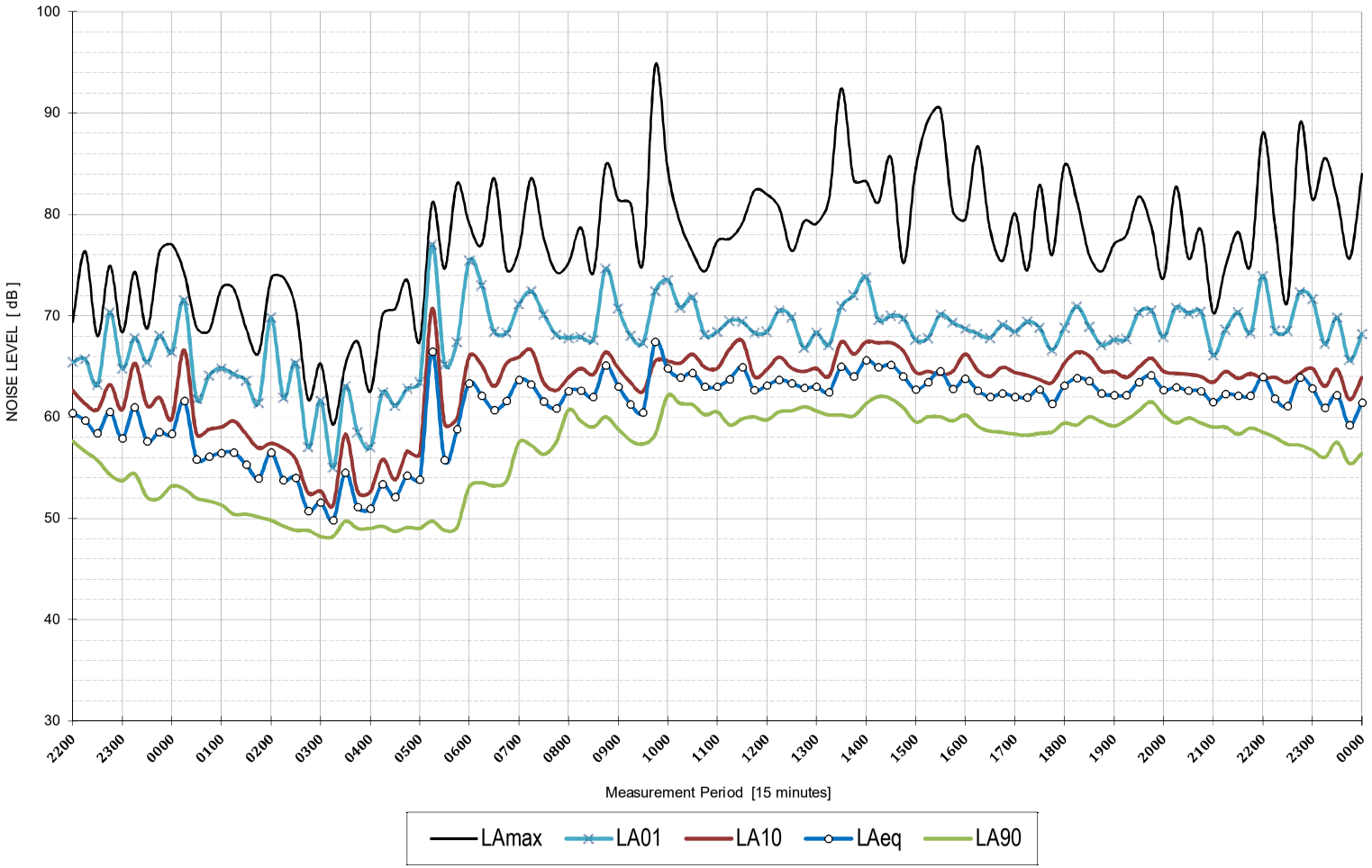
DAY 3 **LOGGER LOCATION:** 27 The Corso, Manly **DATE:** Friday, 22 February 2019



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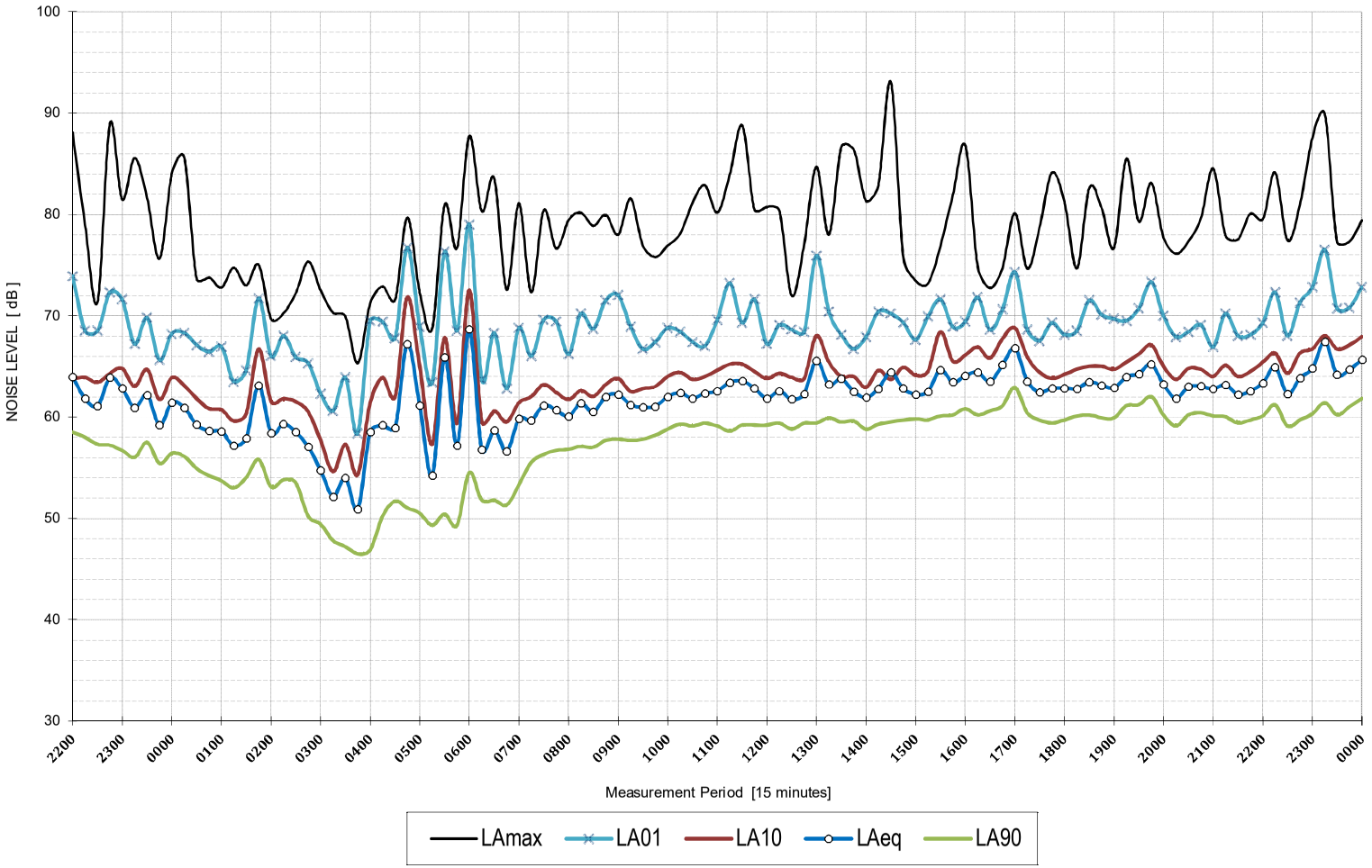
DAY 4 **LOGGER LOCATION:** 27 The Corso, Manly **DATE:** Saturday, 23 February 2019



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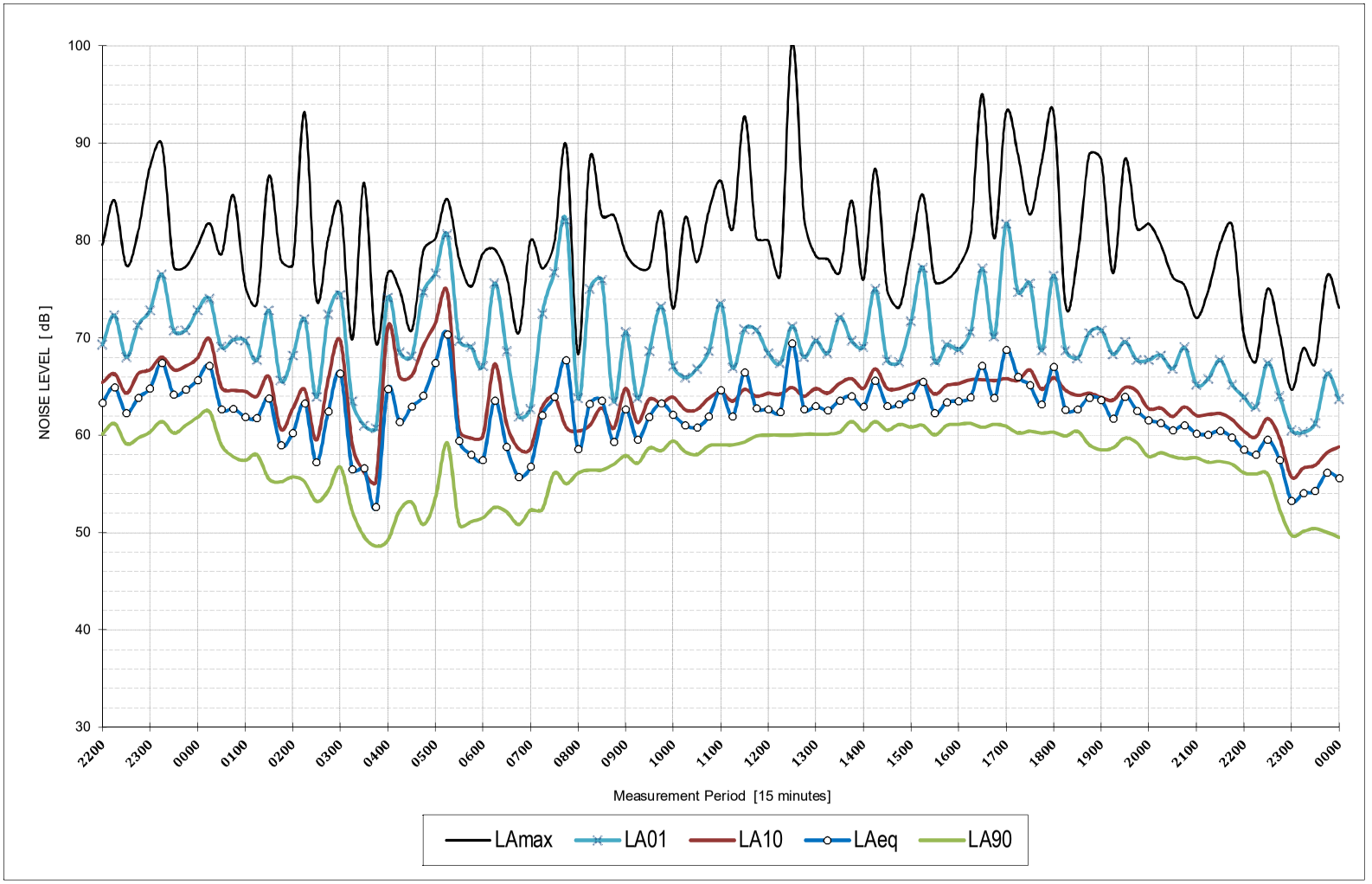
DAY 5 **LOGGER LOCATION:** 27 The Corso, Manly **DATE:** Sunday, 24 February 2019



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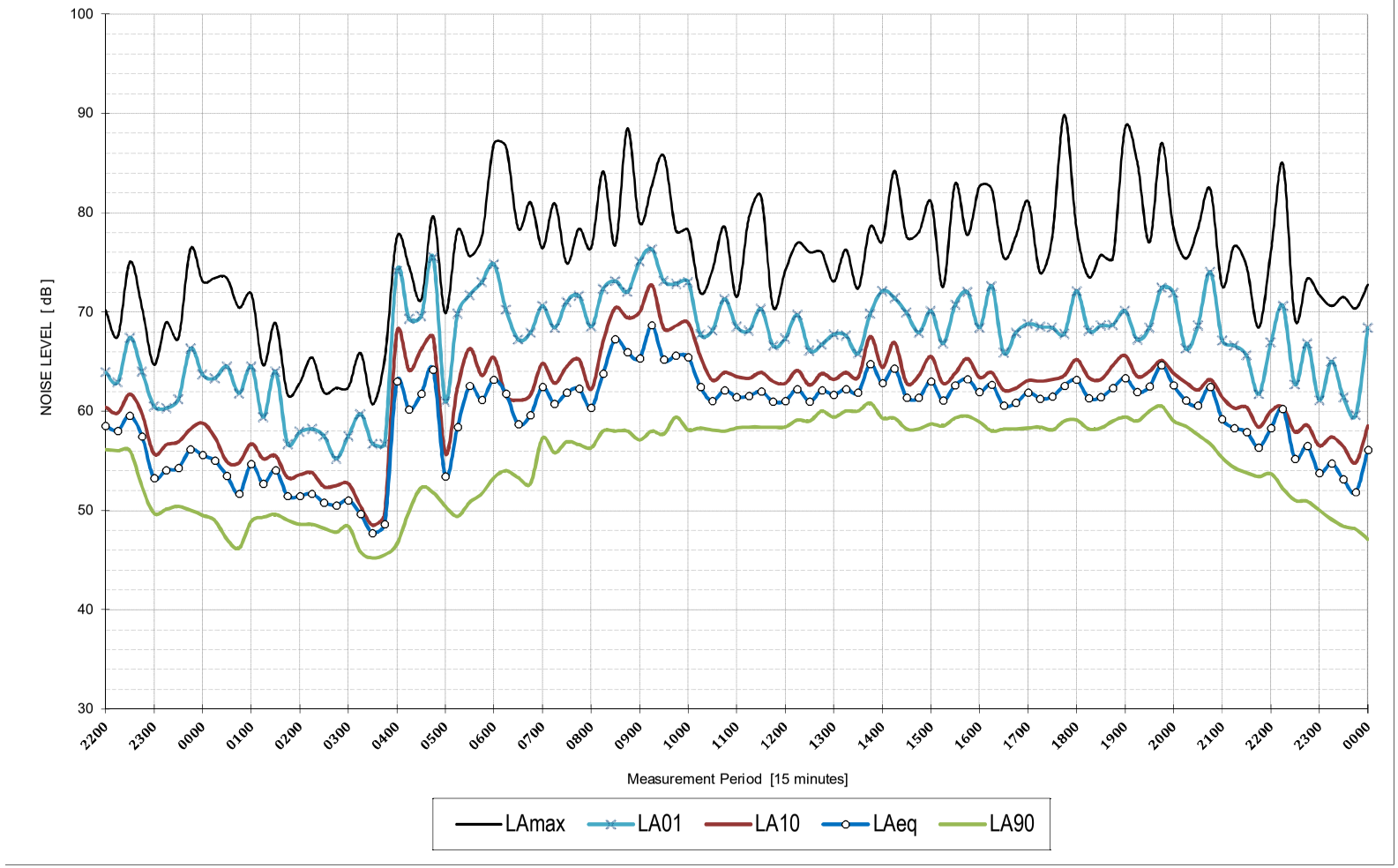
DAY 6 **LOGGER LOCATION:** 27 The Corso, Manly **DATE:** Monday, 25 February 2019



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DAY 7 **LOGGER LOCATION:** 27 The Corso, Manly **DATE:** Tuesday, 26 February 2019

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