

14/9 Powells Road, Brookvale

Patron Noise Assessment

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Attention To	7th Day Brewery Pty Ltd

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## 1 INTRODUCTION

This report presents an assessment of the potential noise impacts associated with the licensed venue located at 14/9 Powells Road, Brookvale.

In this report, we will:

- Identify noise sources associated with the use of the licensed venue;
- Assess the potential operational noise impacts associated with the subject proposal, based on Northern Beaches Council (Warringah) DCP, Office of Liquor and Gaming (OLG) and NSW EPA Noise Policy for Industry (NPI);
- If necessary, recommend management controls and building treatments to ensure noise emissions will comply with these guidelines.

This report is based on the architectural drawings provided by Demont Design, for detailed information please see below:

<b>Drawing No.</b>	<b>Drawing Title</b>	<b>Date</b>
01/13	Overview	10 <sup>th</sup> March 2018
02/13	Site/Analysis Plan	10 <sup>th</sup> March 2018
03/13	Floor Plan G.F. Existing	10 <sup>th</sup> March 2018
04/13	Floor Plan G.F. Proposed	10 <sup>th</sup> March 2018
05/13	Floor Plan MEZ Existing	10 <sup>th</sup> March 2018
06/13	Floor Plan MEZ Proposed	10 <sup>th</sup> March 2018
07/13	Brewery – Wet Area	10 <sup>th</sup> March 2018
08/13	TAP Room Calc	10 <sup>th</sup> March 2018
09/13	Accessible W.C.	10 <sup>th</sup> March 2018
10/13	Elevation - Front	10 <sup>th</sup> March 2018
11/13	Sections	10 <sup>th</sup> March 2018
12/13	Elevation – Internal 1&3	10 <sup>th</sup> March 2018
13/13	Elevation – Internal 2&4	10 <sup>th</sup> March 2018

## 2 SITE DESCRIPTION

The subject site is located at 14/9 Powells Road, Brookvale within an existing concrete shell building.

Nearest residential receivers is located at the conjunction of Short street and Wattle Road.

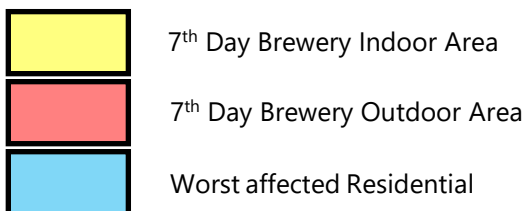
We have been advised of the following information with regards to the proposed venue:

- The hours of operation of the taproom with patrons are 11am until midnight Monday to Saturday and 11am to 10pm Sunday. The hours of operation of the brewery generally around 8am to 5pm.
- Maximum capacity of the proposed venue will be 150 patrons at any given time.
- Music to be played throughout the premise at all times.

Figure 1 below illustrates the locations of the subject property and nearest affected sensitive receivers.



**Figure 1: 7<sup>th</sup> Day Brewery Site and Receiver Locations**



### 3 NOISE DESCRIPTORS

Environmental noise constantly varies in level, due to fluctuations in local noise sources including noise from nearby road traffic. Accordingly, a 15 minute measurement interval is normally utilised. Over this period, noise levels are monitored on a continuous basis and statistical and integrating techniques are used to determine noise description parameters.

In the case of environmental noise three principle measurement parameters are used, namely  $L_{A10}$ ,  $L_{A90}$  and  $L_{Aeq}$ .

The  $L_{A10}$  and  $L_{A90}$  measurement parameters are statistical levels that represent the average maximum and average minimum noise levels respectively, over the measurement intervals.

The  $L_{A10}$  parameter is commonly used to measure noise produced by a particular intrusive noise source since it represents the average of the loudest noise levels produced by the source.

Conversely, the  $L_{A90}$  level (*which is commonly referred to as the background noise level*) represents the noise level heard in the quieter periods during a measurement interval. The  $L_{A90}$  parameter is used to set the allowable noise level for new, potentially intrusive noise sources since the disturbance caused by the new source depends on how audible it is above the pre-existing noise environment, particularly during quiet periods, as represented by the  $L_{A90}$  level.

The  $L_{Aeq}$  parameter represents the average noise energy during a measurement period. This parameter is derived by integrating the noise levels measured over the measurement period.  $L_{Aeq}$  is important in the assessment of traffic noise impacts as it closely corresponds with human perception of a changing noise environment; such is the character of industrial noise.

## 4 EXISTING AMBIENT NOISE SURVEY

A survey of the existing ambient noise levels in the area was determined based on unattended and attended noise monitoring.

The long-term monitoring was conducted using an Acoustic Research Laboratory's noise logger. The logger was set to A-weighted fast response and was programmed to store 15-minute statistical noise levels throughout the monitoring period. The monitor was calibrated at the start and end of the monitoring period using a Rion NC-73 9 Sarah St, Mascot NSW 2020 calibrator. No significant drift was noted.

Unattended noise monitoring was conducted in the locations as detailed in Figure 1 from 16<sup>th</sup> July 2020 to 24<sup>th</sup> July 2020. Attended measurements were also taken on the 16<sup>th</sup> July 2020 and compared with the monitoring data.

**Table 1 – Measured Rating Background Noise Levels**

Location	Time	Rating Background Noise Level dB(A) <sub>L<sub>90</sub></sub>
Nearby Residences	Day (7am-6pm)	46
	Evening (6pm-10pm)	43
	Night Time (10pm – 7am)	38

### 4.1 ATTENDED BACKGROUND NOISE SPECTRUM

An attended background noise measurement was also conducted to determine the existing background noise spectrum. A 15 minute measurement was conducted on the Thursday, 16<sup>th</sup> July 2020, from 3:00pm to 3:15pm, at the boundary of the project site.

**Table 2 – Background Noise Spectrum**

Frequency	31.5Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	dB(A)
Measured Background Noise Spectrum	47	46	43	37	35	33	29	20	15	38

Noise levels during the attended measurement period were not affected by inclement weather (i.e. wind speed >5m/s or any rain).



## 5 NOISE EMISSIONS CRITERIA

The noise criteria for this site is established from the following documents:

- Northern Beaches Council DCP (Former Warringah) 2014.
- Liquor & Gaming NSW (L&GNSW) acoustic requirements.
- NSW Department of Environment and Heritage, Environmental Protection Agency document – 'Noise Policy for Industry' (NPI) 2017.

### 5.1 NORTHERN BEACHES COUNCIL DCP (FORMER WARRINGAH) 2014

The Northern Beaches Council DCP (Former Warringah) 2014 does not specifically state any specific noise emission goals relating to patron noise or late-night trading.

### 5.2 LIQUOR & GAMING NSW (L&GNSW)

When assessing noise emissions from licensed premises, noise emissions must comply with the acoustic requirements generally imposed by L&GNSW. These guidelines relate to noise generated by patrons and by music. The requirements are set out below:

- The  $L_{90}$  noise level emitted from the premises shall not exceed 5dB above the background  $L_{90}$  sound level in any Octave Band Centre Frequency (31.5kHz to 8kHz inclusive) between the hours of 7:00am to 12:00 midnight when assessed at the boundary of the nearest affected residential premises.
- $L_{90}$  noise level emitted from the premises shall not exceed the background  $L_{90}$  sound level in any Octave Band Centre Frequency (31.5kHz to 8kHz inclusive) after midnight when assessed at the boundary of the nearest affected residential premises.

After midnight, noise emissions from the Place of Public Entertainment are to be inaudible within any habitable rooms in nearby residential properties.

The following assessment criteria have been determined based on the noise levels measured. These apply when measured outside the open window of a residential façade. The most sensitive period will be before 11:00pm as this is the quietest period in which the premises will operate.

**Table 3 – L&GNSW Noise Emission Objectives (Operational Noise) – dB(A)  $L_{10(15min)}$**

Time	31.5Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	A- wt
Day time Before 6pm (BG+5 dB(A))	58	58	55	49	47	46	43	32	27	<b>51</b>
Evening (6pm – 10pm) (BG+5 dB(A))	55	55	52	46	44	43	40	29	24	<b>48</b>
10pm – 12am (BG + 5 dB(A))	50	50	47	41	39	38	35	24	21	<b>43</b>

### 5.3 NSW EPA NOISE POLICY FOR INDUSTRY (NPI) 2017

The EPA NPI has two criteria which both are required to be satisfied, namely Intrusiveness and amenity. The NPI sets out acceptable noise levels for various localities. The policy indicates four categories to assess the appropriate noise level at a site. They are rural, suburban, urban and urban/industrial interface. Under the policy the nearest residential receivers would be assessed against the suburban criteria. Noise levels are to be assessed at the property boundary or nearby dwelling, or at the balcony or façade of an apartment.

#### 5.3.1 Intrusiveness Criterion

The guideline is intended to limit the audibility of noise emissions at residential receivers and requires that noise emissions measured using the  $L_{eq}$  descriptor do not exceed the background noise level by more than 5dB(A). Where applicable, the intrusive noise level should be penalised (increased) to account for any annoying characteristics such as tonality.

Background noise levels adopted are presented in Section 4.1. Noise emissions from the site should comply with the noise levels presented below when measured at nearby property boundary.

**Table 4 – Intrusiveness Noise Emission Goals**

Location	Period/Time	Intrusiveness Noise Emission Goal dB(A) $L_{eq}(15min)$
Nearby Residences	Day (7am-6pm)	51
	Evening (6pm-10pm)	48
	Night(10pm-7am)	43

#### 5.3.2 Amenity Criterion

The guideline is intended to limit the absolute noise level from all noise sources to a level that is consistent with the general environment.

The NSW EPA Industrial noise policy sets out acceptable noise levels for various localities. Table 2.1 on page 16 of the policy indicates 4 categories to distinguish different areas. They are rural, suburban, urban and urban/industrial interface. This site is categorised by suburban receivers.

The NSW EPA requires project amenity noise levels to be calculated in the following manner;

$$L_{Aeq,15min} = \text{Recommended Amenity Noise Level} - 5 \text{ dB(A)} + 3 \text{ dB(A)}$$

**Table 5 – Amenity Noise Emission Goals**

Type of Receiver	Time of Day	Recommended Noise Level dB(A) $L_{eq}(\text{period})$	Project Amenity Noise Level dB(A) $L_{eq}(15 \text{ minute})$
Residential – suburban	Day	55	53
	Evening	45	43
	Night	40	38
Commercial	When in Use	65	-

The NSW EPA Noise Policy for Industry (2017) defines;

- Day as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays.
- Evening as the period from 6pm to 10pm.
- Night as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays.

#### 5.4 SUMMARISED NOISE EMISSION CRITERIA

**Table 6 – L&GNSW Noise Emission Objectives (Operational Noise) – dB(A)  $L_{10}(15\text{min})$**

Time	31.5Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	A- wt
Day time Before 6pm (BG+5 dB(A))	58	58	55	49	47	46	43	32	27	<b>51</b>
Evening (6pm – 10pm) (BG+5 dB(A))	55	55	52	46	44	43	40	29	24	<b>48</b>
10pm – 12am (BG + 5 dB(A))	50	50	47	41	39	38	35	24	21	<b>43</b>

**Table 7 – Noise Emissions Criteria (NPI) – Mechanical Noise to Residents Surrounding Project Site**

Location	Time Period	Assessment Background Noise Level dB(A) $L_{90}$	Project Amenity Criteria dB(A) $L_{eq}$	Intrusiveness Criteria $L_{eq}(15\text{min})$
Residential – suburban	Day	53	53	<b>51</b>
	Evening	47	<b>43</b>	48
	Night	39	<b>38</b>	43

The project noise trigger levels are indicated by the bolded values in the table above.

## 6 NOISE EMISSIONS ASSESSMENT

### 6.1 OPERATIONAL NOISE SOURCES

Noise from the use of venue (including extended trading hours) will primarily be from the following noise sources:

- Noise from patrons.
- Noise from background music within the outdoor area.
- Noise from live music events.

An assessment for predicted noise levels emitted from noise sources above has been predicted to nearby sensitive receivers. The analysis presented in this section of the report has been based on the internal dimensions of the space and spatial layouts including awnings.

Noise emissions will be assessed with reference to the relevant criteria outlined in Section 5.4.

### 6.2 ACOUSTIC DATA

#### 6.2.1 Assessed Noise Levels

Noise emissions from the operation of the venue will be predicted to the closest residential receivers based on the following assumed noise levels.

- The average sound power level per patron within the venue has been taken as 77 dB(A)<sub>L10</sub> with 1 in 2 patrons talking at any given time, consistent with a retail food and beverage environment. The noise spectrum for patron noise is as follows:

**Table 8 – Noise Spectrum for Patron Speech Sound Power Level (External Areas)**

<b>31.5Hz</b>	<b>63Hz</b>	<b>125Hz</b>	<b>250Hz</b>	<b>500Hz</b>	<b>1kHz</b>	<b>2kHz</b>	<b>4kHz</b>	<b>8kHz</b>	<b>A-weighted level dB(A)<sub>L10</sub></b>
61	61	66	69	73	74	69	50	47	<b>77</b>

### 6.3 OPERATIONAL ASSUMPTIONS

Venue operation will be assessed to the most time sensitive period of operation, that being the late evening period (10pm – 12am) Assessment has been based on the following assumptions:

- 70 patrons located within the indoor area and 80 patrons located within the outdoor area. 1 in 2 patrons talking at any one time.
- Outdoor area to stop operation after 12:00am.
- Small Live Music Band in the indoor area.

## 6.4 PREDICTED NOISE LEVELS

The predicted noise levels from the venue operation are presented in the following tables. Predicted noise levels are based on the dimensions of the building, factor in losses due to distance attenuation and barrier effects (where applicable). Predicted noise emissions have been calculated on the assumption that the recommendations in Section 6.5 are implemented.

**Table 9 – Predicted External Noise Levels from Venue Operation**

Noise Source	Receiver Location	Time of Day		Octave Band Noise Levels, dB									A-wt
				31.5Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
Venue Operation (Patrons and Music)	Worst Affected Residential Receiver (9 Short Street)	Late Evening 10pm – 12am	Predicted Noise Level $L_{eq}$	30	30	25	23	23	23	21	15	<10	<b>28</b>
			External Criteria (BG + 5)	50	50	47	41	39	38	35	24	21	<b>43</b>
			Complies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

## 6.5 RECOMMENDATIONS

### 6.5.1 Patron Noise/venue Operation

The following building and management controls are required in order to achieve the noise emissions set out in section 6:

- Building Controls:
  - Detailed acoustic review of any new plant items (kitchen exhaust fans, air-conditioning or refrigeration equipment) should be undertaken at CC stage and noise emissions of proposed plant assessed against EPA Industrial Noise Policy noise emission criteria.
  - Any new doors accessing the new bar areas (new food retail, new bar) are to be fitted with a closing mechanism to ensure that they are not left open. Doors should be fitted with full perimeter and astragal acoustic seals.
  - Prominent notices shall be placed at the entry and exit to the outdoor terraces to remind patrons that a minimum amount of noise is to be generated whilst in the outdoor areas and patrons should be managed by the club to ensure noise generation is minimised.
- Management Controls:
  - i. All doors (entry or to outdoor area) are to remain closed during all live music.
  - ii. All live music is to cease operation prior to 12am.
  - iii. A noise limiter is to be installed to ensure the sound pressure level from the operation of the sound reinforcement system or amplified band does not to exceed 90dB(A)<sub>L10</sub> when measured within the space.
  - iv. Roller shutter is to remain closed during any live music event.
- Bottle/garbage removal to be done during business hours.

### 6.5.2 Mechanical Plant Noise

In the event that additional external plant is installed as part of the development, noise emissions from all mechanical services to the closest receiver should comply with the requirements of Section 5.4. Satisfactory levels will be achievable through appropriate plant selection, location and if necessary, standard acoustic treatments such as duct lining, acoustic silencers and enclosures. Based on the proposed use of the venue, refrigeration and ventilation/air conditioning equipment may be proposed at a later date. In this regard, we note:

- Locate mechanical plant as far as practicable from adjacent noise sensitive development. Noise screening (using either a dedicated noise screen or the building shell between the condensers and noise sensitive buildings) may be required.
- To ensure compliance with EPA NPI requirements during day, evening and night time, additional review is recommended following final plant selection and review of night time operational speeds.

Compliance with EPA acoustic criteria (as set out in Section 5.4) will be achievable, provided that detailed acoustic review of plant items is undertaken once plant is selected, and acoustic treatments such as silencers and lining of ductwork are adopted.

## 7 CONCLUSION

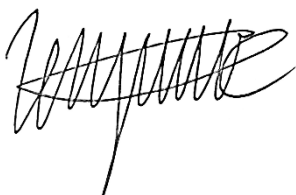
This report presents the results of the acoustic assessment of potential noise impacts associated with the proposed outdoor operating hours and increase in patron capacity located at, 14/9 Powells Road, Brookvale.

External noise emissions criteria have been established in this report to satisfy the requirements from the following documents:

- Northern Beaches City Council (former Warringah) LEP 2014.
- Liquor & Gaming NSW (L&GNSW) acoustic requirements.
- NSW Department of Environment and Heritage, Environmental Protection Agency document – 'Noise Policy for Industry' (NPI) 2017.

We trust this information is satisfactory. Please contact us should you have any further queries.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'Tony Xiao', with a stylized, cursive script.

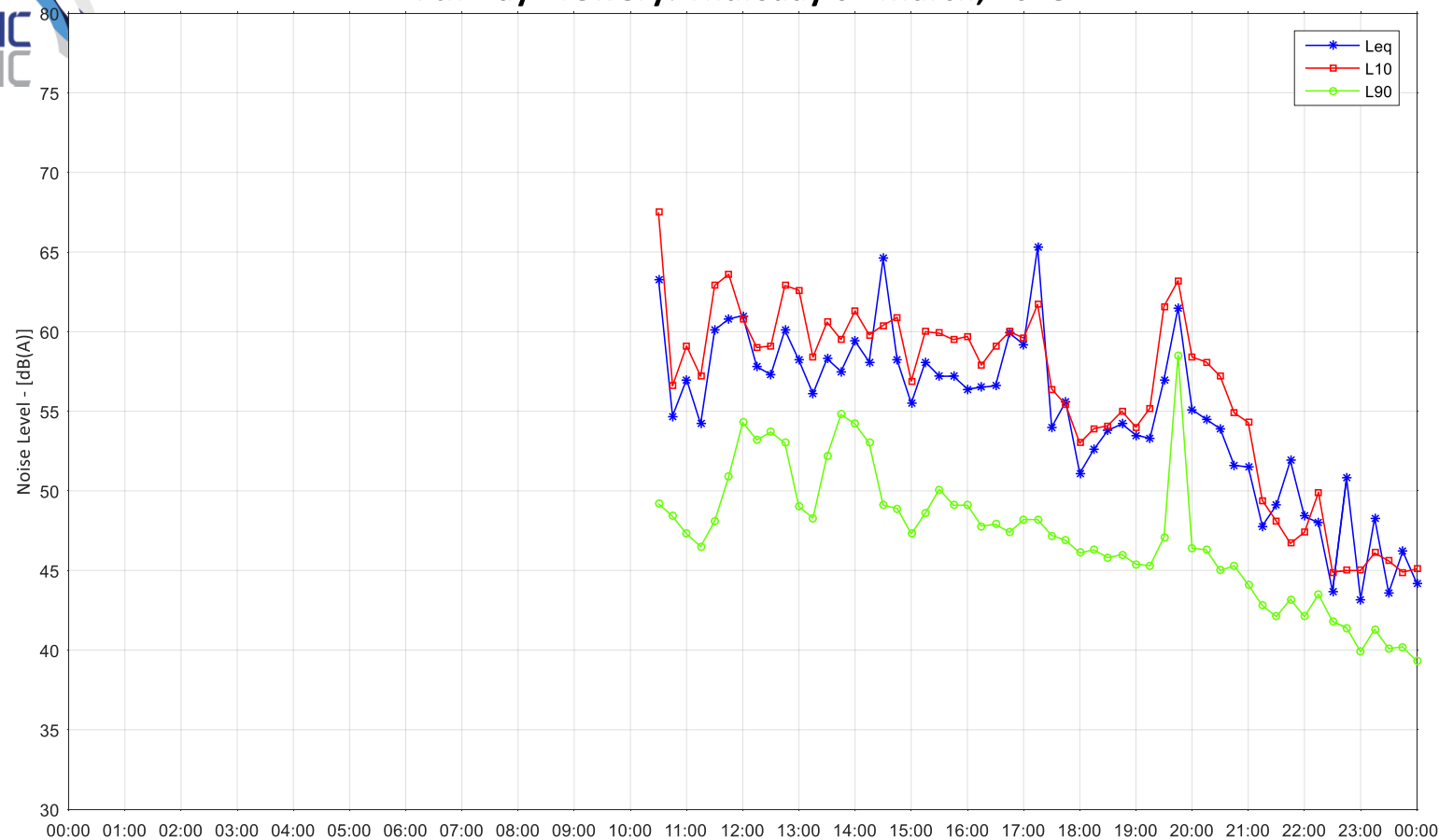
Acoustic Logic Pty Ltd  
Tony Xiao



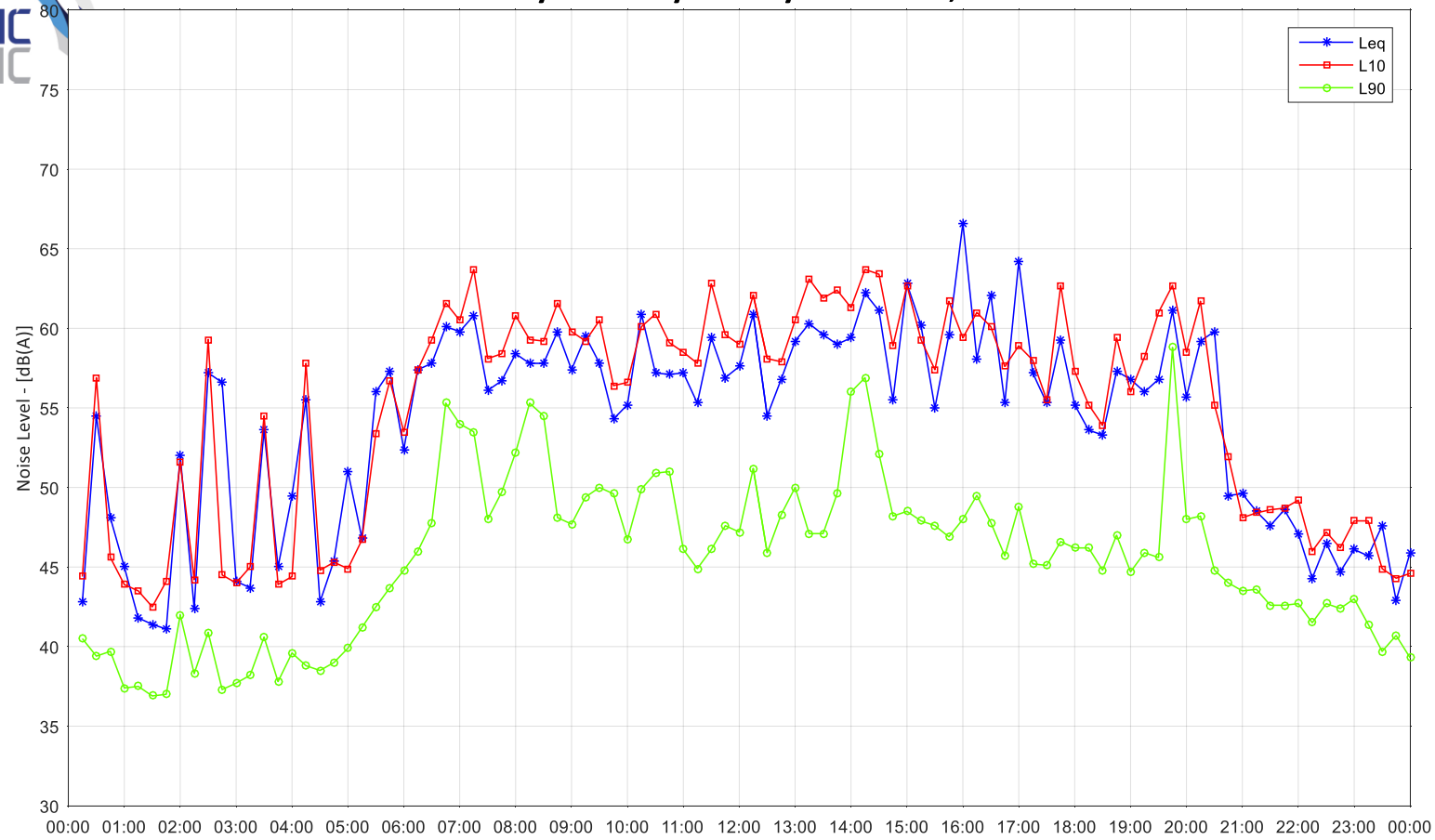
## APPENDIX A: UNATTENDED NOISE MONITORING DATA



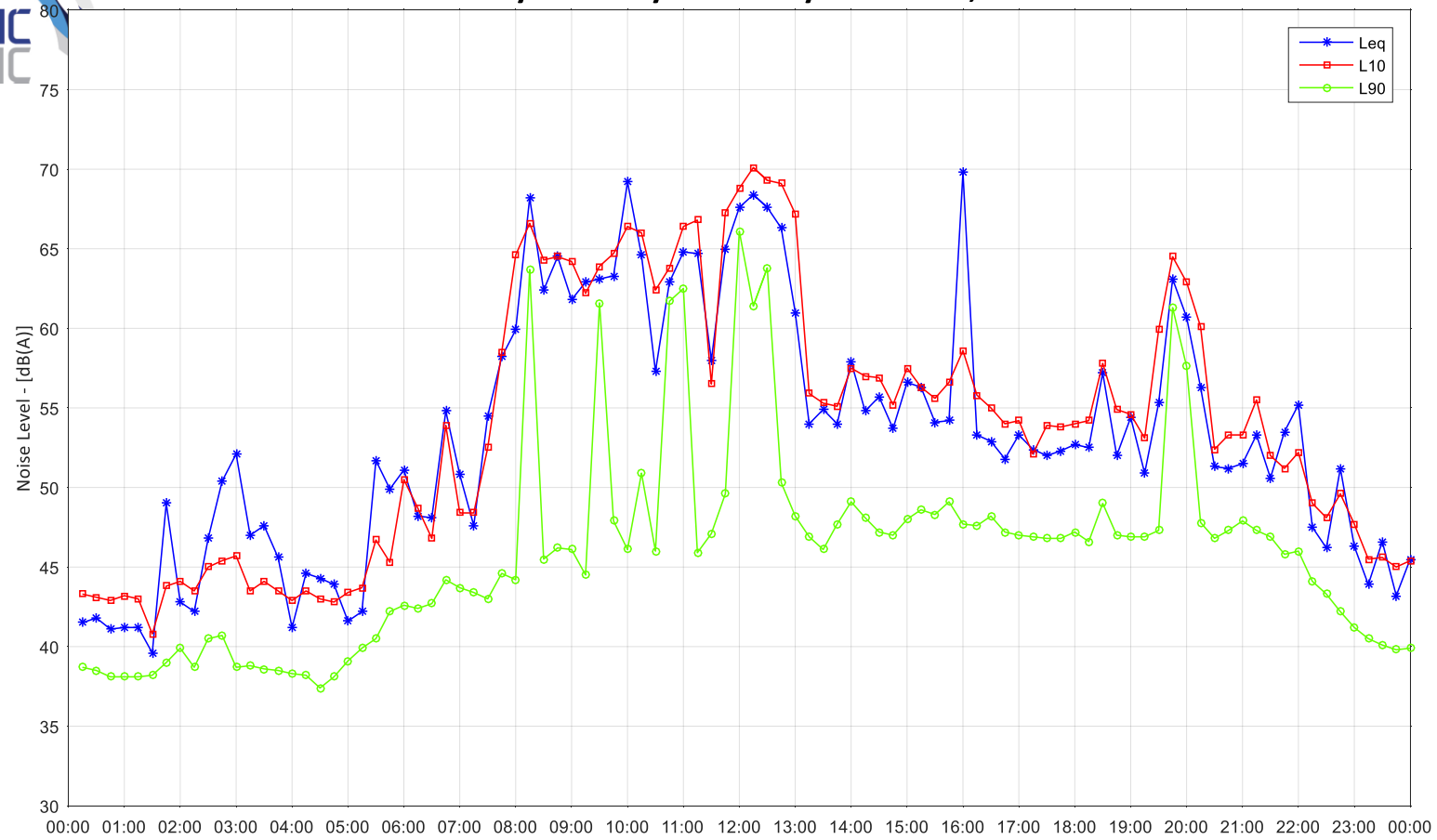
### 7th Day Brewery: Thursday 01 March, 2018



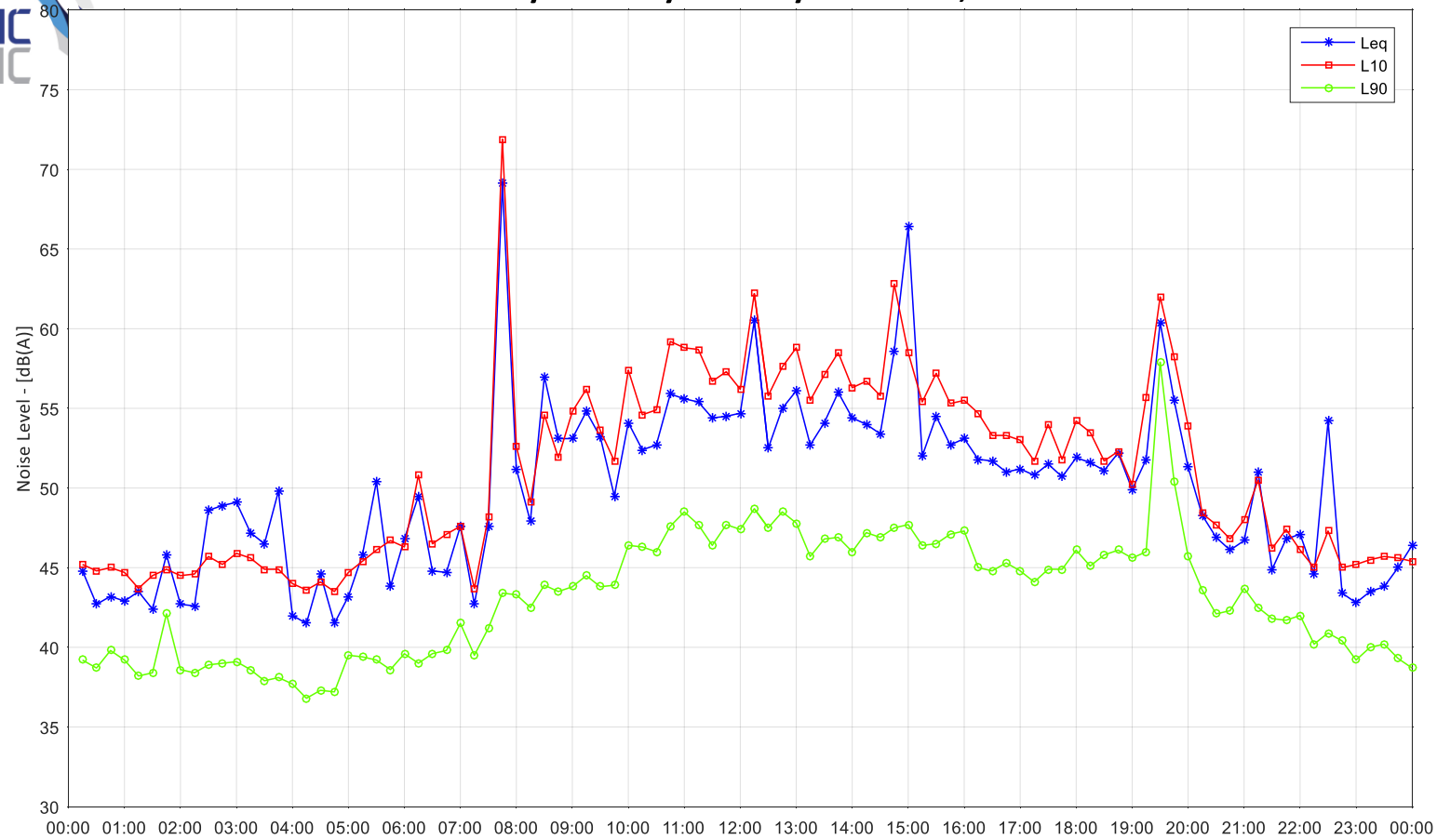
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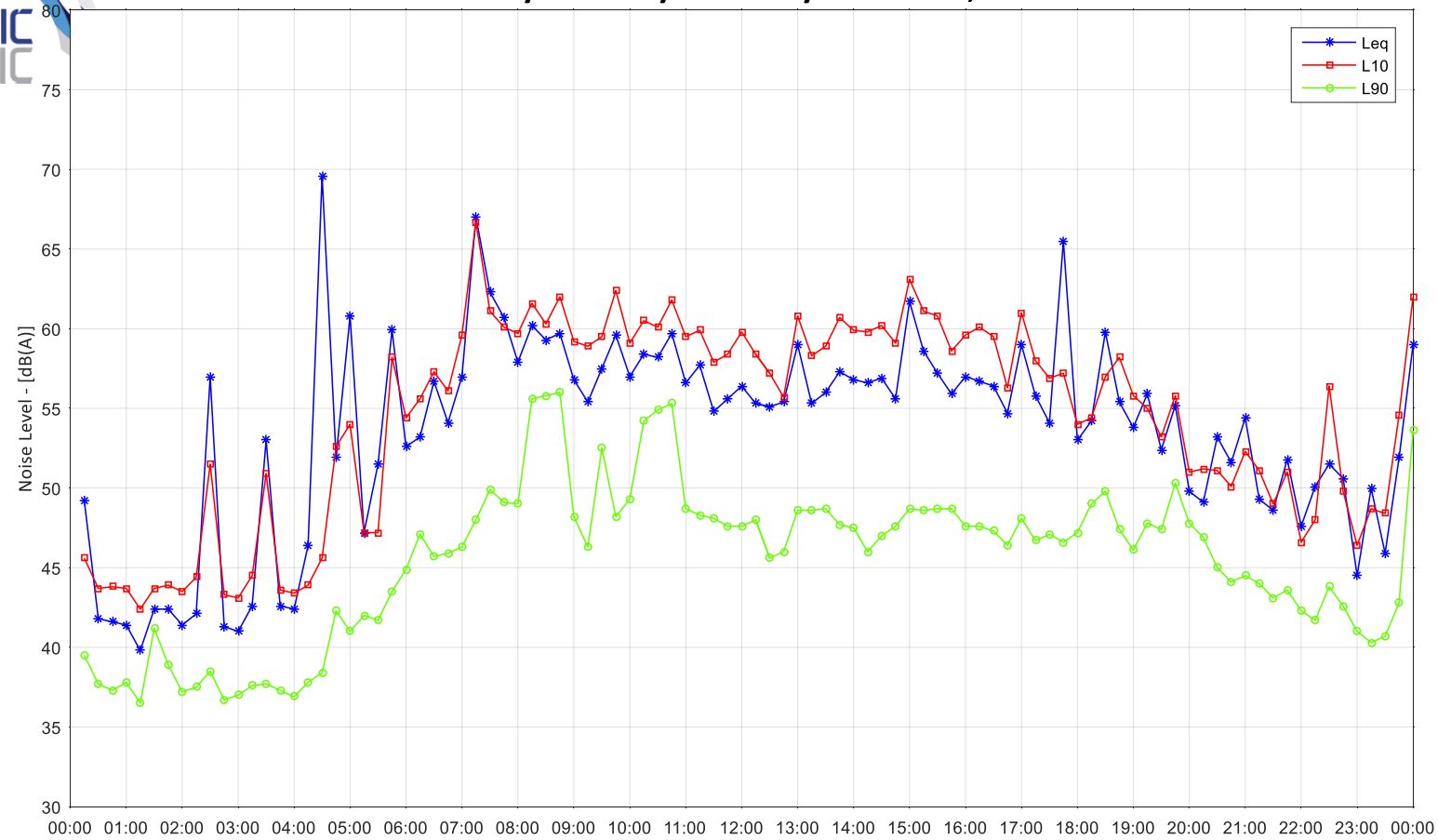
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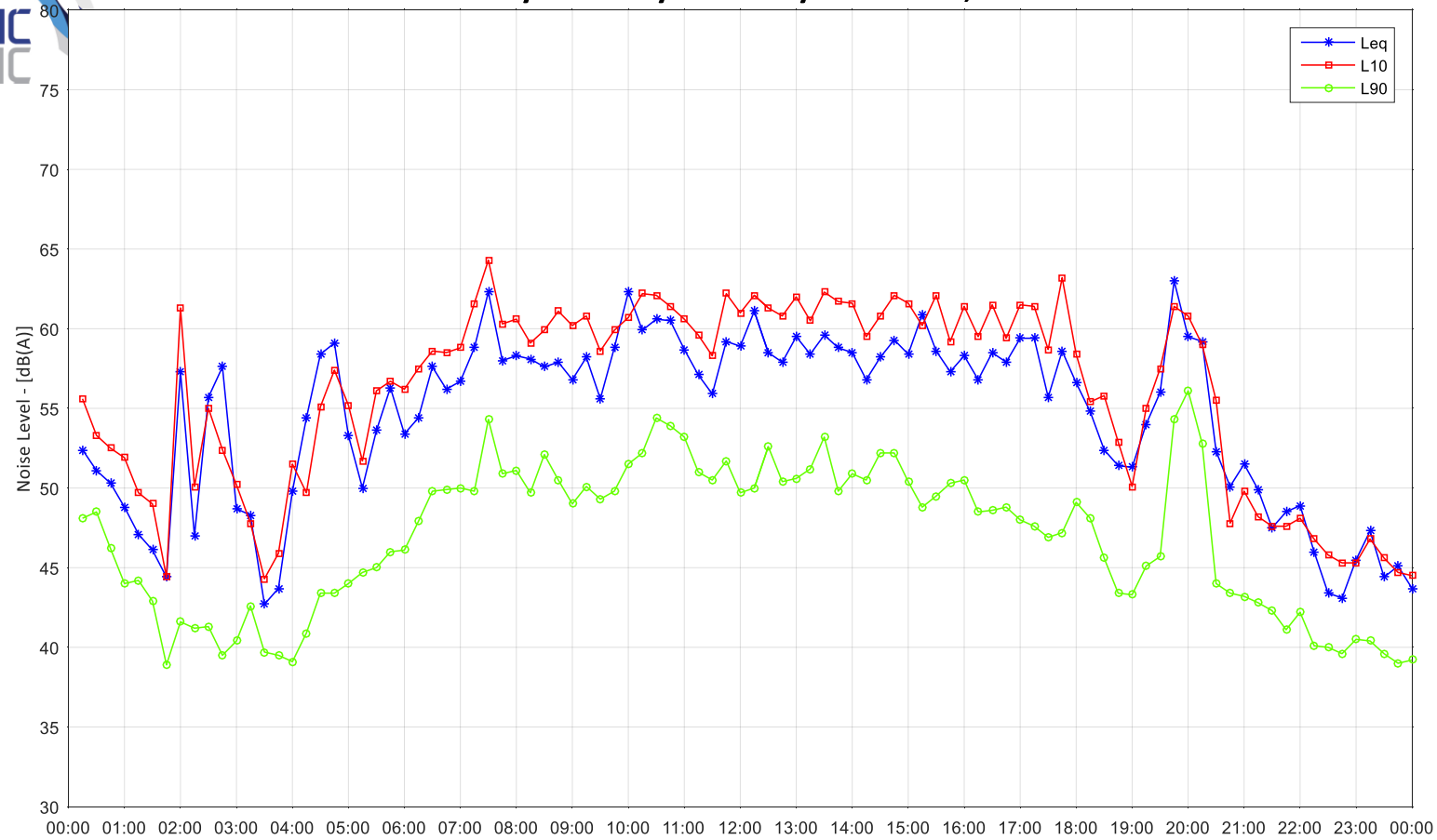
## 7th Day Brewery: Sunday 04 March, 2018



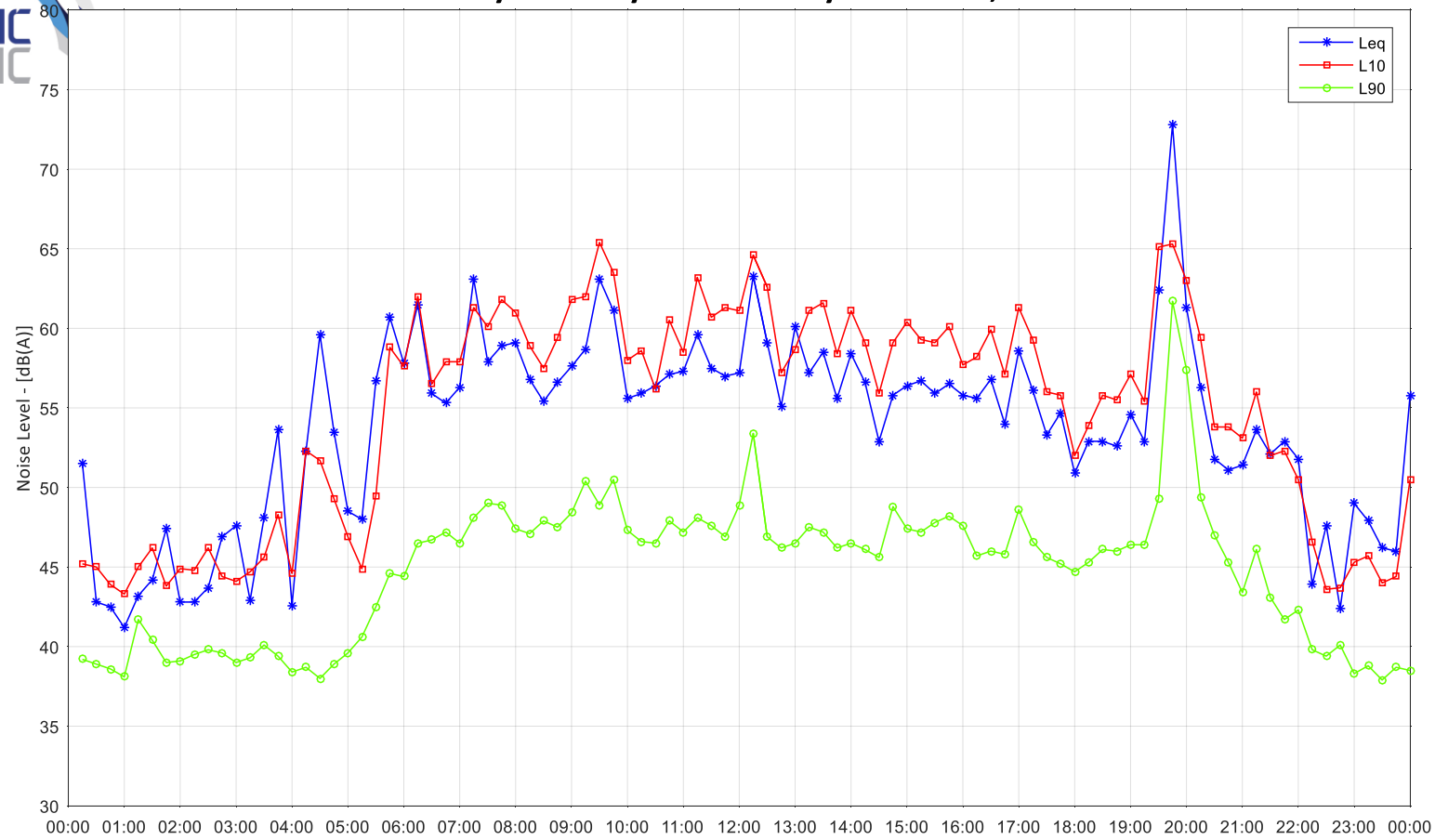
## 7th Day Brewery: Monday 05 March, 2018



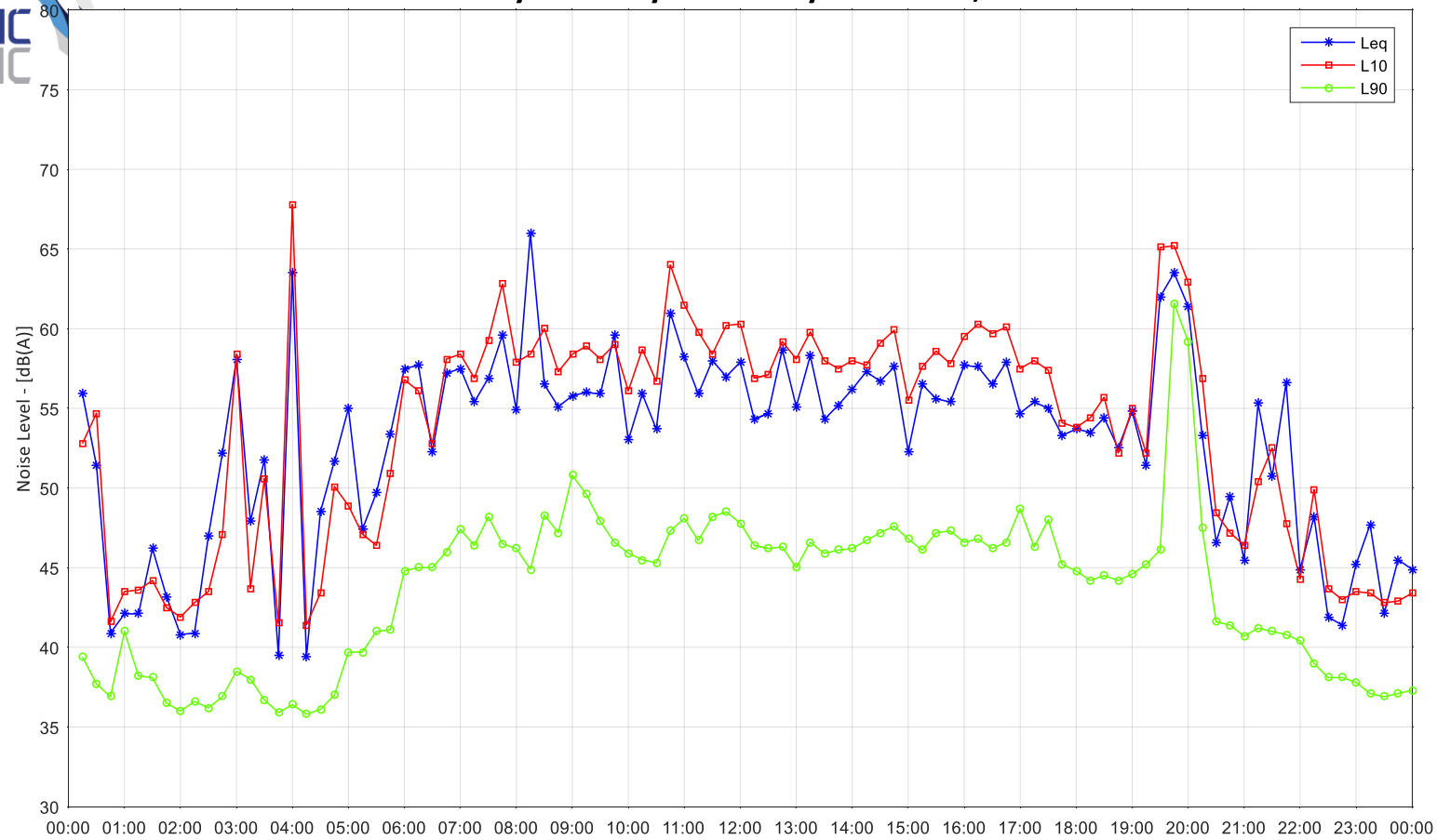
## 7th Day Brewery: Tuesday 06 March, 2018



## 7th Day Brewery: Wednesday 07 March, 2018



## 7th Day Brewery: Thursday 08 March, 2018





## 7th Day Brewery: Friday 09 March, 2018

