

## Tweed Valley Hospital Carpark

June Report

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Document Title	June Report
Attention To	ADCO Constructions Pty Ltd

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## 1 INTRODUCTION

Acoustic Logic has been engaged to carry out noise, dust and vibration monitoring for the impacts associated with the earthworks, excavation, and construction components of the Tweed Valley Hospital Carpark.

- Vibration Monitoring: 1<sup>st</sup> of June to 30<sup>th</sup> of June 2022;
- Noise Monitoring: 1<sup>st</sup> of June to 30<sup>th</sup> of June 2022; and
- Dust Monitoring: 1<sup>st</sup> of June to 30<sup>th</sup> of June 2022.

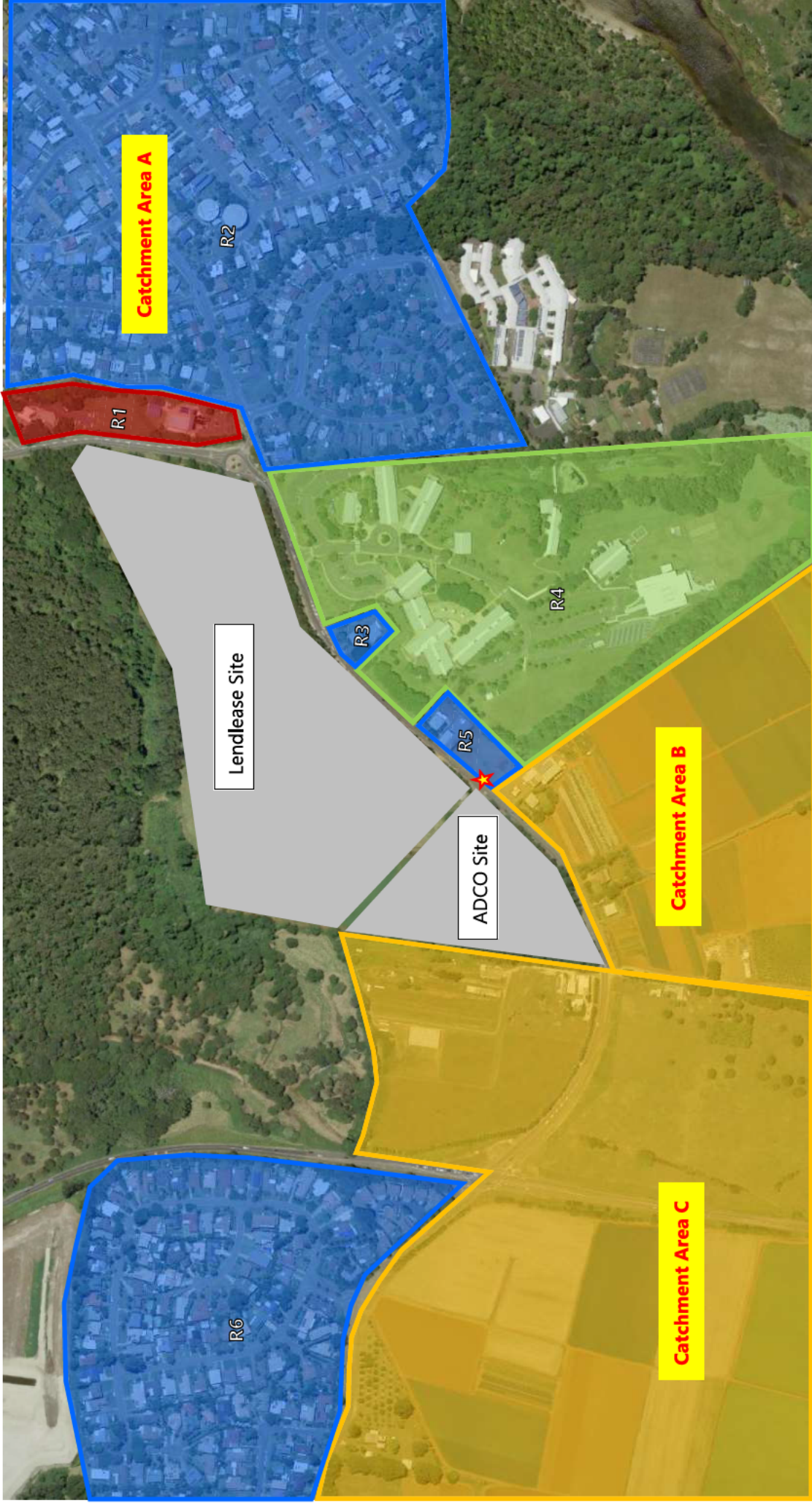
The location of the site is shown in [Figure 2-1](#) below. The location of the on-site monitors relative to the site has also been shown in [Figure 2-1](#).

The following Noise, Dust and Vibration Management levels have been derived from the Construction Noise, Dust and Vibration Management Plan, document reference 20211491.1/2911A/R2/OB.

## 2 SITE DESCRIPTION AND SENSITIVE RECEIVERS

The subject site is located on Cudgen Rd, Kingscliff as indicated in [Figure 2-1](#). The land uses surrounding the proposed multi-storey carpark site are existing commercial, residential and educational receivers. The nearest potentially most affected receivers are:

- **Receiver 1:** Tweed Regional Aquatic Centre – Kingscliff (east)
- **Receiver 2:** Residential dwellings located on 32-58 Cudgen Road (east)
- **Receiver 3:** Residential dwelling located at 792 Cudgen Road (south)
- **Receiver 4:** TAFE NSW – Kingscliff (south)
- **Receiver 5:** Residential dwelling located at 764 Cudgen Road (south)
- **Receiver 6:** Residential receivers at 6-30 John Robb Way (west)



**Figure 2-1 –Site and Sensitive Receiver Locations**



### 3 VIBRATION MONITORING

#### 3.1 VIBRATION CRITERIA

The following vibration monitoring criteria has been derived from the Construction Noise, Dust and Vibration Management Plan, document reference 20211491.1/2911A/R2/OB.

##### CONSTRUCTION VIBRATION CRITERIA

Vibration criteria for the nearest receivers will be based on the following documents:

- DIN 4150, 'Vibration in Buildings (2016-12)';
- EPA "Assessing Vibration: A technical guideline"; and
- ASHRAE Handbook 2007.

##### Summarised Recommended Vibration Limits

The summarised vibration criteria are presented in the table below.

Table 9 – Recommended Vibration Limit

Vibration Receiver	Recommended Vibration Limits PPV (mm/s)
Residential Buildings	5
Commercial/Other Buildings	20

#### 3.2 MEASUREMENT EQUIPMENT

Vibration monitoring was conducted using one Texcel ETM vibration monitor with an external tri-axial geophone. The monitor is programmed to store statistical vibration data over every 5-minute period, along with any 'triggered' events that occur throughout the monitoring period. The following Section presents the results of vibration monitoring for the period between the 1<sup>st</sup> of June to the 30<sup>th</sup> of June 2022.

#### 3.3 MEASUREMENT RESULTS

**Table 1 – Vibration Monitoring Results**

<b>Vibration Geophone Location</b>	<b>Date</b>	<b>Maximum Measured Vibration Level mm/s</b>	<b>Criteria Vibration Level</b>	<b>Complies</b>
Monitoring Location	2022-06-01	0.75	5mm/s PPV	Yes
	2022-06-02	0.81		Yes
	2022-06-03	2.91		Yes
	2022-06-04	0.72		Yes
	2022-06-05	0.72		Yes
	2022-06-06	0.8		Yes
	2022-06-07	0.97		Yes
	2022-06-08	0.93		Yes
	2022-06-09	6.86		Yes <sup>Note 1</sup>
	2022-06-10	1.42		Yes
	2022-06-11	0.75		Yes
	2022-06-12	0.71		Yes
	2022-06-13	0.74		Yes
	2022-06-14	0.8		Yes
	2022-06-15	1.76		Yes
	2022-06-16	1.41		Yes
	2022-06-17	1.28		Yes
	2022-06-18	0.72		Yes
	2022-06-19	0.87		Yes
	2022-06-20	0.85		Yes
	2022-06-21	1.91		Yes
	2022-06-22	0.77		Yes
	2022-06-23	1.15		Yes
	2022-06-24	1.1		Yes
	2022-06-25	0.87		Yes
	2022-06-26	0.66		Yes
	2022-06-27	0.8		Yes
	2022-06-28	1.38		Yes
	2022-06-29	0.76		Yes
	2022-06-30	0.86		Yes

Note 1: ADCO advised the battery was changed at the time of the exceedance, triggering measured vibration exceedance (not ADCO construction works). Other maximum vibration levels measured on this day did not exceed the criteria vibration level.



## 4 NOISE MONITORING

### 4.1 DEFINITION OF TERMS

Environmental noise is complex in nature. The noise level fluctuates from moment to moment and the noise characteristic can vary depending on the particular noise source in the vicinity (for example road, railway, and factory).

For this reason, various terms and descriptors have been developed to quantify the noise environment in a way that reflects human perception. The terms used in this noise assessment are described below:

#### **dB(A)**

Unit of loudness. The higher the number, the louder the noise. A change in noise level of up to 3 dB(A) is barely perceptible. A 5 dB(A) change is noticeable. A 10 dB(A) change is subjectively a doubling of noise.

#### **Noise Descriptors**

For time varying noise sources (such as traffic noise and general environmental noise) it is not possible to assess noise impacts based on a single instantaneous measurement. It is necessary to measure noise over a discrete period until a representative sample of noise has been obtained.

The descriptors used in this assessment are defined below.

#### **L<sub>1</sub>**

The sound pressure level that is exceeded for 1 percent of the time for which the given sound is measured.

#### **L<sub>10</sub>**

The sound pressure level that is exceeded for 10 percent of the time for which the given sound is measured.

#### **L<sub>90</sub>**

The sound pressure level that is exceeded for 90 percent of the time for which the given sound is measured.

#### **L<sub>Aeq</sub>**

Equivalent sound pressure level – steady sound level that, over a specified period, would produce the same energy equivalence as the fluctuating sound level actually occurring.

## 4.2 NOISE MANAGEMENT CRITERIA

### NOISE MANAGEMENT LEVEL

Establishment of criteria for construction noise requirements will be in accordance with the following documents.

- NSW Environmental Protection Authority, 'Interim Construction Noise Guideline';
- Australian Standard AS2107:2016; and
- Australian Standards AS2436:2010 Guide to Noise Control on Construction, Maintenance and Demolition Sites.

Location	Management level, dB(A) $L_{eq}$ (15 min)
Residential Receivers	<b><u>Recommended Standard Hours</u></b> "Noise Affected" Level – 55 "Highly Noise Affected" Level - 75
Commercial Receivers	70
Educational Receivers	45 (Internal)
Office Areas	
X-Ray Areas	
	50(Internal)

## 4.3 EQUIPMENT USED

Unattended noise monitoring was conducted using a *SiteHive Hexanode 134* noise and dust monitor. The monitor was programmed to store 15-minute statistical noise levels throughout the monitoring period. Measurements were taken on A-frequency weighting and fast time weighting.

## 4.4 MEASURED NOISE LEVELS

The available measured noise levels have been analysed by this office and the graphed noise data presented in Appendix 1.

Please note that the presented data represents the available monitoring data for the period described in [Table 2](#). Summarised results are also in [Table 2](#) below.

**Table 2 – Noise Monitoring Results**

<b>Date</b>	<b>Measured typical worst noise level dB(A) <math>L_{eq}</math> 15min</b>	<b>Noise Management Level dB(A) <math>L_{eq}</math> 15min "Highly Affected Noise"</b>	<b>Exceedance</b>
1/6/2022	70	75	No
2/6/2022	69		
3/6/2022	69		
4/6/2022	65		
5/6/2022	65		
6/6/2022	70		
7/6/2022	69		
9/6/2022	69		
10/6/2022	69		
11/6/2022	66		
12/6/2022	65		
13/6/2022	63		
14/6/2022	69		
15/6/2022	70		
16/6/2022	70		
17/6/2022	69		
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20/6/2022	69		
21/6/2022	69		
22/6/2022	69		
23/6/2022	69		
24/6/2022	69		
25/6/2022	65		
26/6/2022	64		
27/6/2022	70		
28/6/2022	69		
29/6/2022	69		
30/6/2022	68		

Note 1: Adverse weather events caused technical failures and limited maintenance works, impacting measurements between the 7<sup>th</sup> to 9<sup>th</sup> June.

## 5 DUST MONITORING

### 5.1 ASSESSMENT CRITERIA

Dust monitoring has been conducted to measure mechanically generated respirable PM<sub>2.5</sub> dust particles (< 2.5µm) and PM<sub>10</sub> dust particles (< 10µm), which are generally understood to be the main health concern in airborne dust. The air quality limits are based on the standards outlined in Department of the Environment's *National Environment Protection (Ambient Air Quality) Measure* and NSW EPA's air quality categories.

It should be noted that the dust monitoring results can be influenced by events such as fires and dust storms, thus the PM<sub>10</sub> limit has an allowance of 5 days per year to account for the effects of such events.

The PM<sub>2.5</sub> and PM<sub>10</sub> goals are summarised below.

**Table 3 – PM<sub>2.5</sub> and PM<sub>10</sub> Goals (24-Hour Average)**

Pollutant	Averaging Time	Maximum Concentration
PM <sub>2.5</sub>	24 hours	25 µg/m <sup>3</sup>
PM <sub>10</sub>	24 hours	50 µg/m <sup>3</sup>

The EPA has air quality categories based on particle concentration over a one hour average. As per the Construction Noise, Dust and Vibration management Plan, this project has targeted the 'Poor' category as a reference, **however, the assessment level is the 24-hour average.**

**Table 4 – PM<sub>2.5</sub> and PM<sub>10</sub> Goals (1-Hour Average)**

Pollutant	Air Quality Category	Maximum Concentration
PM <sub>2.5</sub>	Poor	62-97 µg/m <sup>3</sup>
PM <sub>10</sub>		80-120 µg/m <sup>3</sup>

### 5.2 MEASUREMENT DETAILS

#### 5.2.1 Equipment

The dust monitoring was conducted using a *SiteHive Hexanode 134* noise and dust monitor.

#### 5.2.2 Period

Dust monitoring was conducted from 01/06/2022 to 30/06/2022.

### 5.3 MEASUREMENT RESULTS

The daily average PM<sub>2.5</sub> and PM<sub>10</sub> concentration levels are presented below.

**Table 5 – 24hr Average PM<sub>2.5</sub> and PM<sub>10</sub> Concentration**

Date	24hr Average PM <sub>2.5</sub> and PM <sub>10</sub> Concentration					
	PM <sub>2.5</sub> Level (µg/m <sup>3</sup> )	PM <sub>2.5</sub> Limit (µg/m <sup>3</sup> )	Complies	PM <sub>10</sub> Level (µg/m <sup>3</sup> )	PM <sub>10</sub> Limit (µg/m <sup>3</sup> )	Complies
1/6/2022	3	25	Yes	20	50	Yes
2/6/2022	3		Yes	17		Yes
3/6/2022	4		Yes	28		Yes
4/6/2022	2		Yes	10		Yes
5/6/2022	1		Yes	7		Yes
6/6/2022	3		Yes	19		Yes
7/6/2022	2		Yes	20		Yes
9/6/2022	4		Yes	38		Yes
10/6/2022	4		Yes	30		Yes
11/6/2022	2		Yes	16		Yes
12/6/2022	2		Yes	9		Yes
13/6/2022	5		Yes	19		Yes
14/6/2022	5		Yes	21		Yes
15/6/2022	6		Yes	33		Yes
16/6/2022	5		Yes	32		Yes
17/6/2022	4		Yes	26		Yes
18/6/2022	2		Yes	12		Yes
19/6/2022	3		Yes	9		Yes
20/6/2022	3		Yes	10		Yes
21/6/2022	4		Yes	18		Yes
22/6/2022	4		Yes	22		Yes
23/6/2022	5		Yes	33		Yes
24/6/2022	4		Yes	33		Yes
25/6/2022	3		Yes	14		Yes
26/6/2022	2		Yes	10		Yes
27/6/2022	3		Yes	22		Yes
28/6/2022	5		Yes	17		Yes
29/6/2022	5		Yes	16		Yes
30/6/2022	5		Yes	20		Yes

Note 1: Adverse weather events caused technical failures and limited maintenance works, impacting measurements between the 7<sup>th</sup> to 9<sup>th</sup> June.

The **daily maximum 1hour** PM<sub>2.5</sub> and PM<sub>10</sub> concentration levels are presented below.

**Table 6 – 1Hr Maximum PM<sub>2.5</sub> and PM<sub>10</sub> Concentration**

Date	Maximum 1hr Average PM <sub>2.5</sub> and PM <sub>10</sub> Concentration					
	PM <sub>2.5</sub> Level (µg/m <sup>3</sup> )	PM <sub>2.5</sub> Limit (µg/m <sup>3</sup> )	Complies	PM <sub>10</sub> Level (µg/m <sup>3</sup> )	PM <sub>10</sub> Limit (µg/m <sup>3</sup> )	Complies
1/6/2022	5	62-97	Yes	44	80-120	Yes
2/6/2022	6		Yes	59		Yes
3/6/2022	9		Yes	89		Yes
4/6/2022	7		Yes	22		Yes
5/6/2022	3		Yes	17		Yes
6/6/2022	8		Yes	70		Yes
7/6/2022	6		Yes	76		Yes
9/6/2022	8		Yes	92		Yes
10/6/2022	8		Yes	73		Yes
11/6/2022	6		Yes	50		Yes
12/6/2022	6		Yes	33		Yes
13/6/2022	11		Yes	49		Yes
14/6/2022	9		Yes	38		Yes
15/6/2022	15		Yes	89		Yes
16/6/2022	17		Yes	117		Yes
17/6/2022	8		Yes	100		Yes
18/6/2022	5		Yes	24		Yes
19/6/2022	4		Yes	15		Yes
20/6/2022	4		Yes	16		Yes
21/6/2022	8		Yes	61		Yes
22/6/2022	10		Yes	66		Yes
23/6/2022	15		Yes	115		Yes
24/6/2022	9		Yes	121		Yes <sup>Note 1</sup>
25/6/2022	6		Yes	47		Yes
26/6/2022	4		Yes	21		Yes
27/6/2022	7		Yes	72		Yes
28/6/2022	8		Yes	24		Yes
29/6/2022	7		Yes	28		Yes

30/6/2022	7		Yes	35		Yes
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Note 1: PM<sub>10</sub> exceedance triggered outside of construction hours as advised by ADCO and as such is not resultant of ADCO construction works. Other 1-hour maximum average PM<sub>10</sub> levels measured on this day did not exceed PM<sub>10</sub> limit.

Note 2: Adverse weather events caused technical failures and limited maintenance works, impacting measurements between the 7<sup>th</sup> to 9<sup>th</sup> June.

## 6 CONCLUSION

Acoustic Logic Consultancy has carried out noise, dust and vibration monitoring for the month of June at the Tweed Valley Hospital Carpark. Earthworks and excavation are noted as the major activities undertaken during this monitoring period.

This monitoring report presents the noise and vibration monitoring for the periods as follows:

- Vibration Monitoring: 1<sup>st</sup> of June to 30<sup>th</sup> of June 2022;
- Noise Monitoring: 1<sup>st</sup> of June to 30<sup>th</sup> of June 2022; and
- Dust Monitoring: 1<sup>st</sup> of June to 30<sup>th</sup> of June 2022.

Adverse weather events caused technical failures limiting maintenance works, impacting measurements between the 7<sup>th</sup> to 9<sup>th</sup> June.

There were no exceedances as a result of construction works during the reporting period listed above, which demonstrates compliance with the conditions of consent.

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

Yours faithfully,



Acoustic Logic Pty Ltd



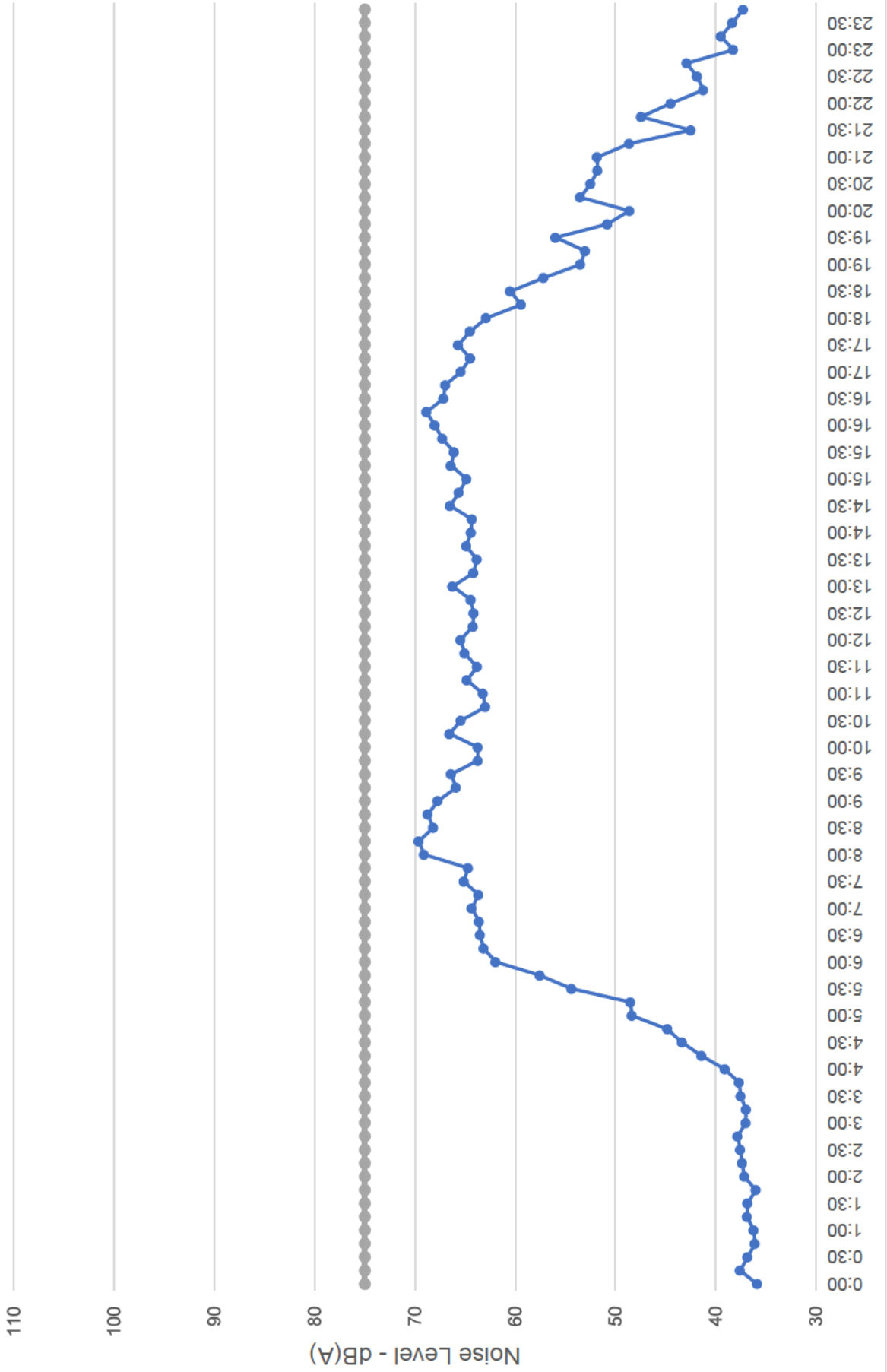
## APPENDIX 1 – NOISE MONITORING RESULTS





# Noise Monitoring: 01/06/2022

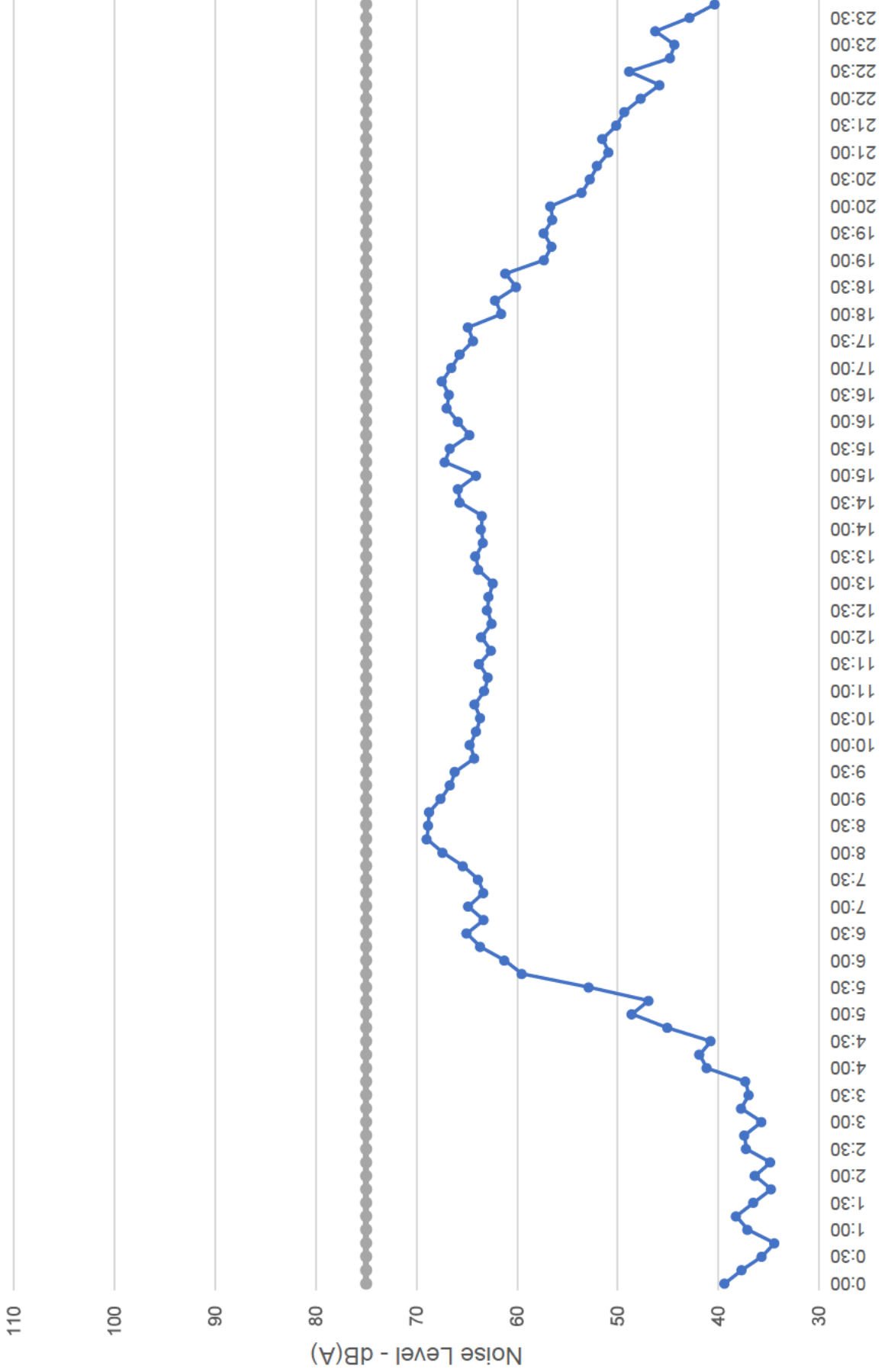
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# Noise Monitoring: 02/06/2022

—●— Leq      —●— Highly Noise Effected

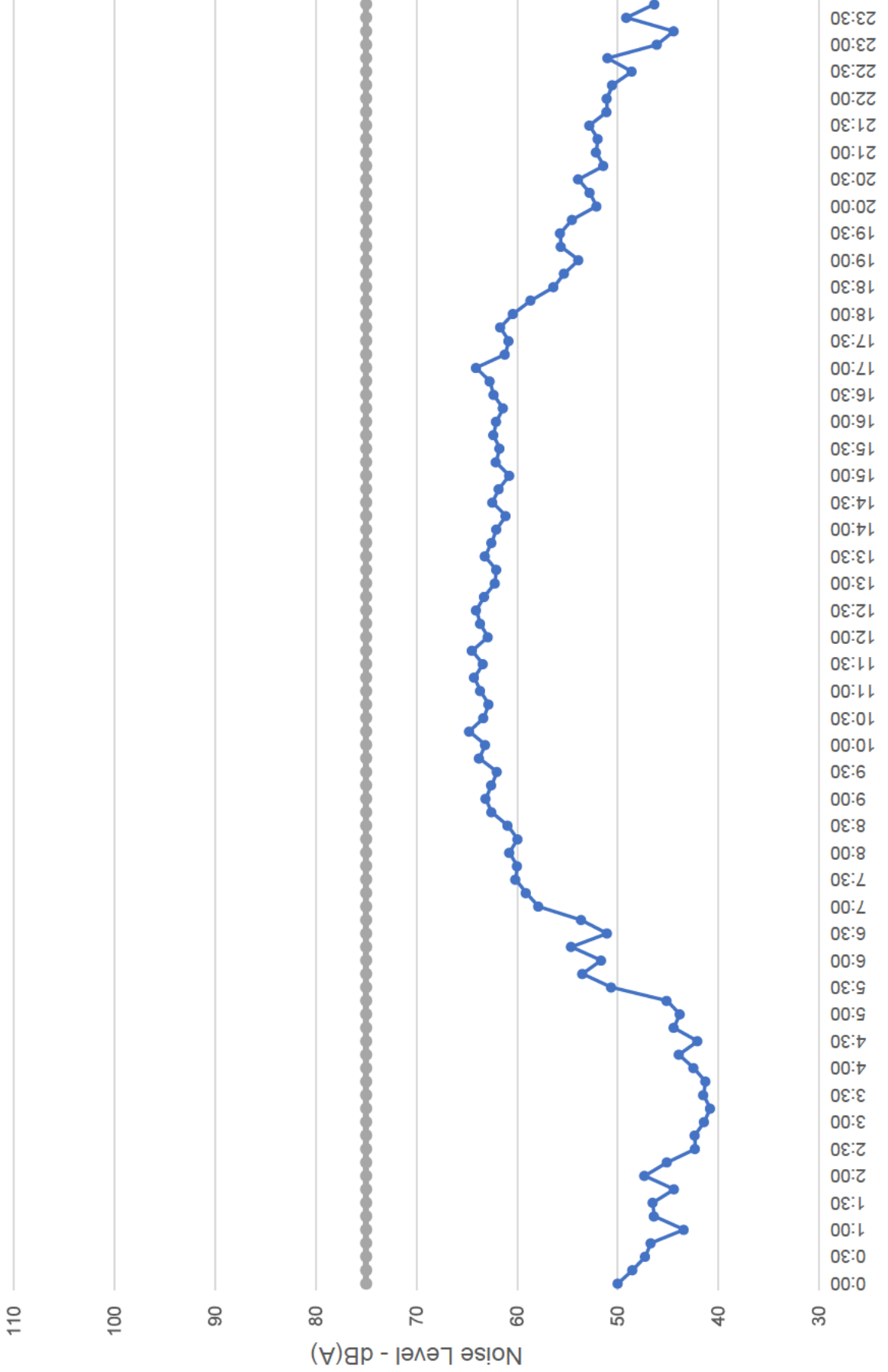




# ACOUSTIC LOGIC

Noise Monitoring: 03/06/2022

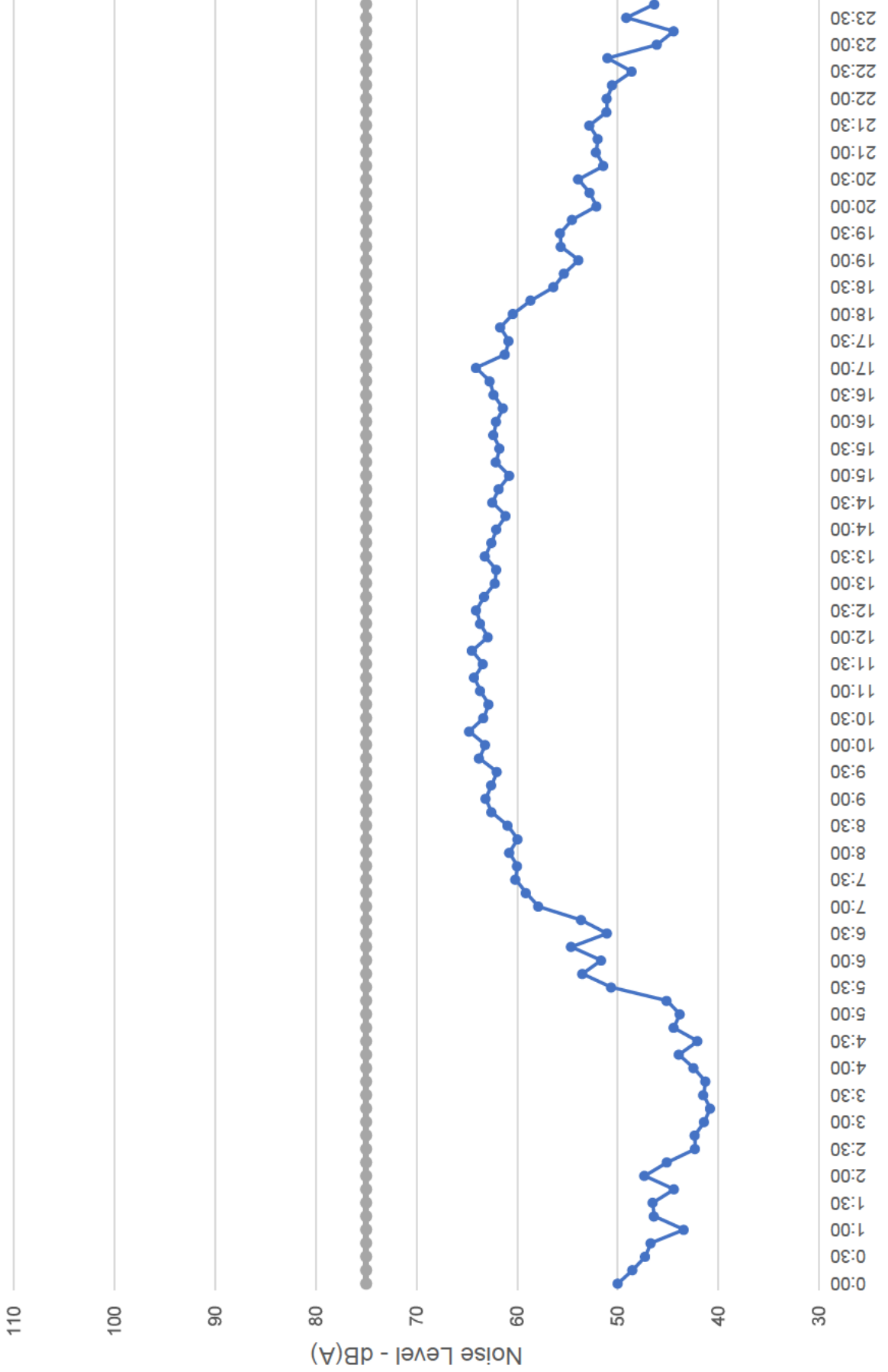
—●— Leq      —●— Highly Noise Effected





# Noise Monitoring: 04/06/2022

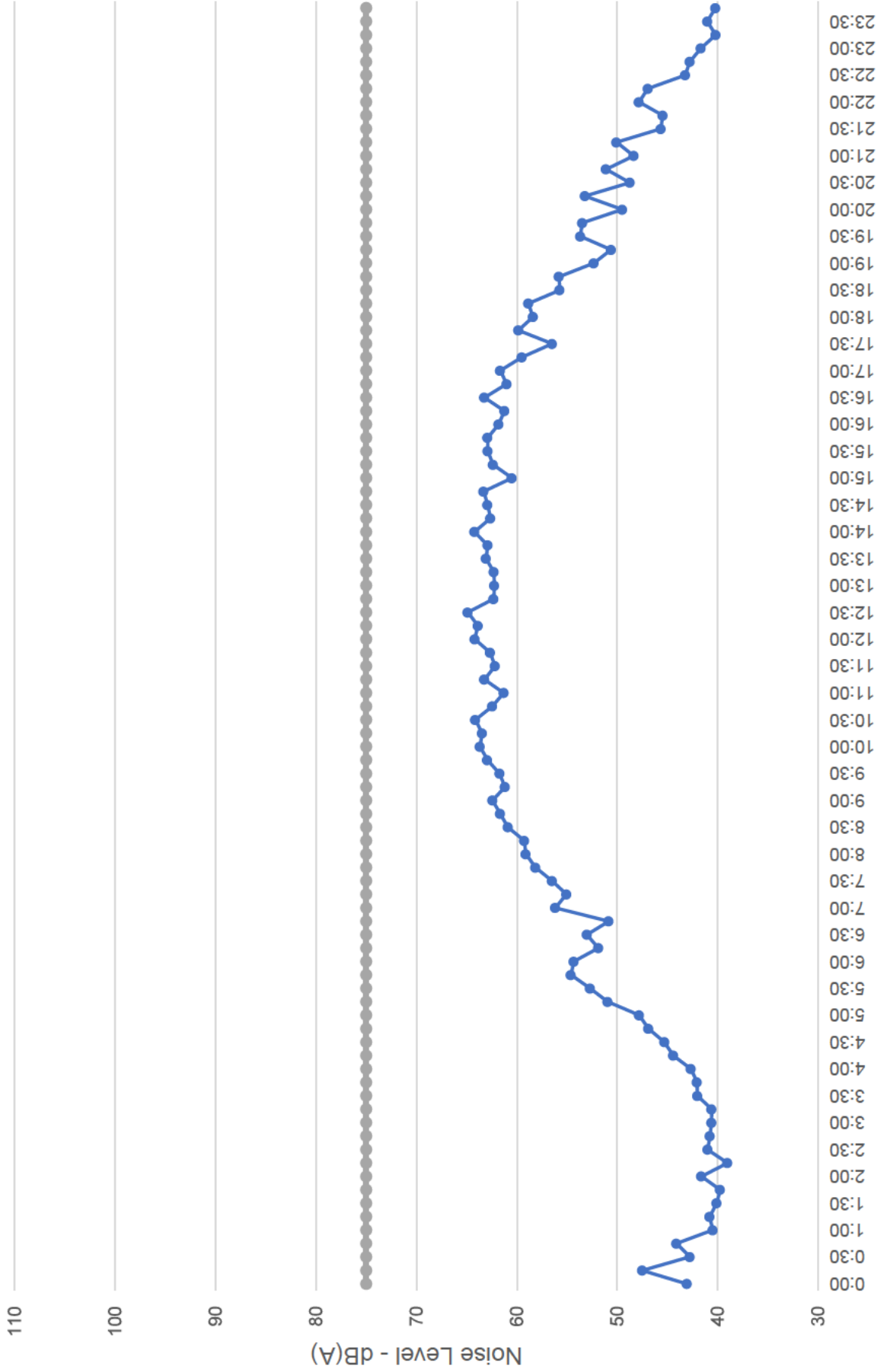
—●— Leq      —●— Highly Noise Effectuated





# Noise Monitoring: 05/06/2022

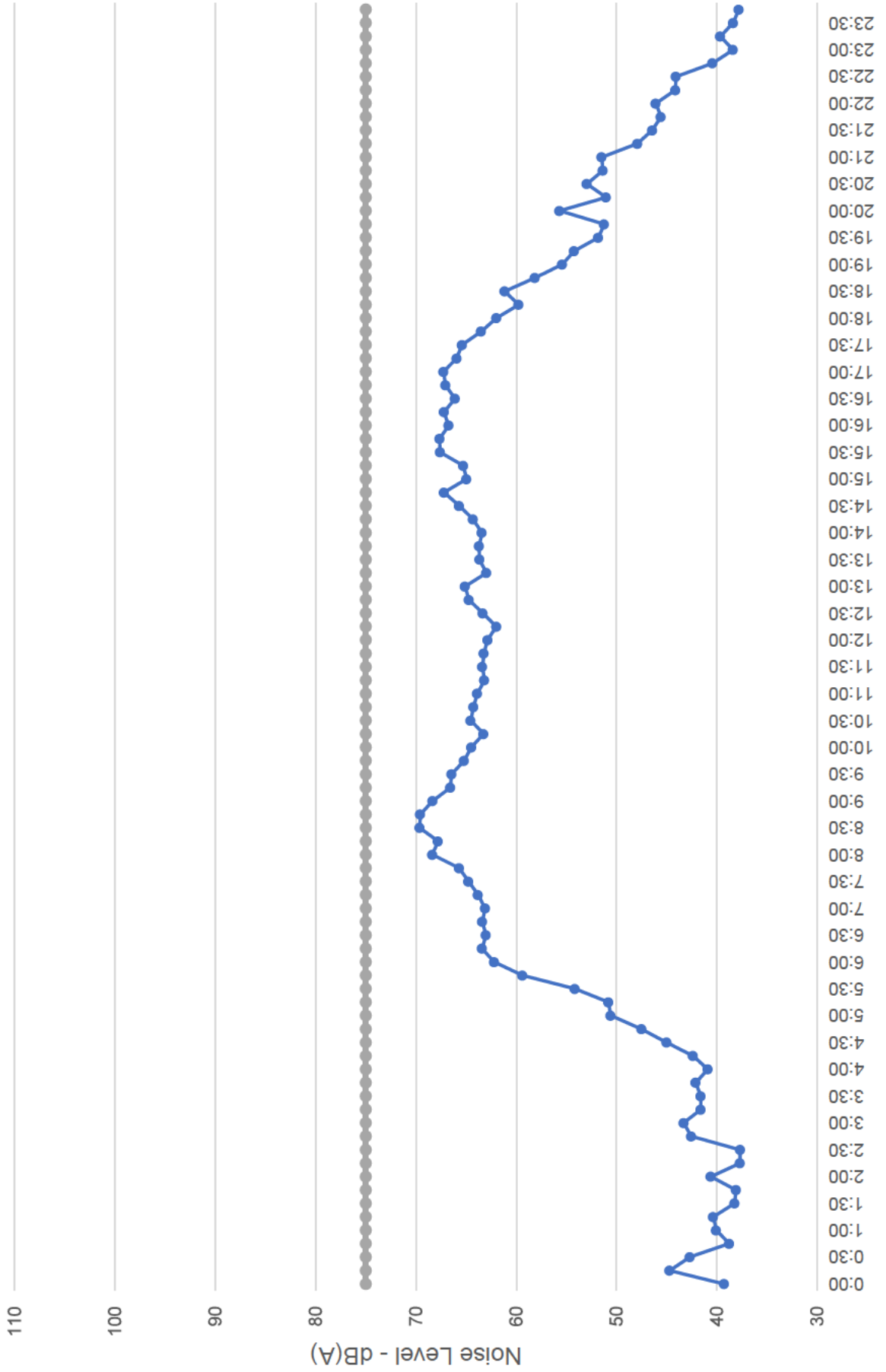
Leq Highly Noise Effected





# Noise Monitoring: 06/06/2022

—●— Leq      —●— Highly Noise Effected

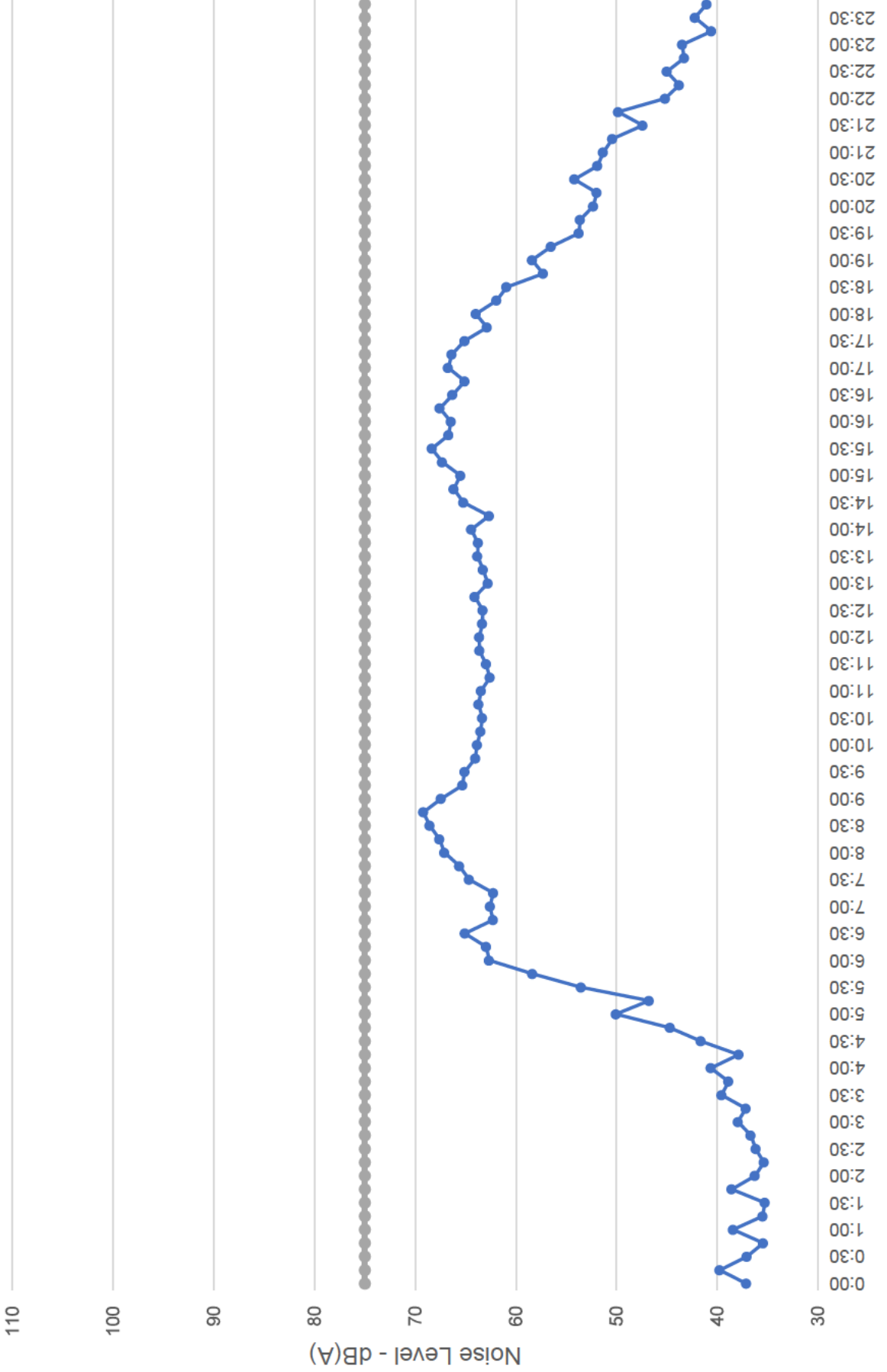




# ACOUSTIC LOGIC

## Noise Monitoring: 07/06/2022

—●— Leq    —●— Highly Noise Effectuated

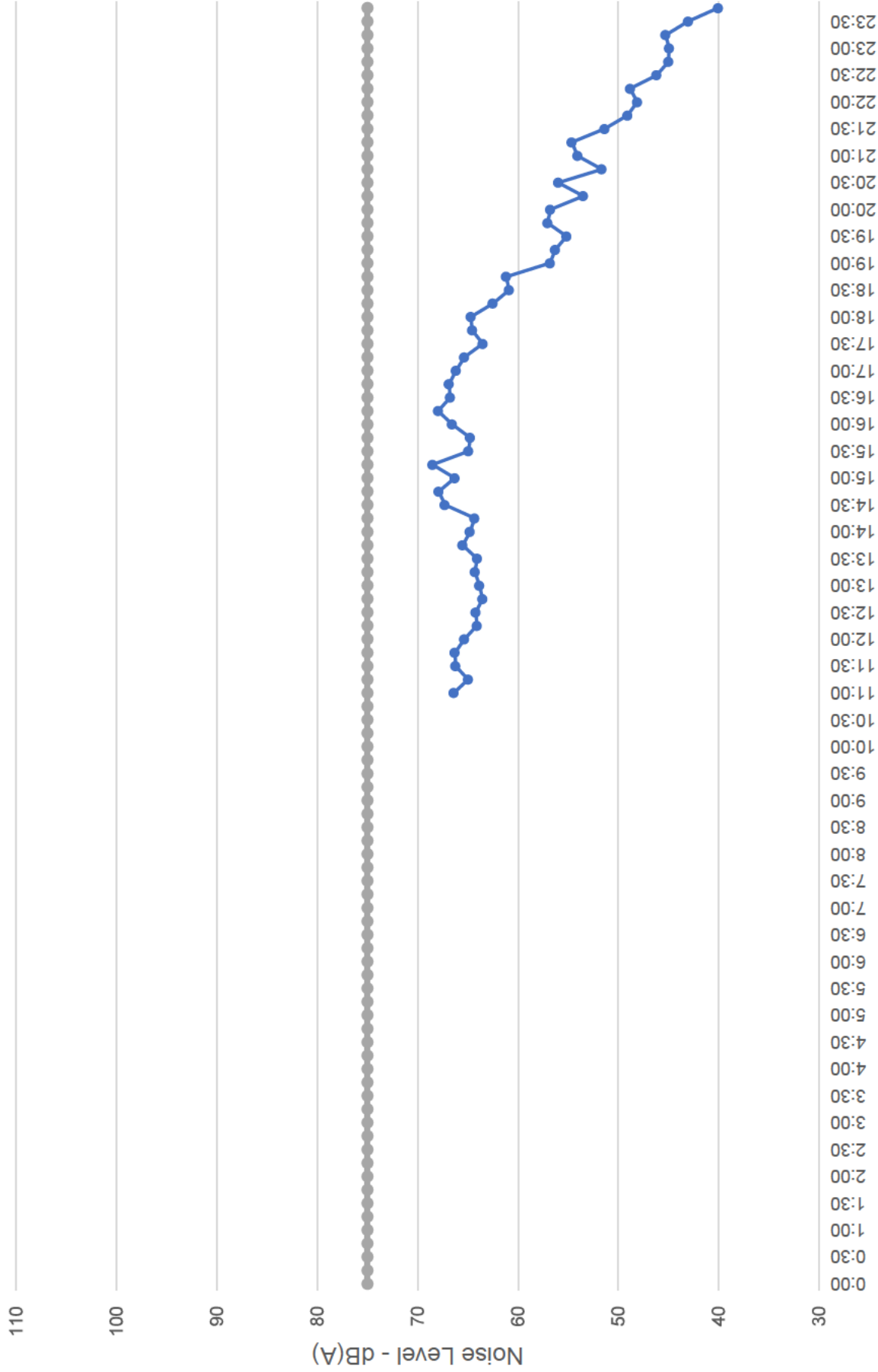




# ACOUSTIC LOGIC

Noise Monitoring: 09/06/2022

—●— Leq      —●— Highly Noise Effected

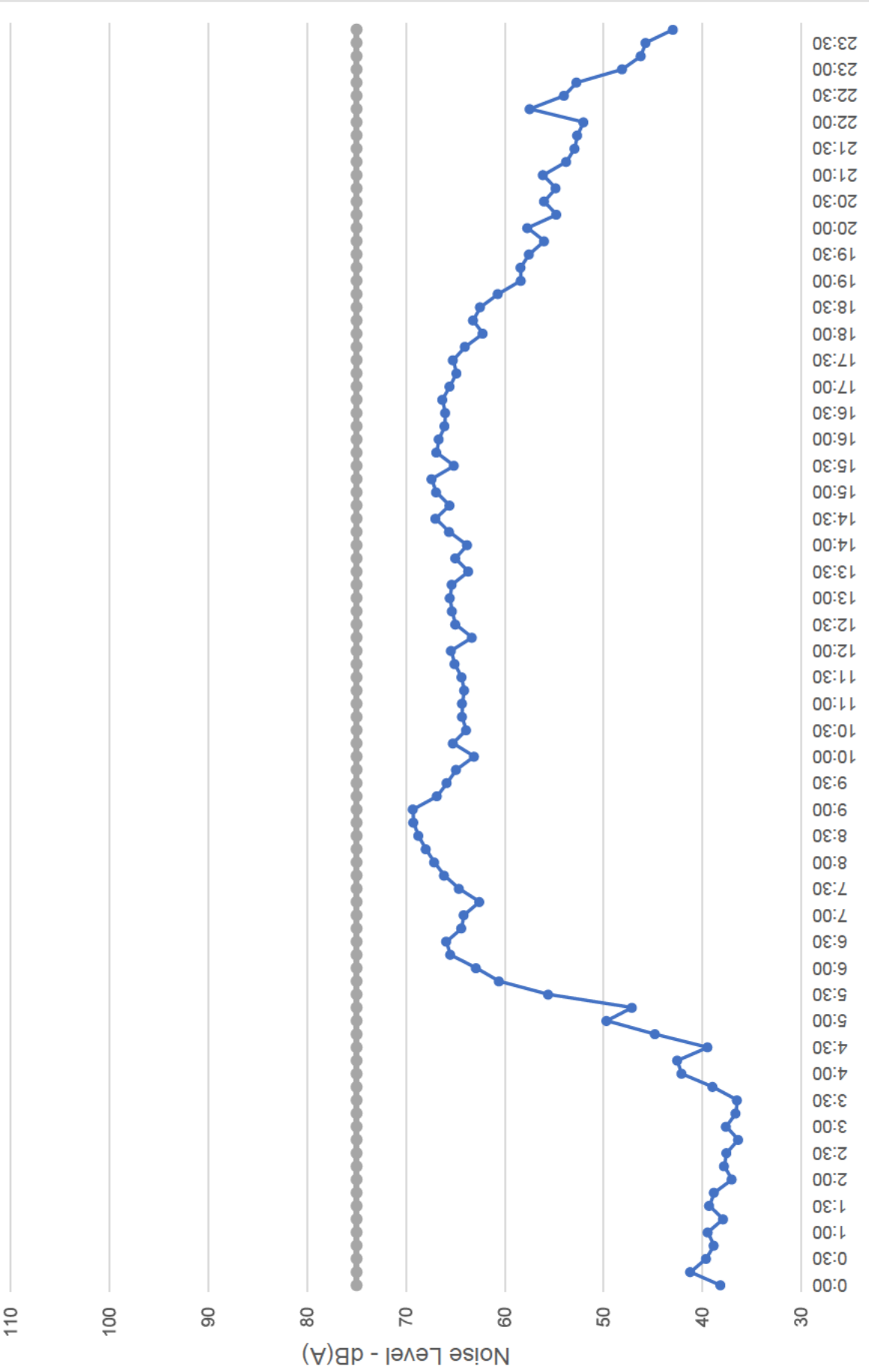






# Noise Monitoring: 10/06/2022

—●— Leq      —●— Highly Noise Effectuated

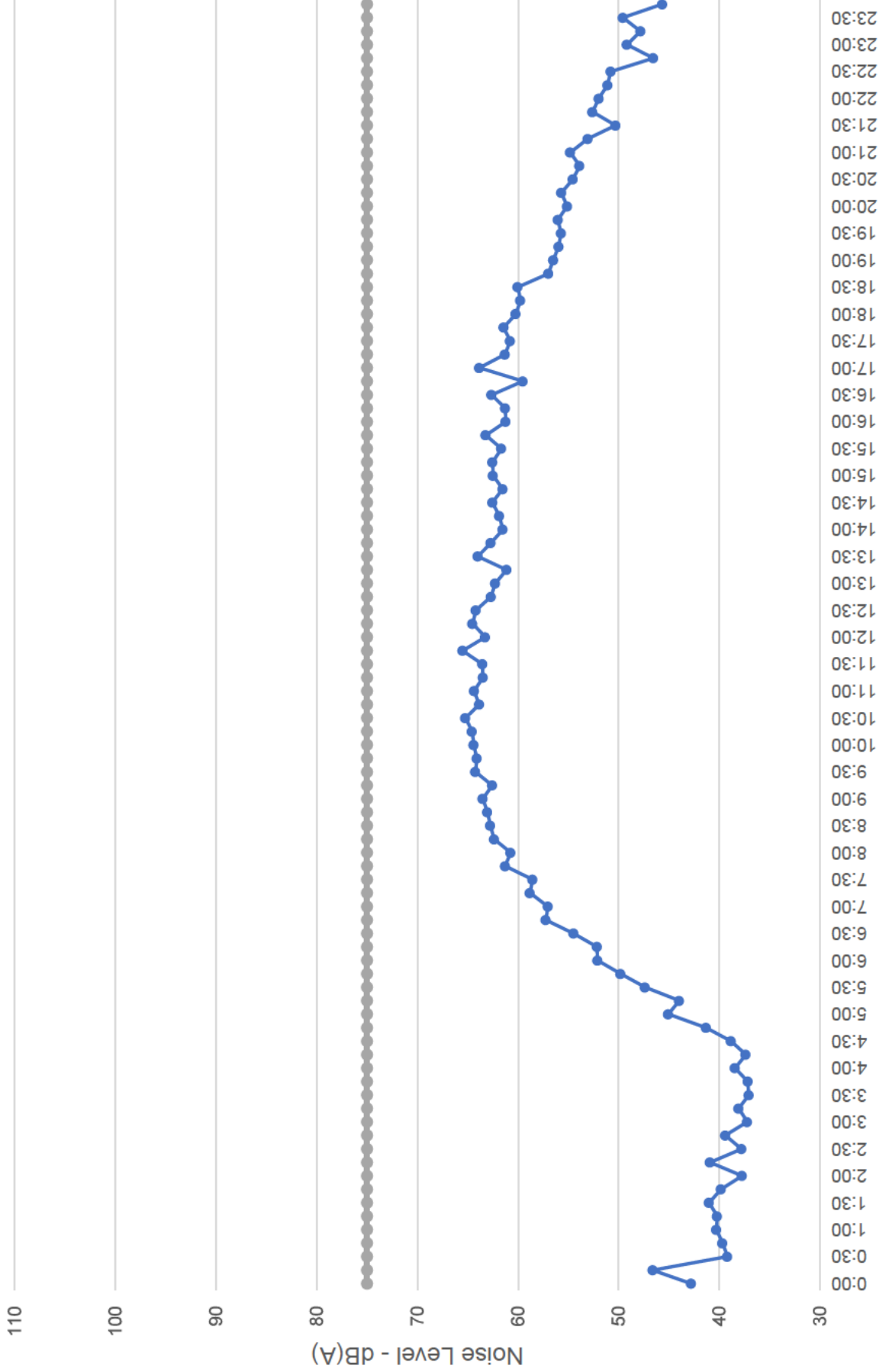




# ACOUSTIC LOGIC

## Noise Monitoring: 11/06/2022

—●— Leq      —●— Highly Noise Effectuated

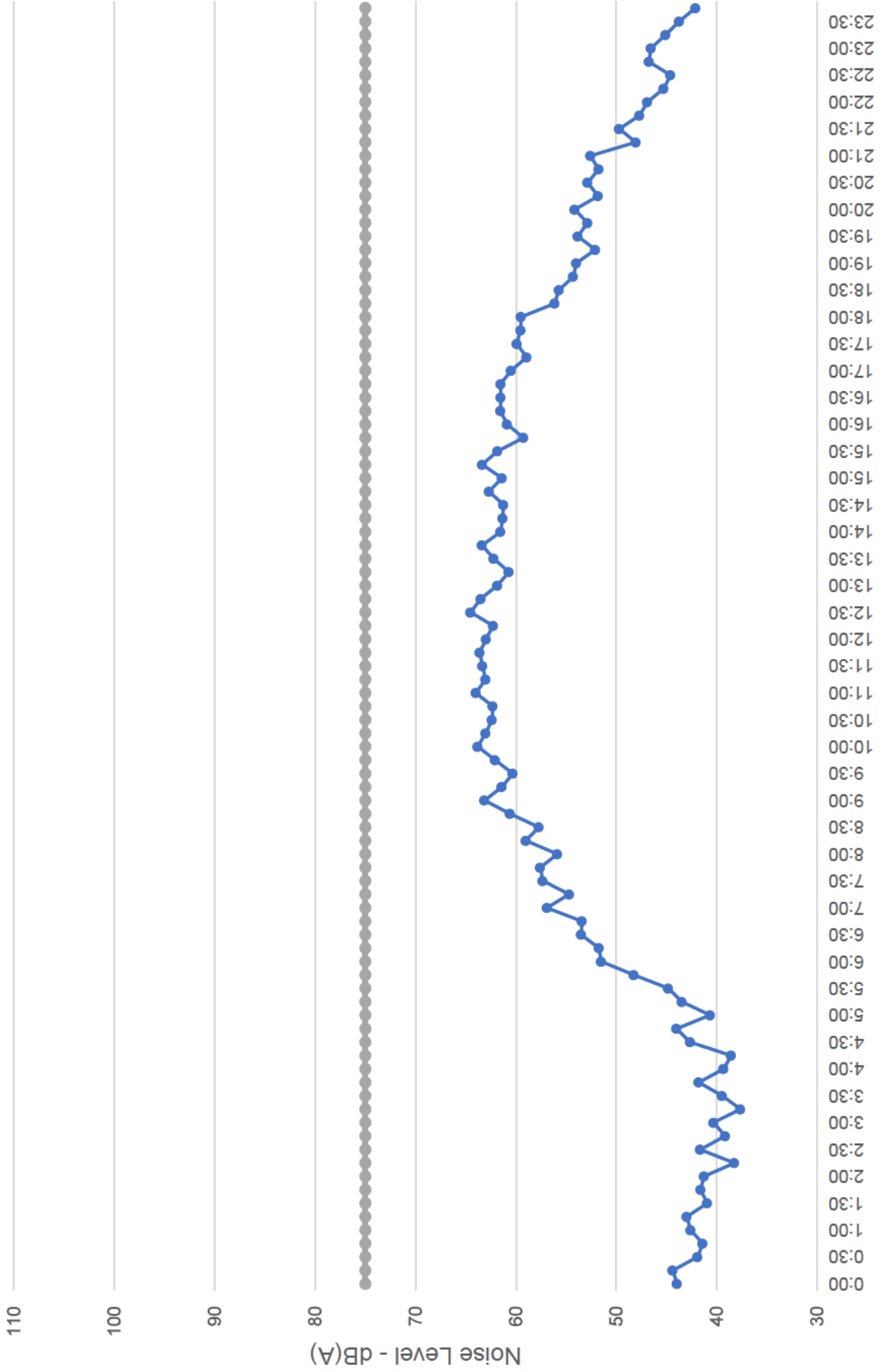




# ACOUSTIC LOGIC

## Noise Monitoring: 12/06/2022

—●— Leq      —●— Highly Noise Effectuated

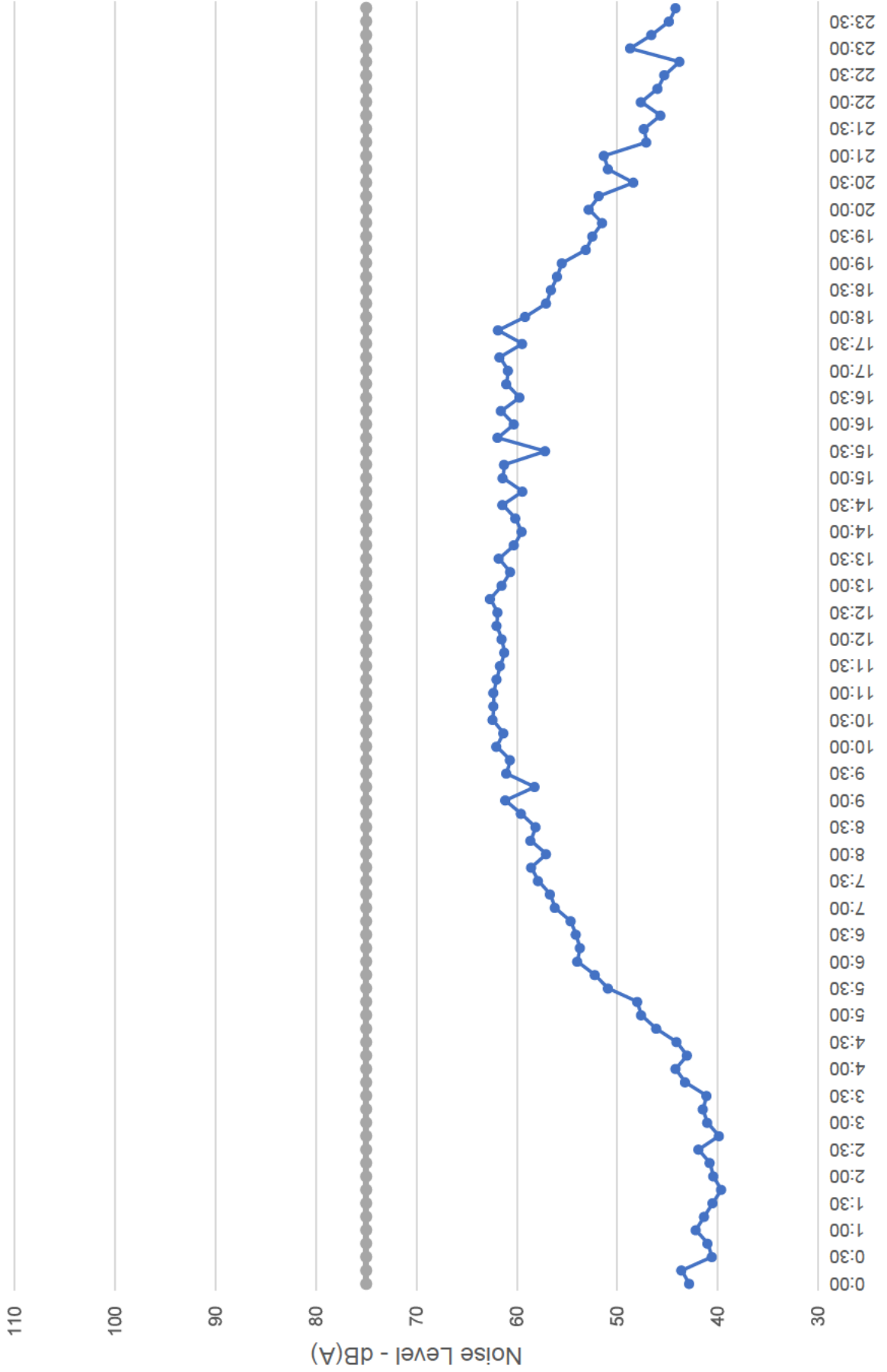




# ACOUSTIC LOGIC

Noise Monitoring: 13/06/2022

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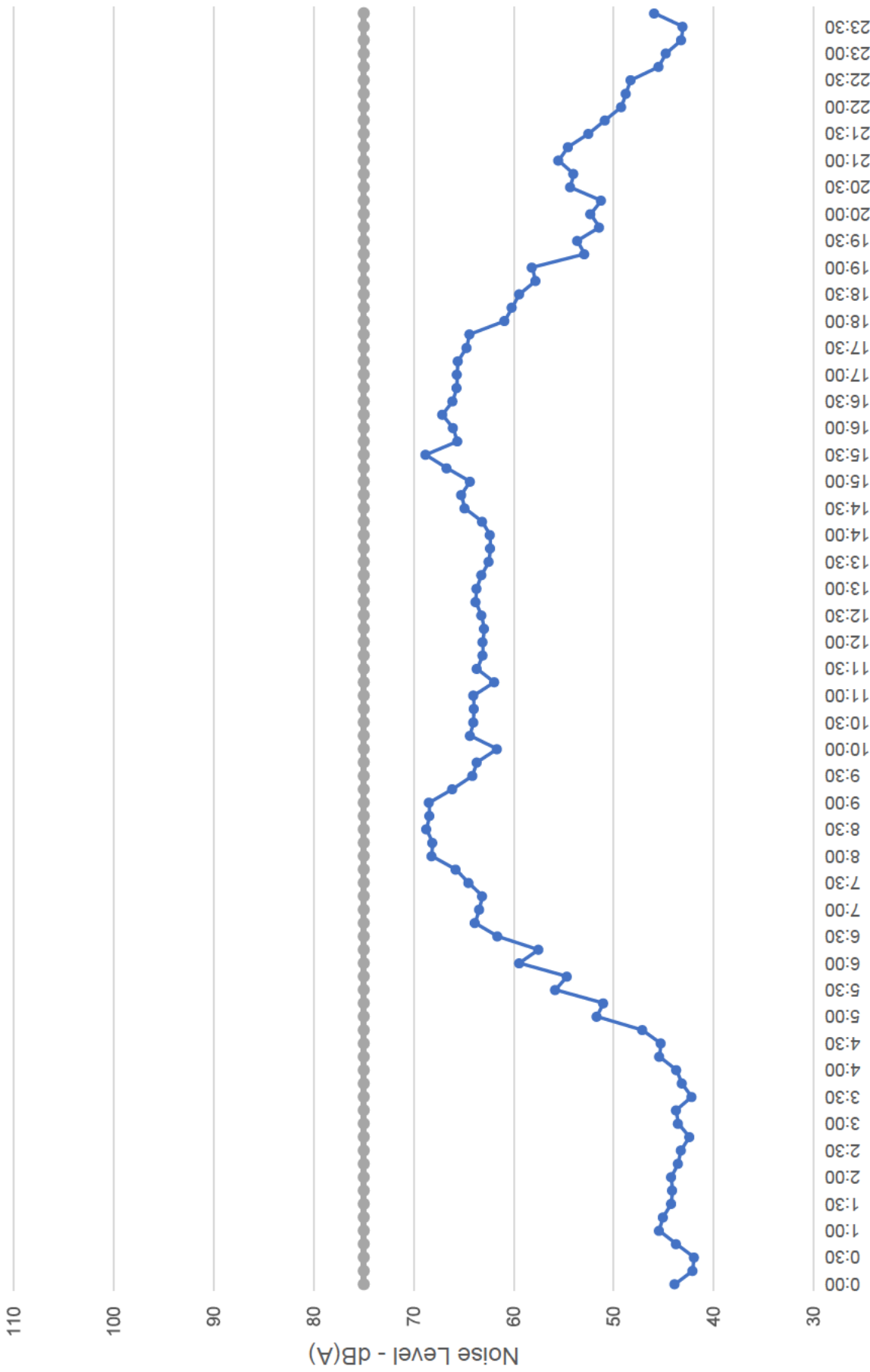




# ACOUSTIC LOGIC

Noise Monitoring: 14/06/2022

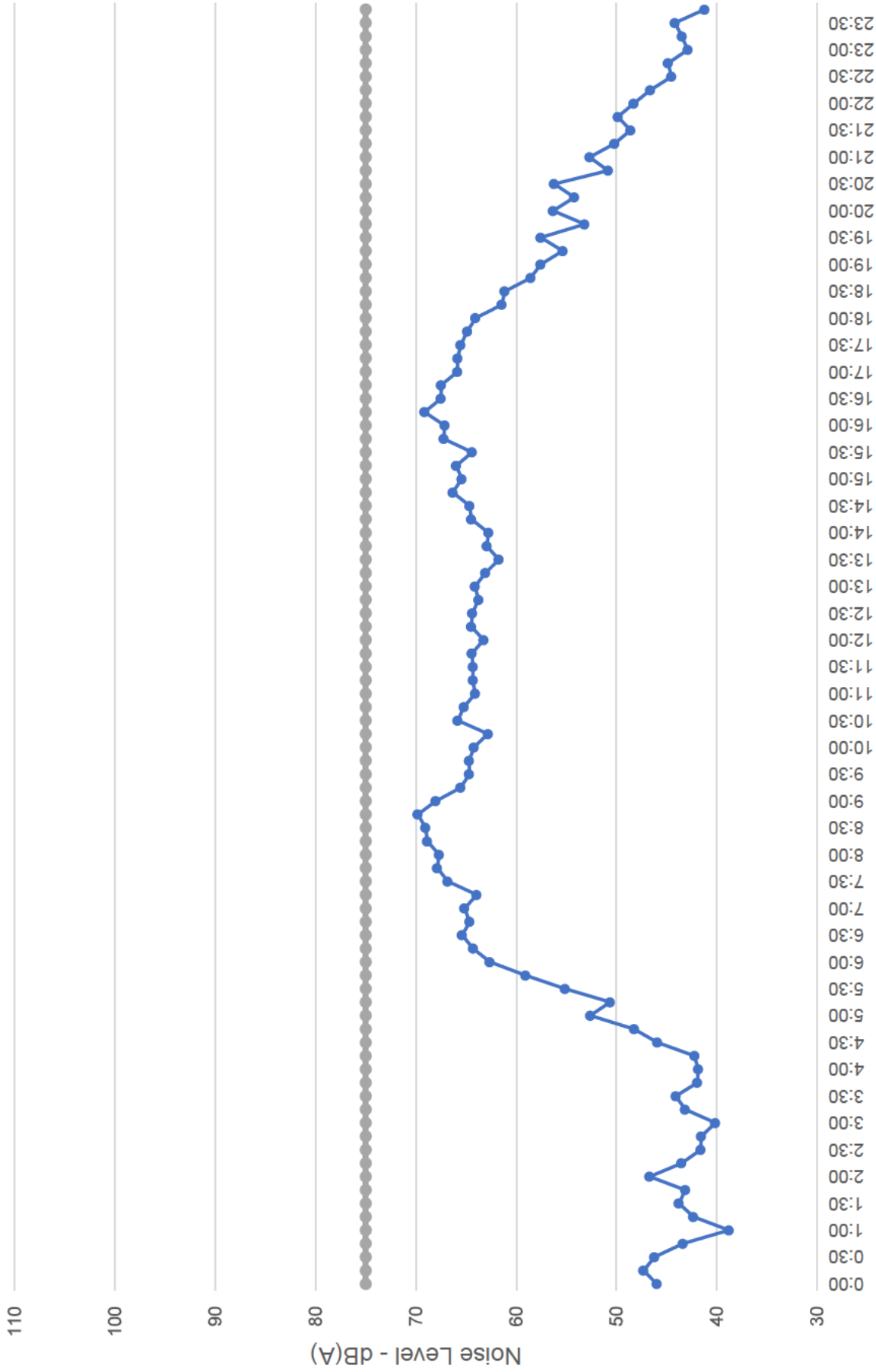
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# Noise Monitoring: 15/06/2022

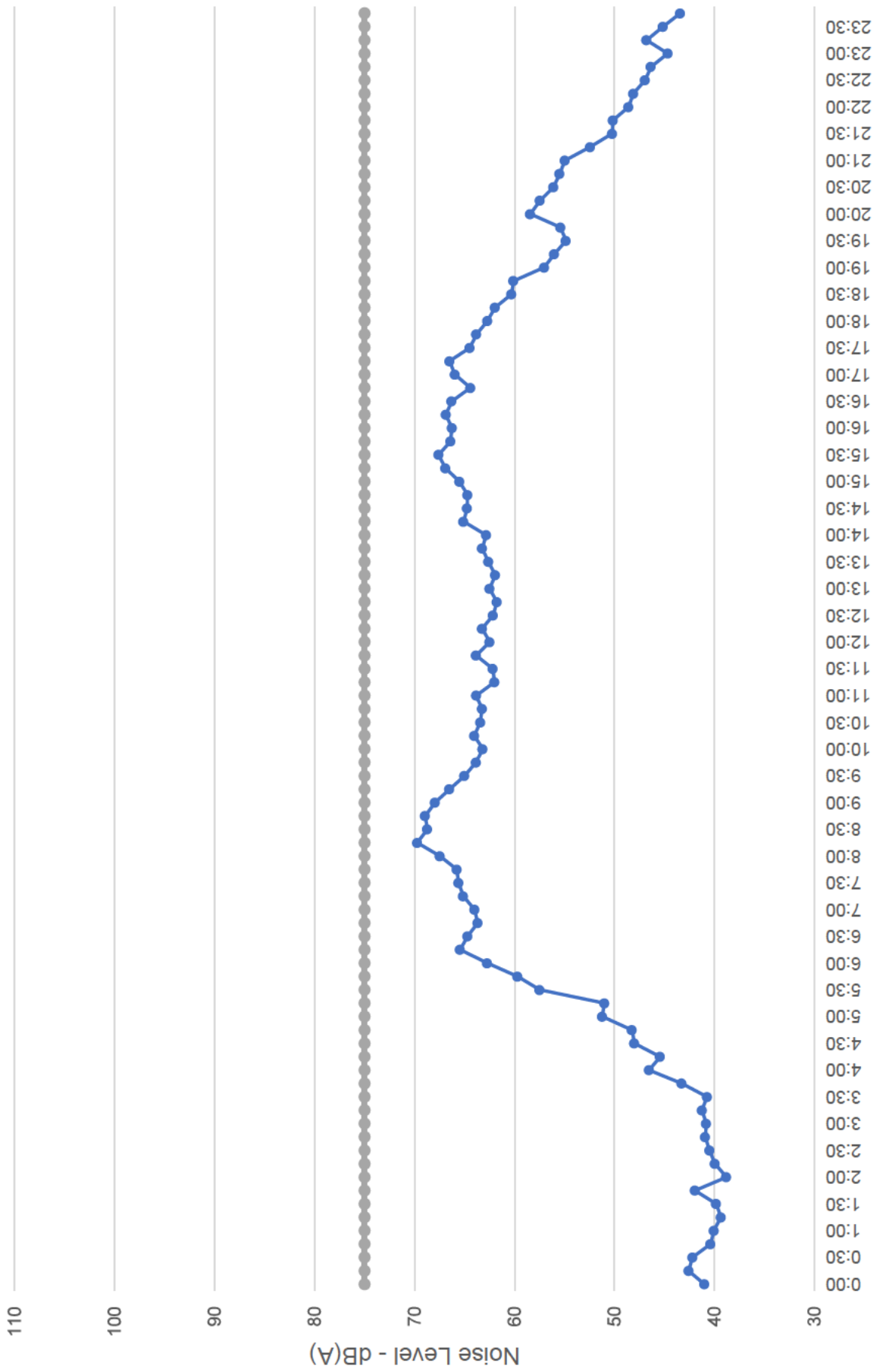
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# Noise Monitoring: 16/06/2022

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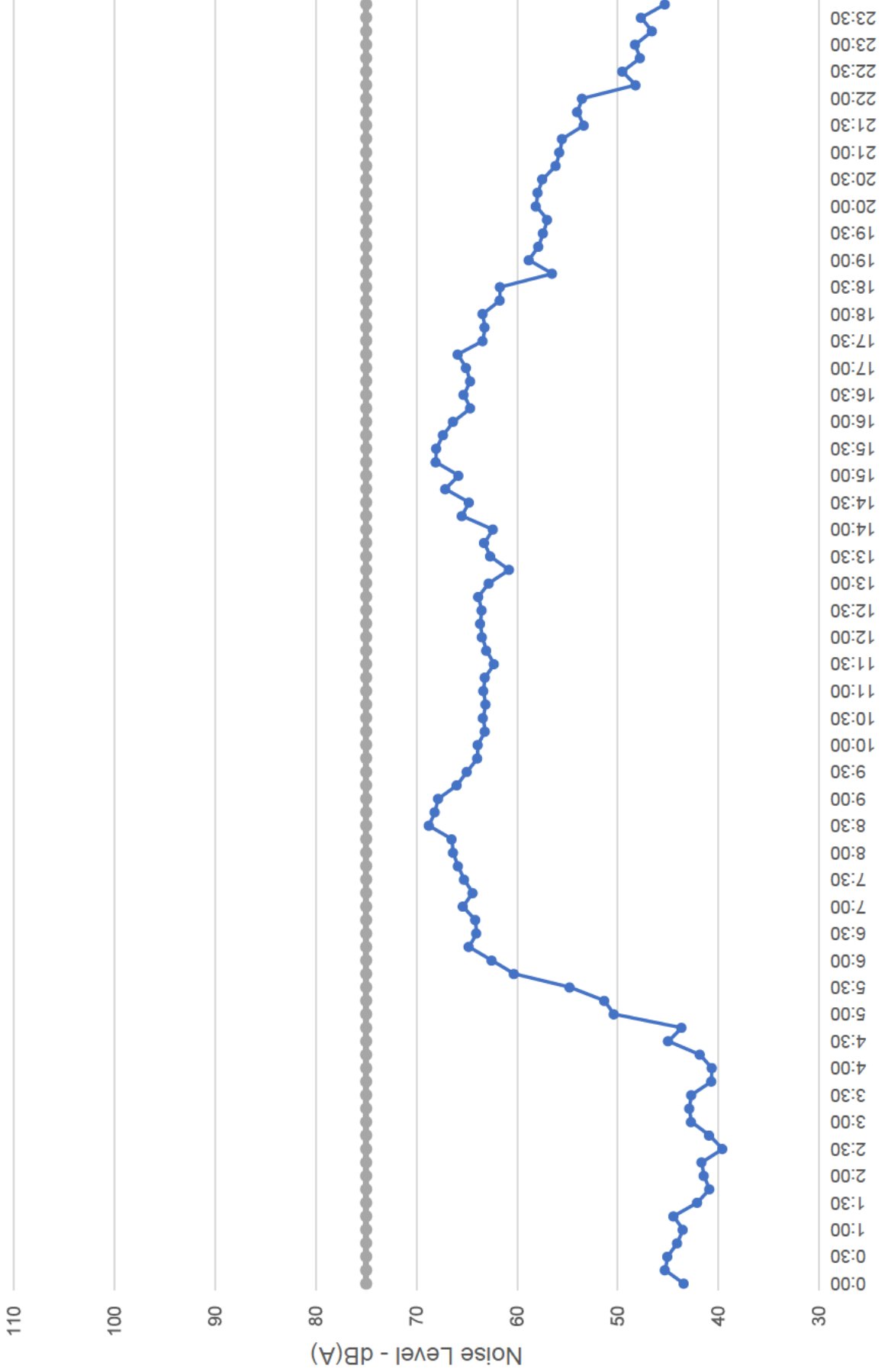




# ACOUSTIC LOGIC

## Noise Monitoring: 17/06/2022

—●— Leq      —●— Highly Noise Effectuated

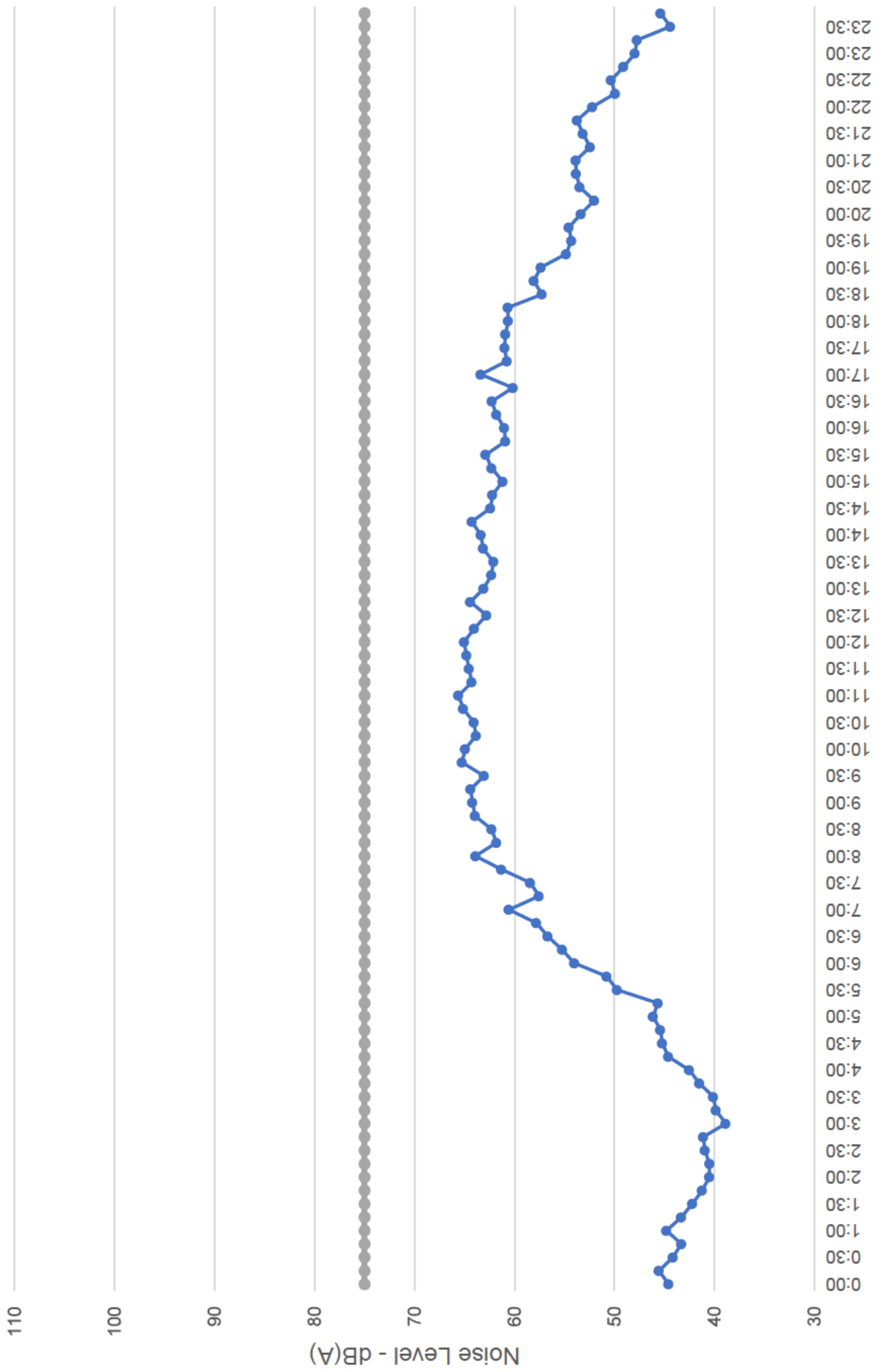






# Noise Monitoring: 18/06/2022

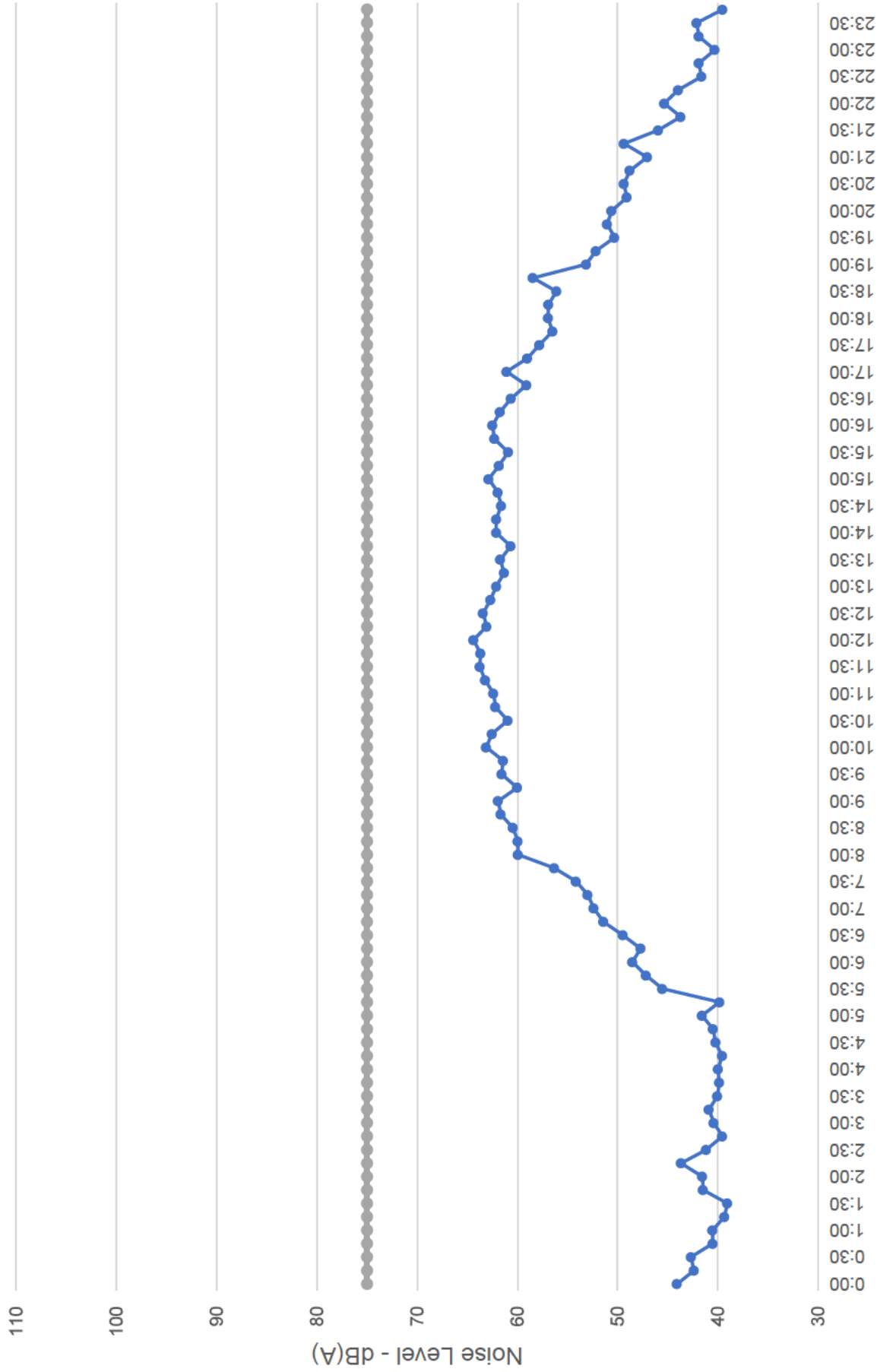
—●— Leq      —●— Highly Noise Effected





# Noise Monitoring: 19/06/2022

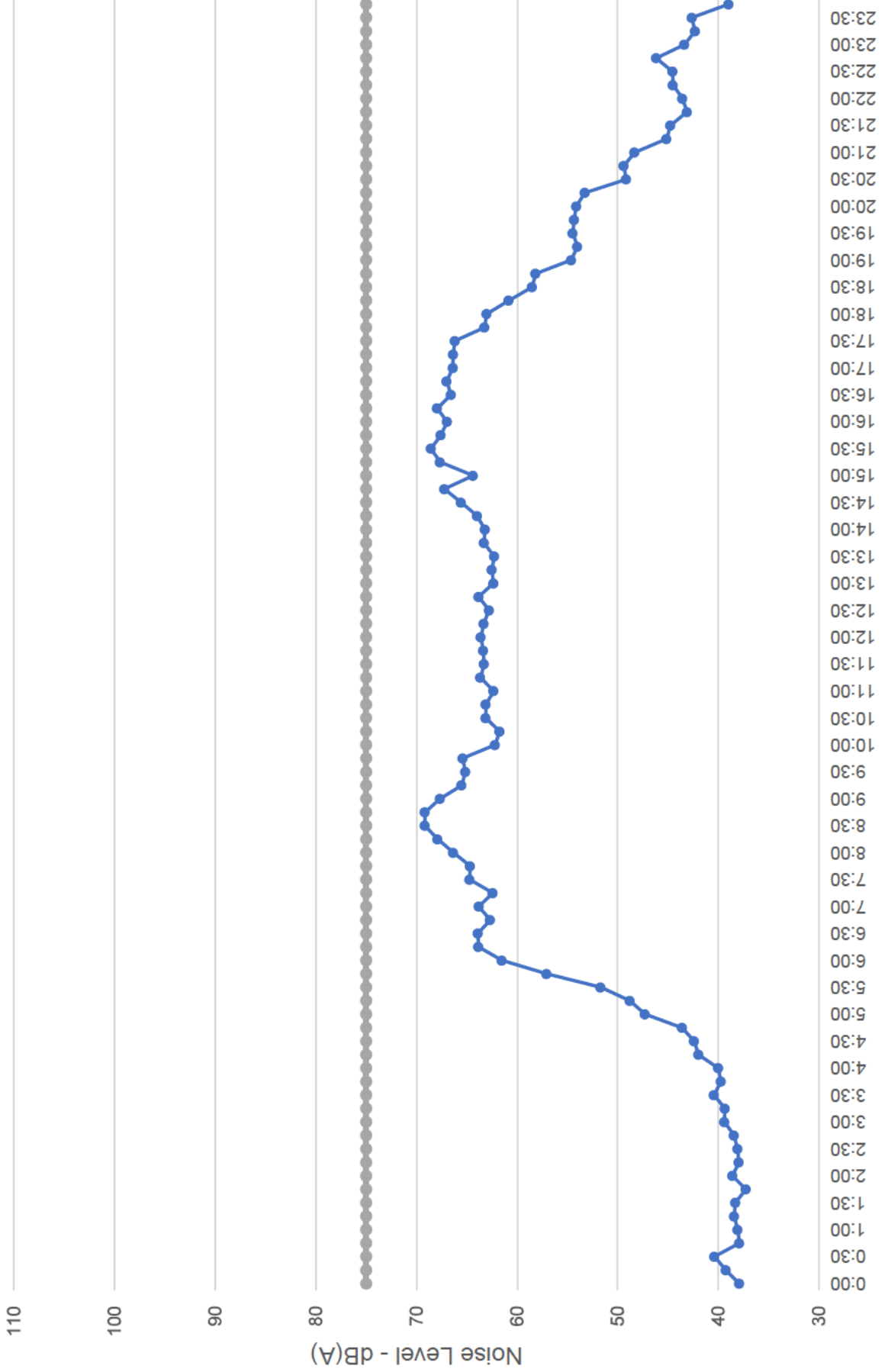
—●— Leq      —●— Highly Noise Effectuated





# Noise Monitoring: 20/06/2022

—●— Leq      —●— Highly Noise Effected

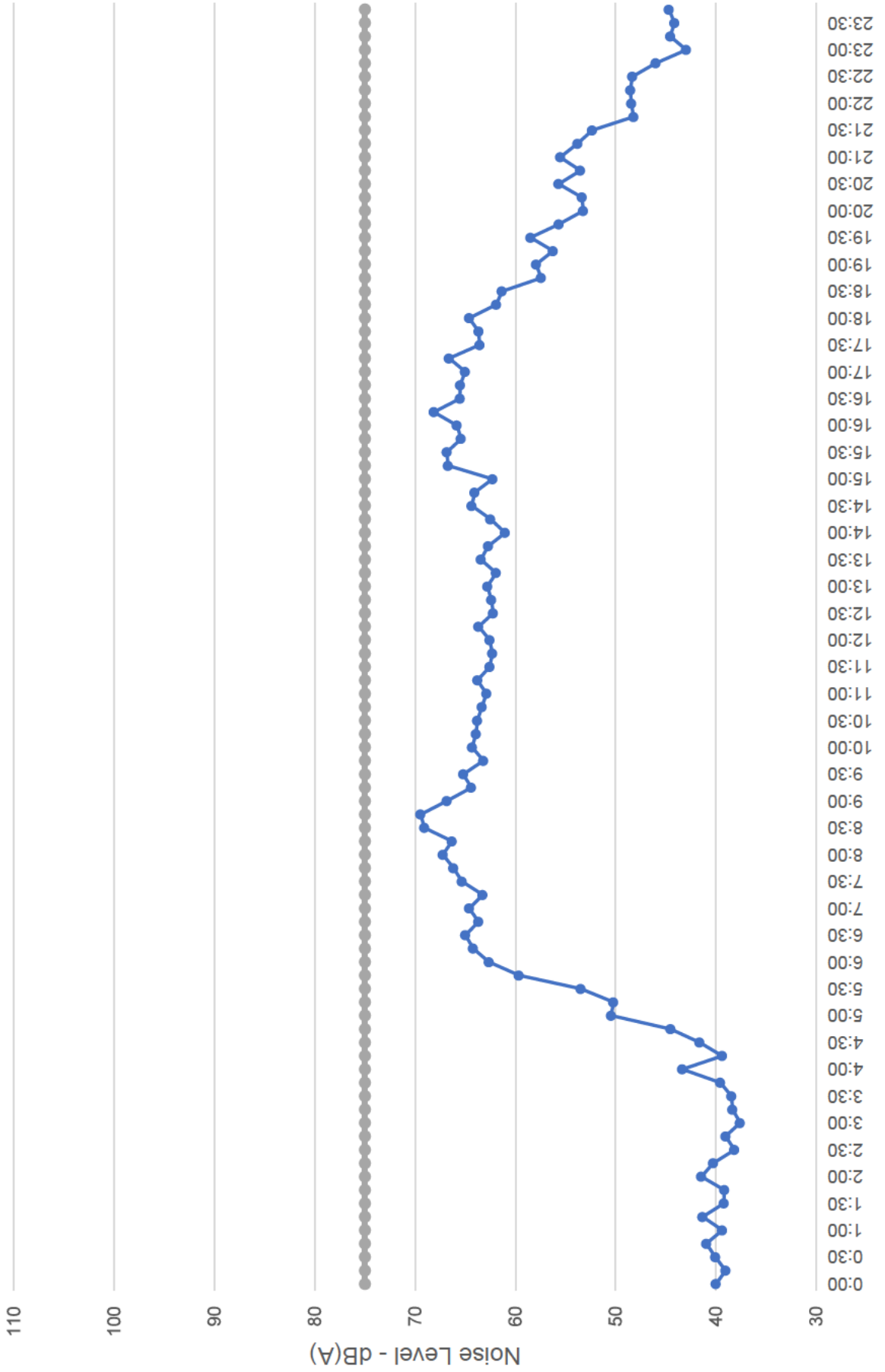




# ACOUSTIC LOGIC

Noise Monitoring: 21/06/2022

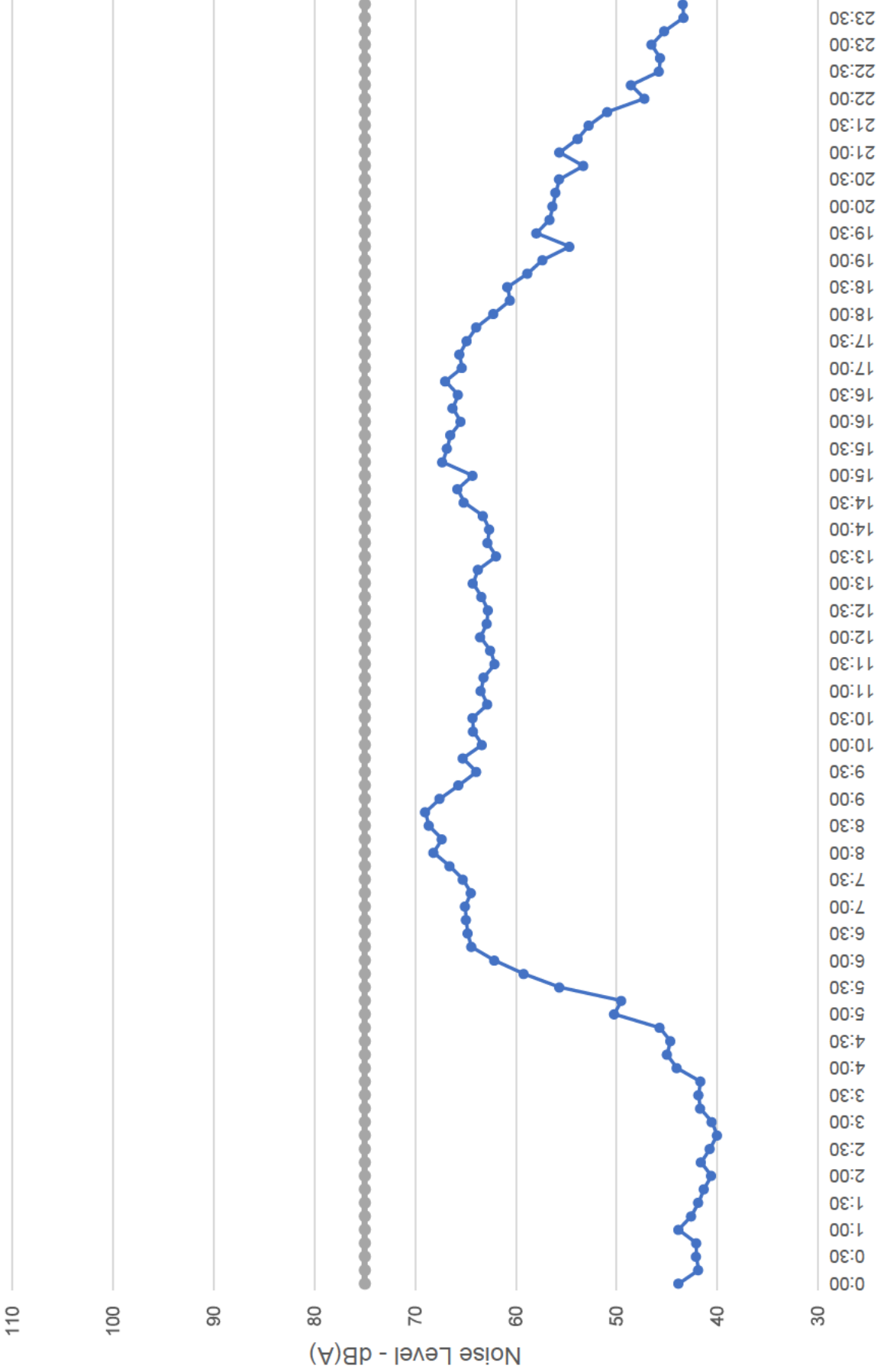
—●— Leq      —●— Highly Noise Effected





# Noise Monitoring: 22/06/2022

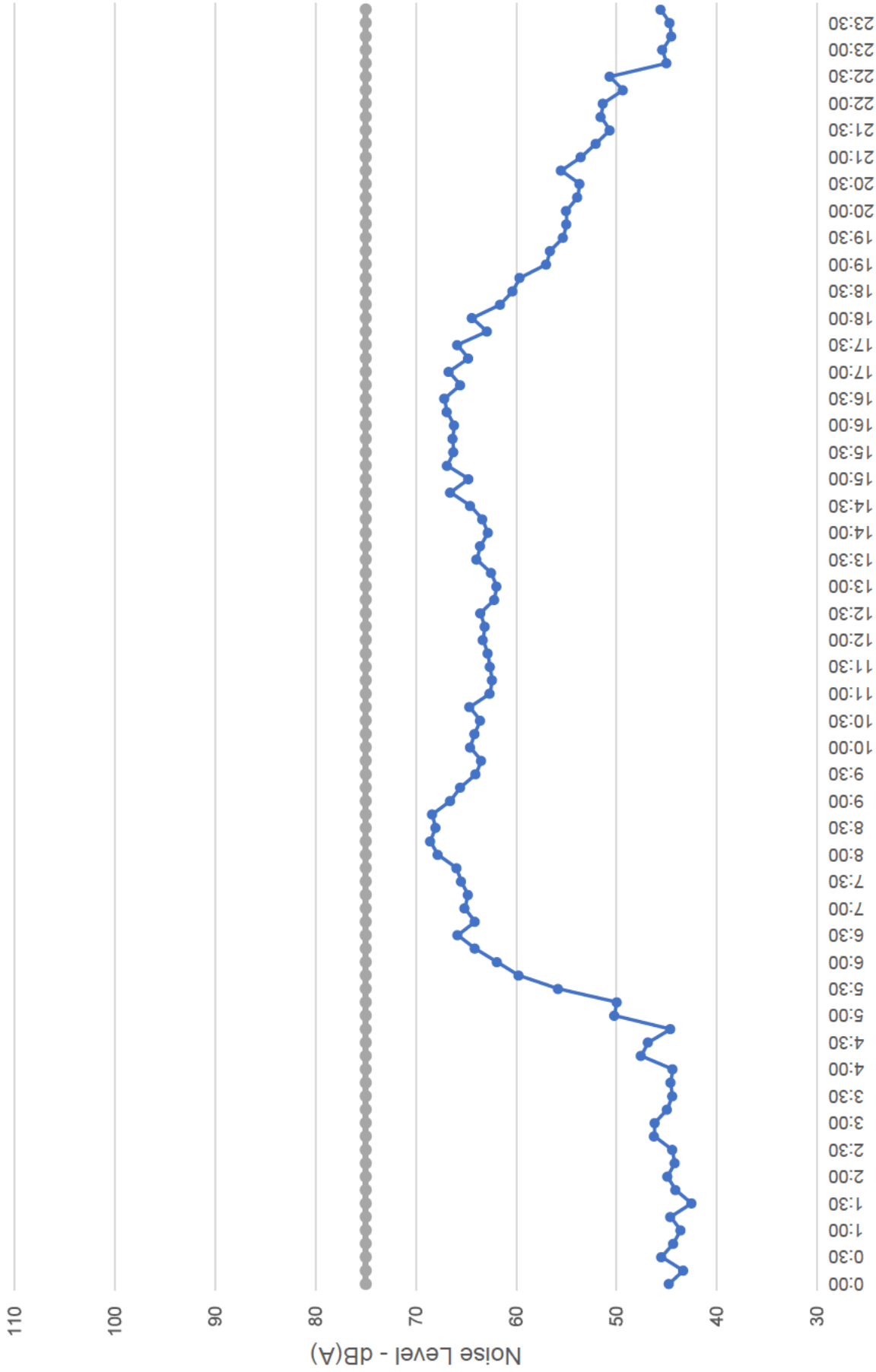
—●— Leq      —●— Highly Noise Effected





# Noise Monitoring: 23/06/2022

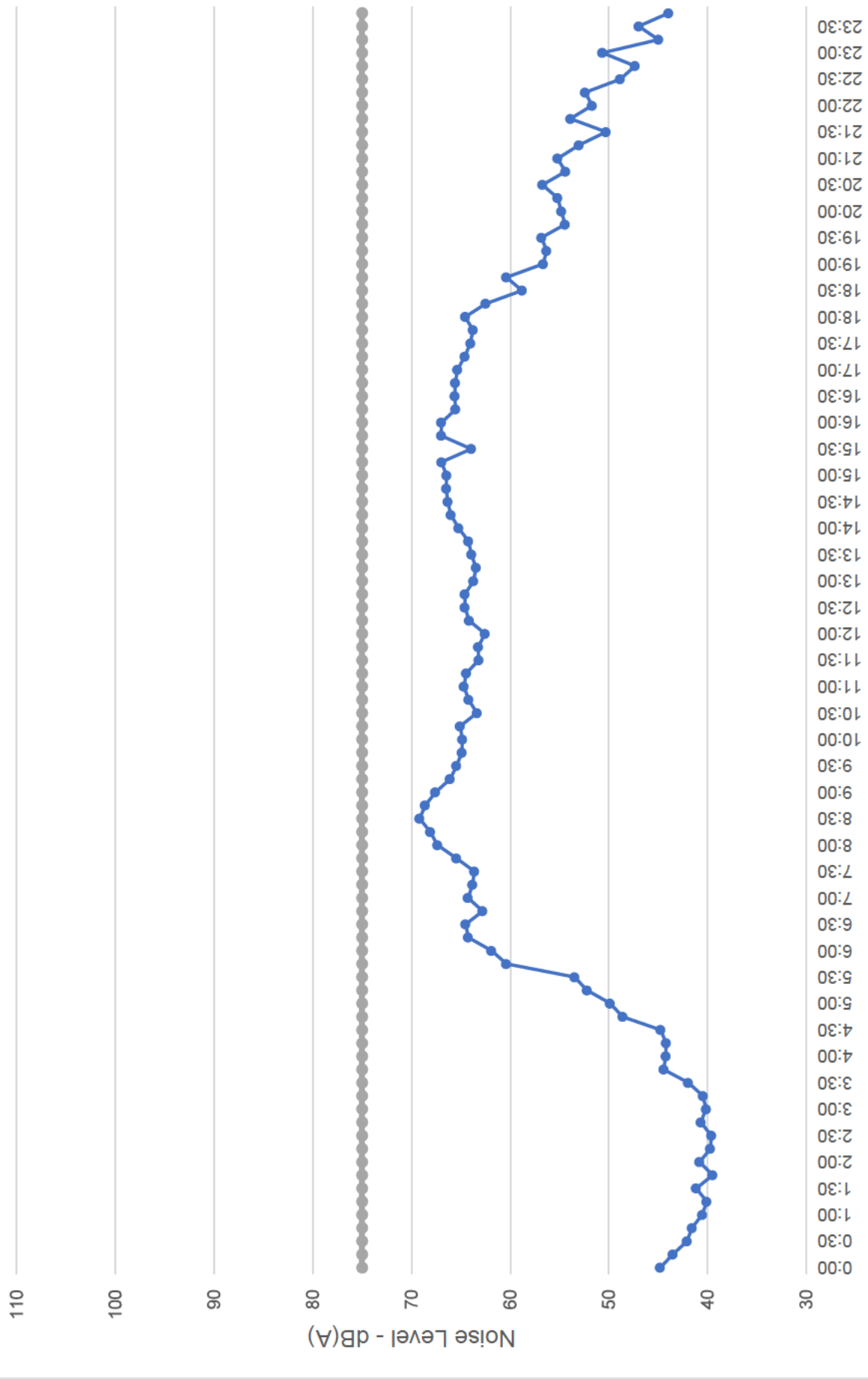
—●— Leq      —●— Highly Noise Effected





# Noise Monitoring: 24/06/2022

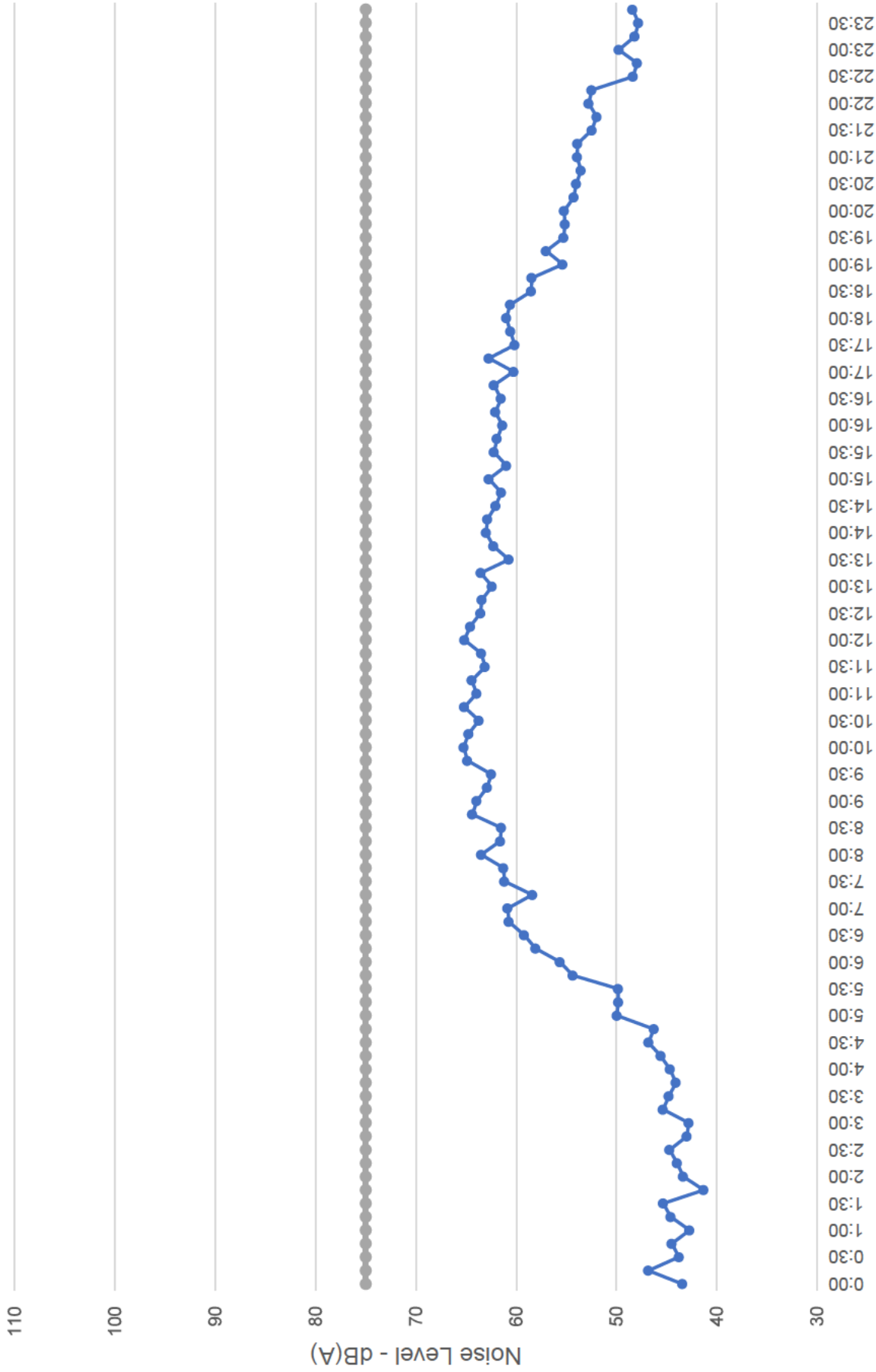
—●— Leq      —●— Highly Noise Effected





# Noise Monitoring: 25/06/2022

—●— Leq      —●— Highly Noise Effected

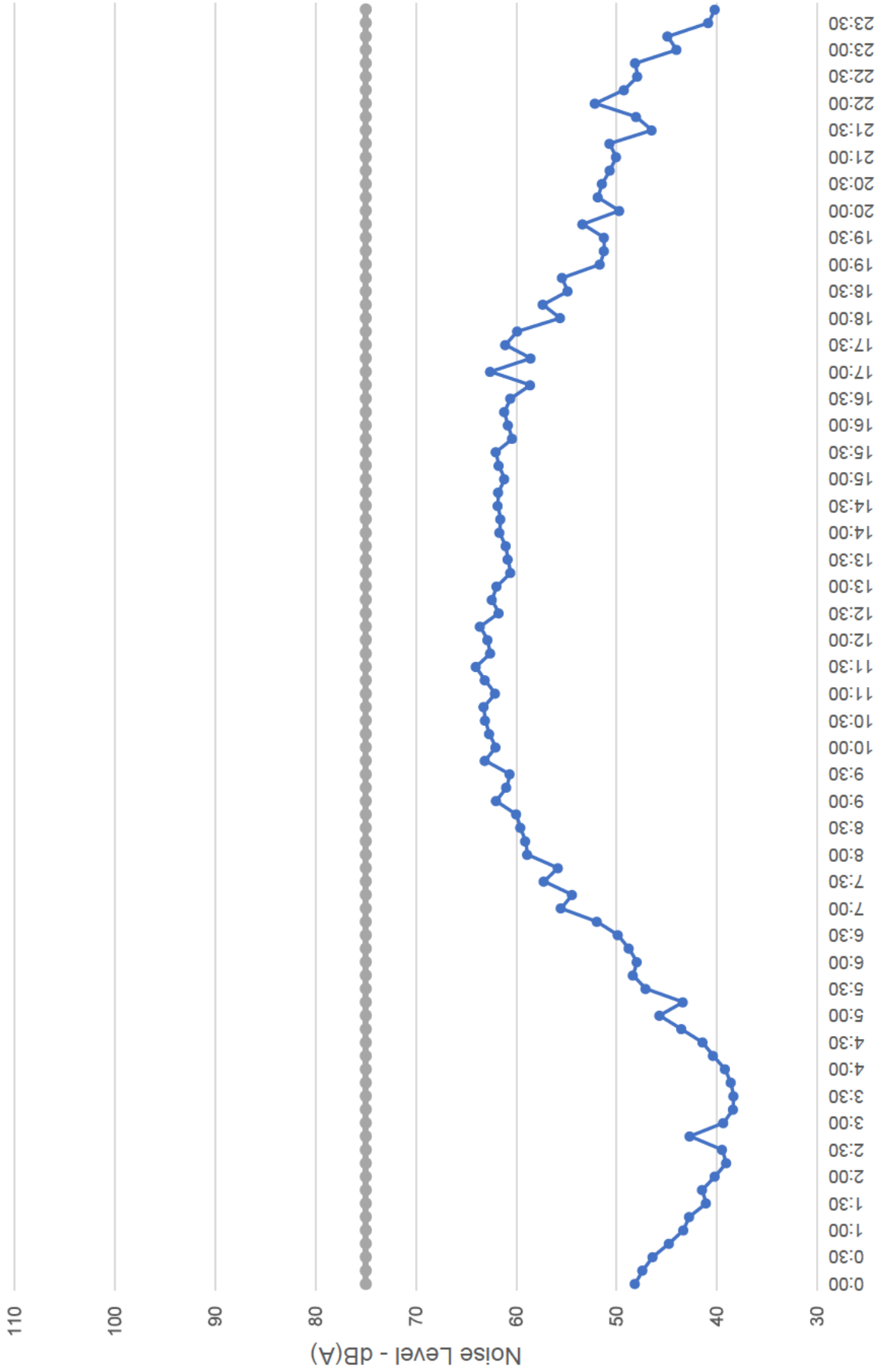






# Noise Monitoring: 26/06/2022

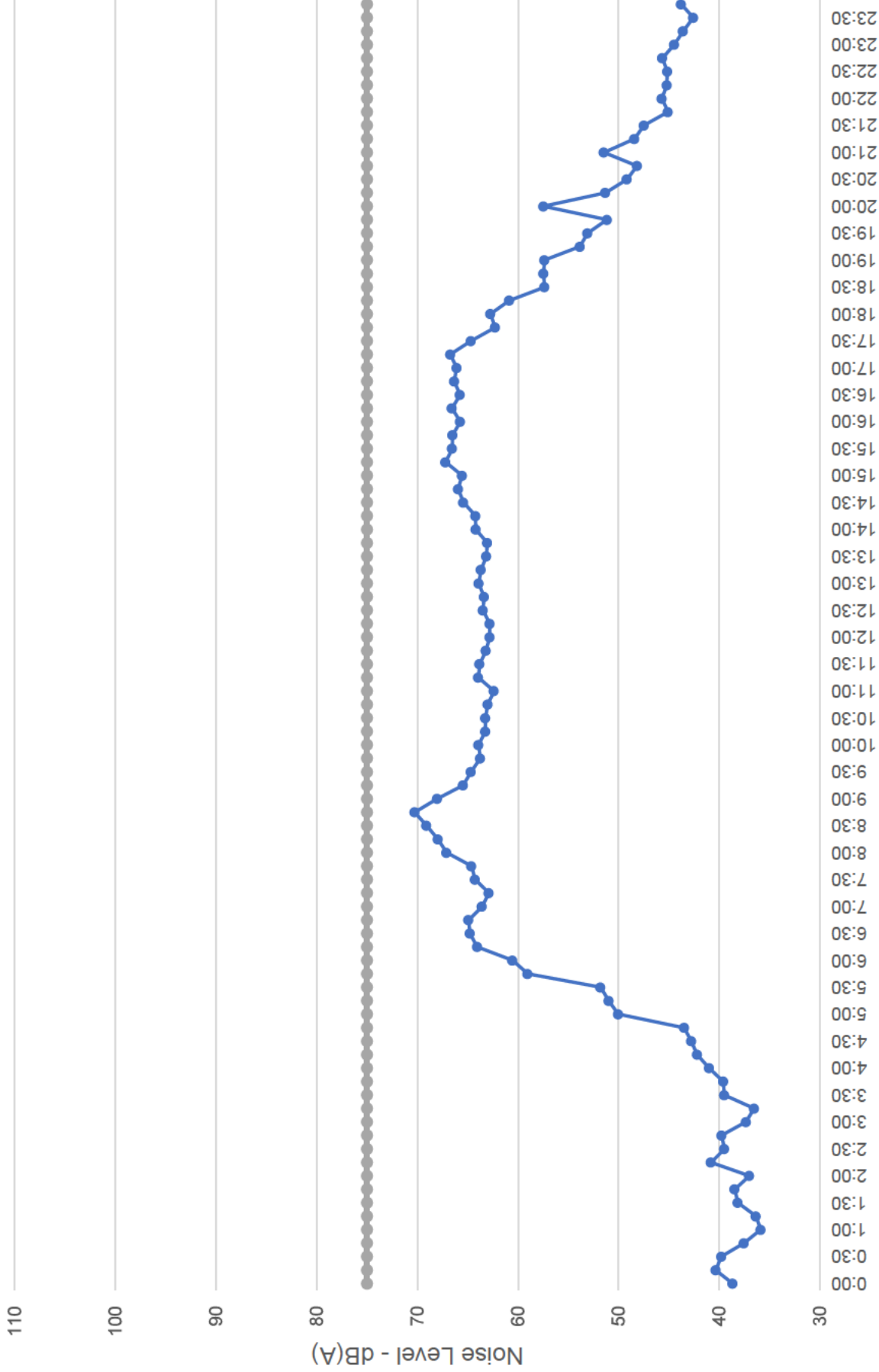
—●— Leq      —●— Highly Noise Effectuated





# Noise Monitoring: 27/06/2022

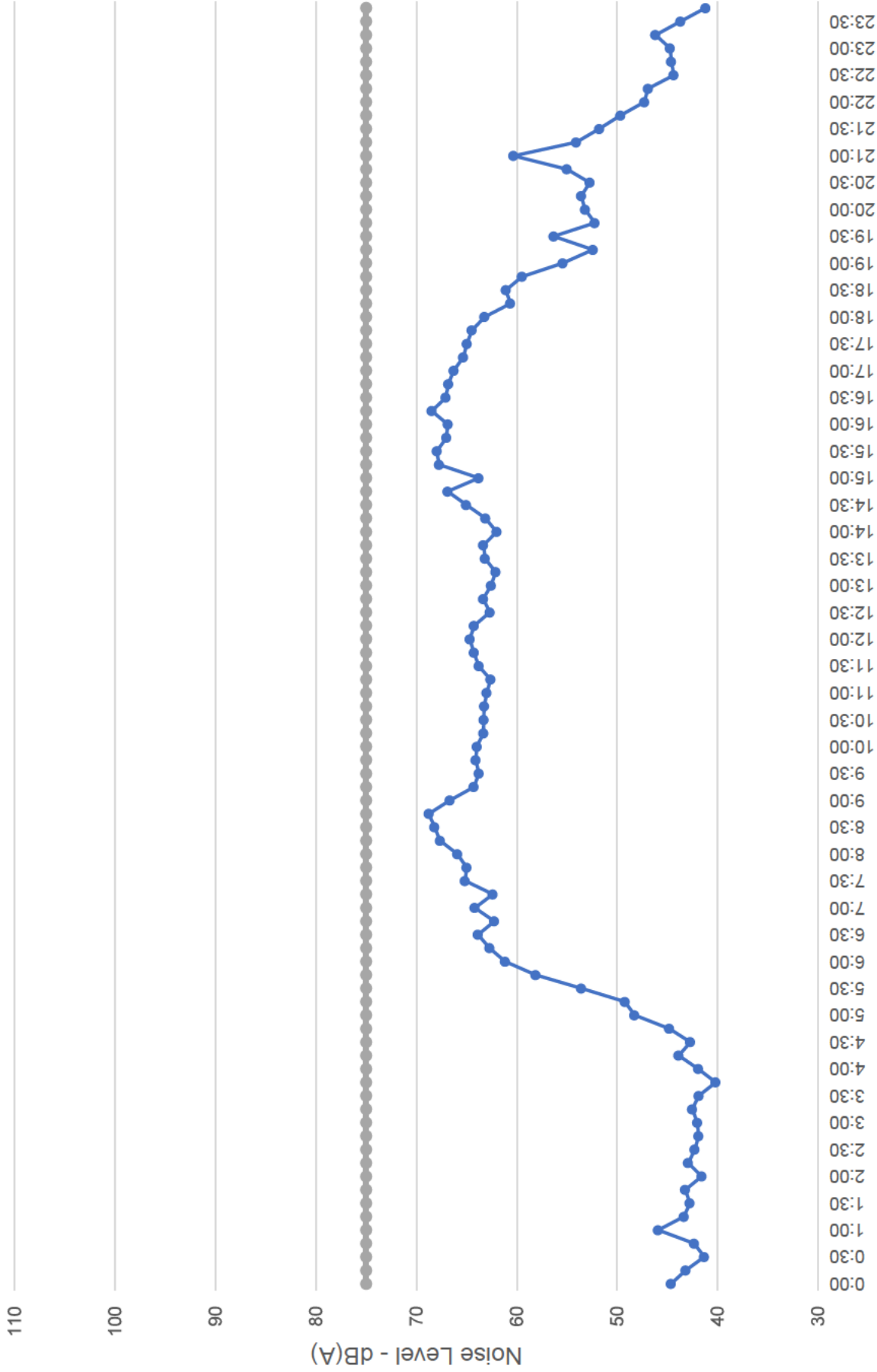
—●— Leq      —●— Highly Noise Effectuated





# Noise Monitoring: 28/06/2022

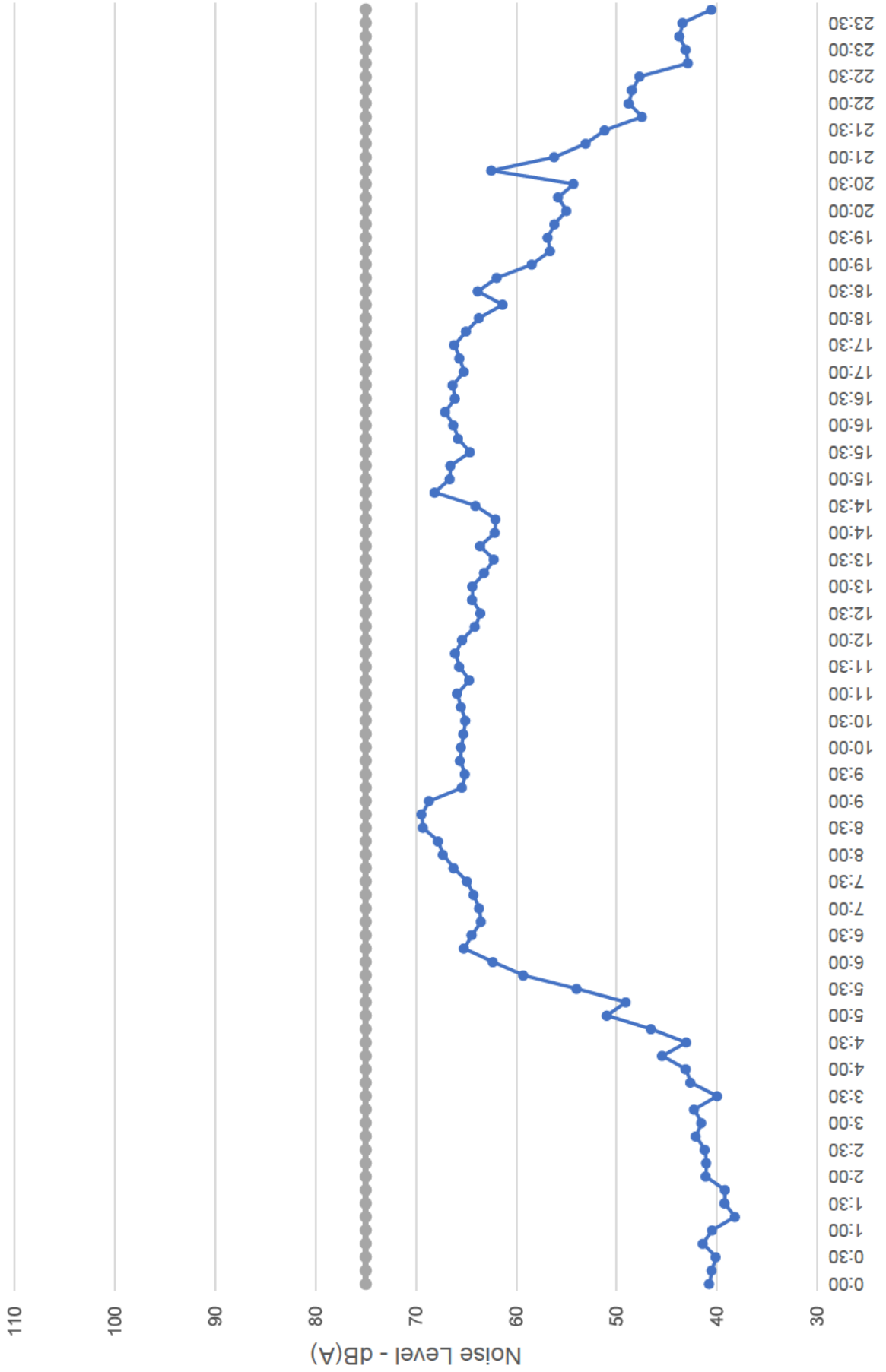
—●— Leq      —●— Highly Noise Effectuated





# Noise Monitoring: 29/06/2022

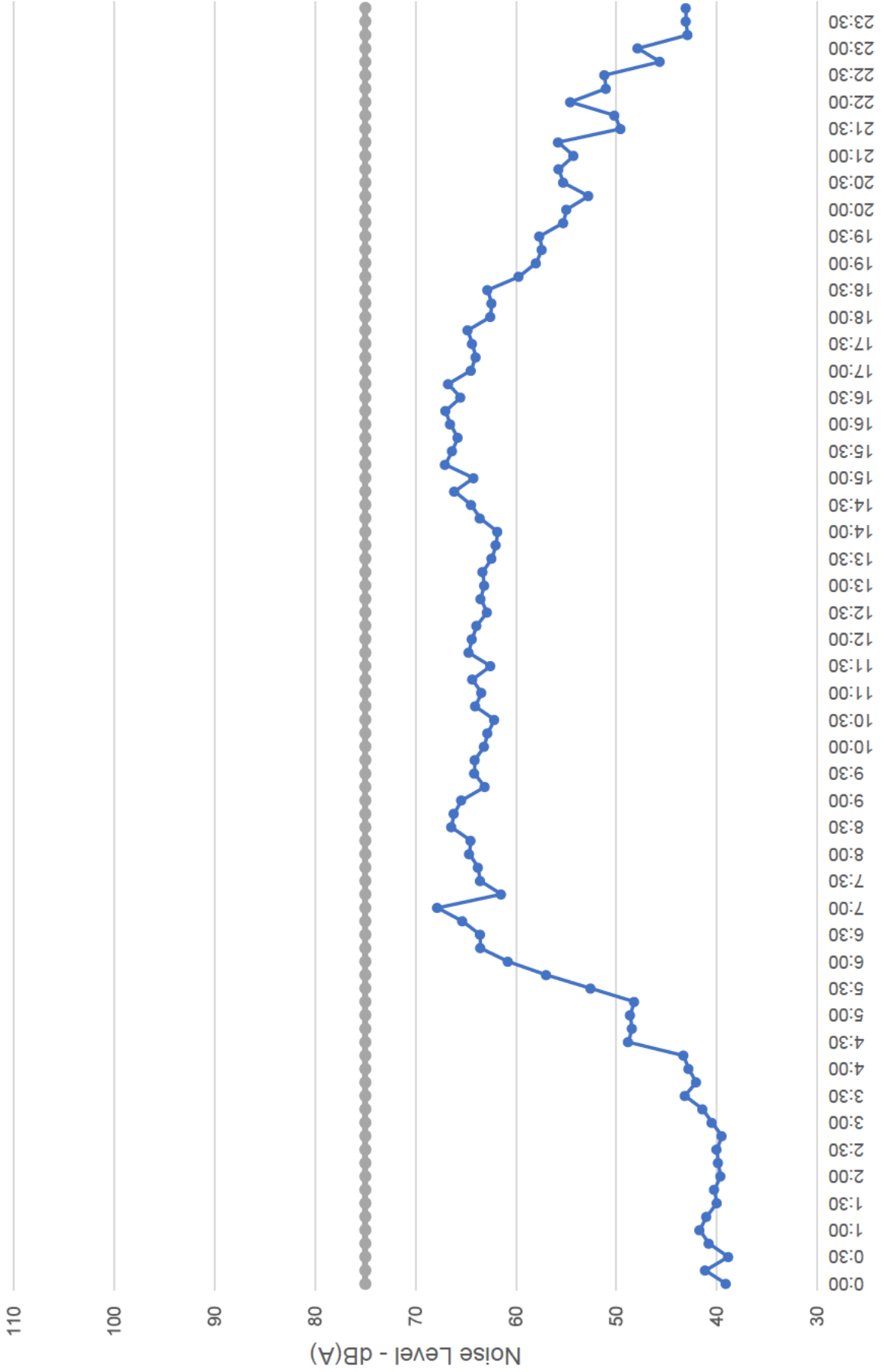
—●— Leq      —●— Highly Noise Effected





# Noise Monitoring: 30/06/2022

—●— Leq      —●— Highly Noise Effected

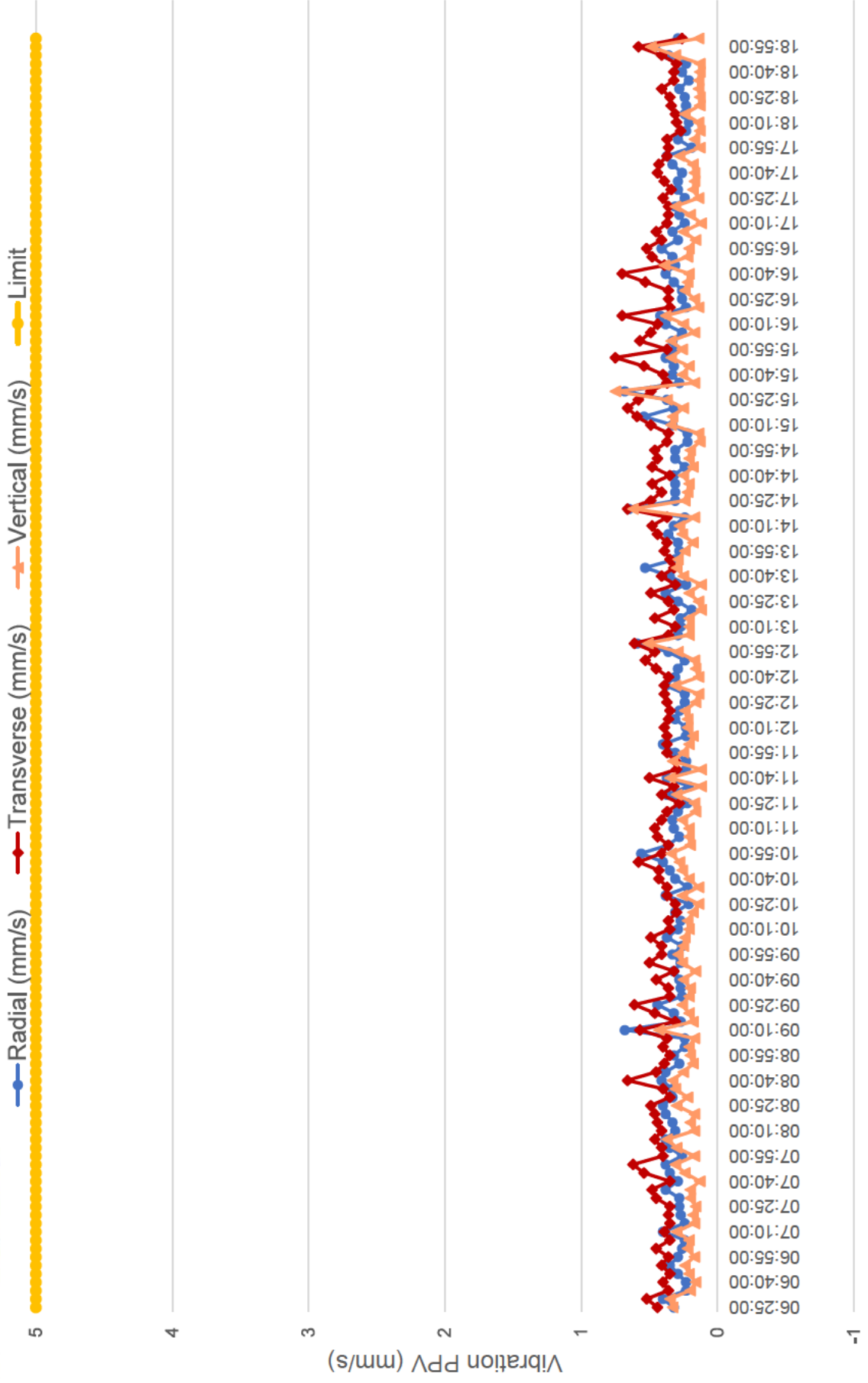


## APPENDIX 2 – VIBRATION MONITORING RESULTS



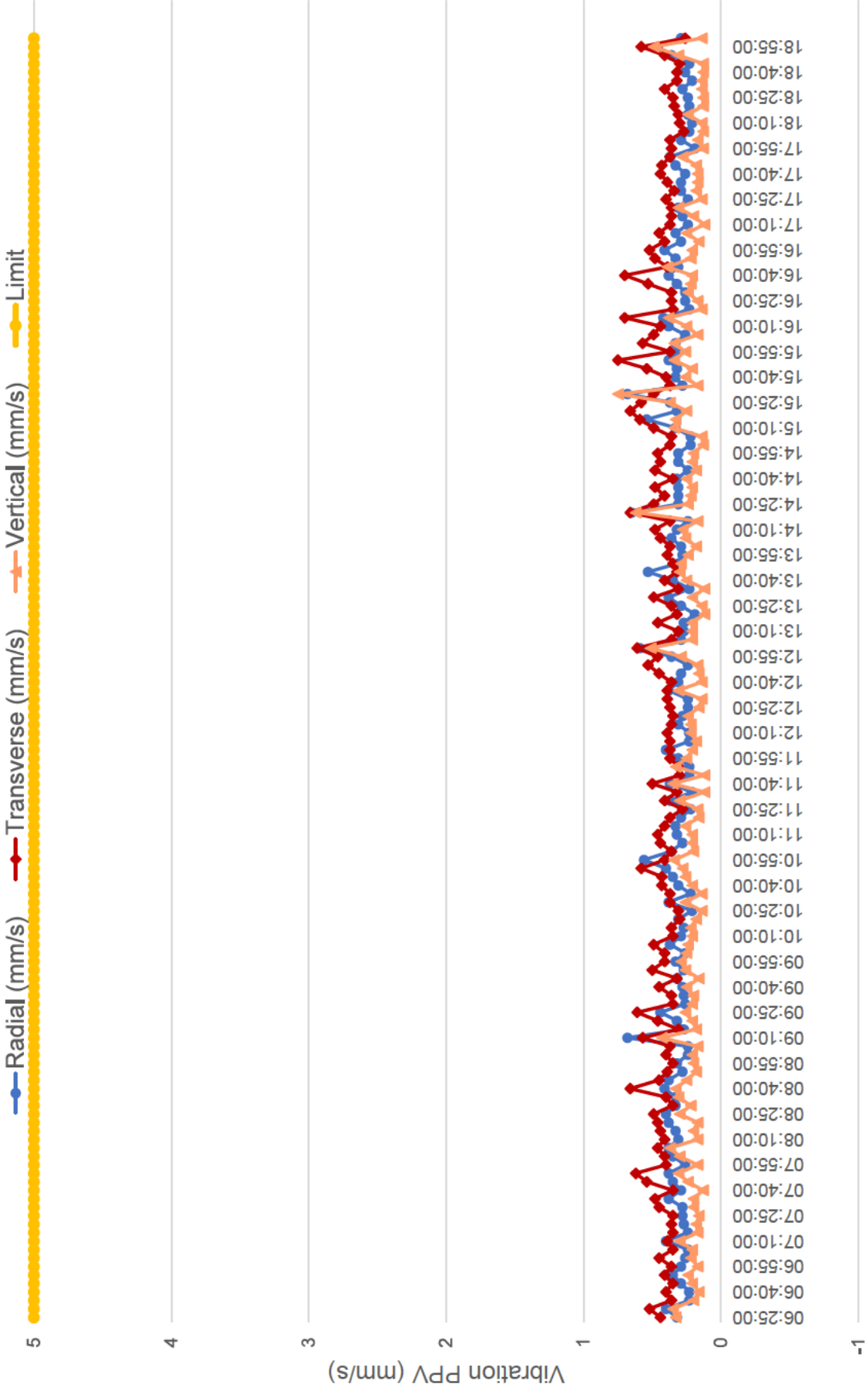
# ACOUSTIC LOGIC

Vibration Monitoring: 01/06/2022





# Vibration Monitoring: 02/06/2022

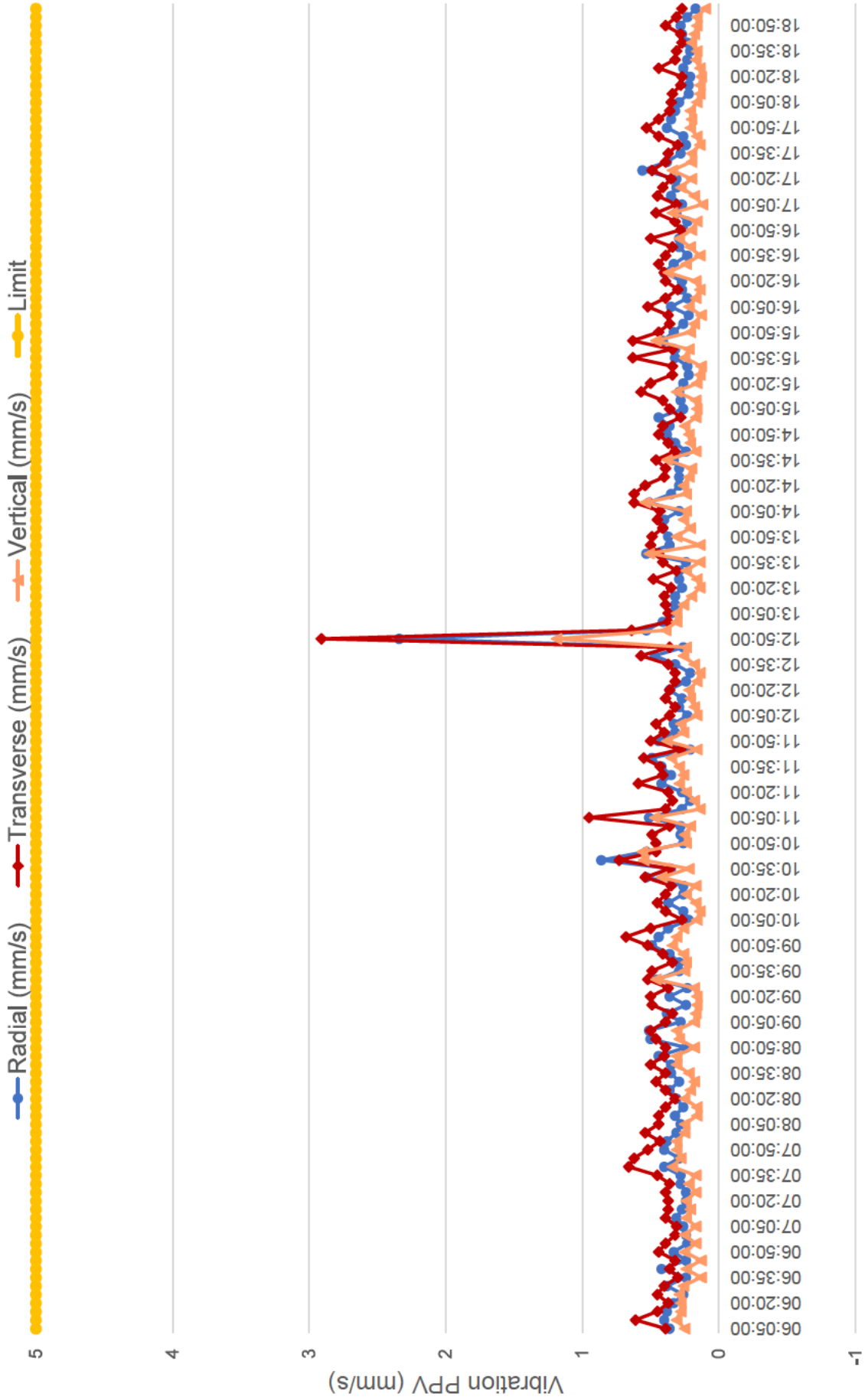






# ACOUSTIC LOGIC

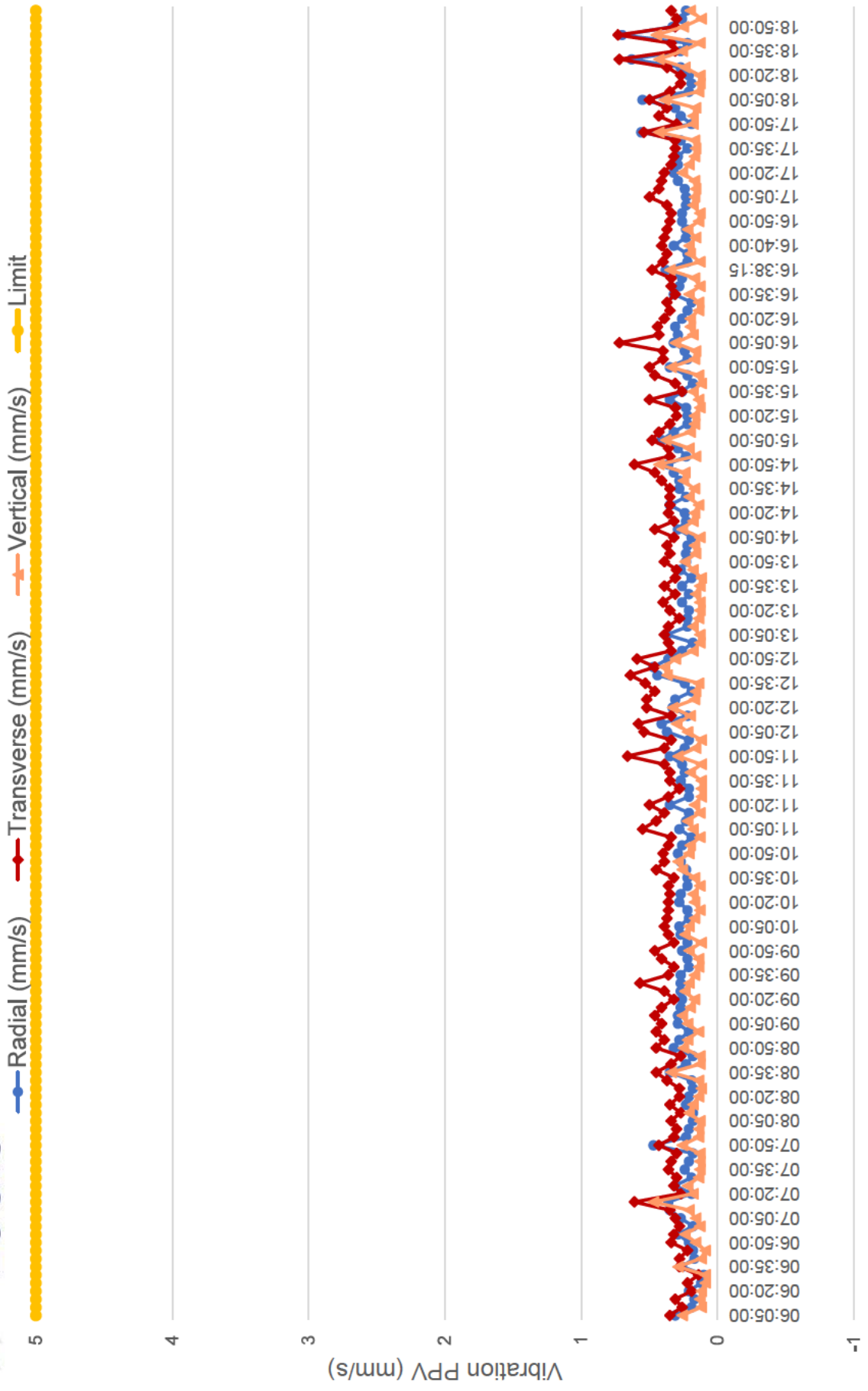
Vibration Monitoring: 03/06/2022





# ACOUSTIC LOGIC

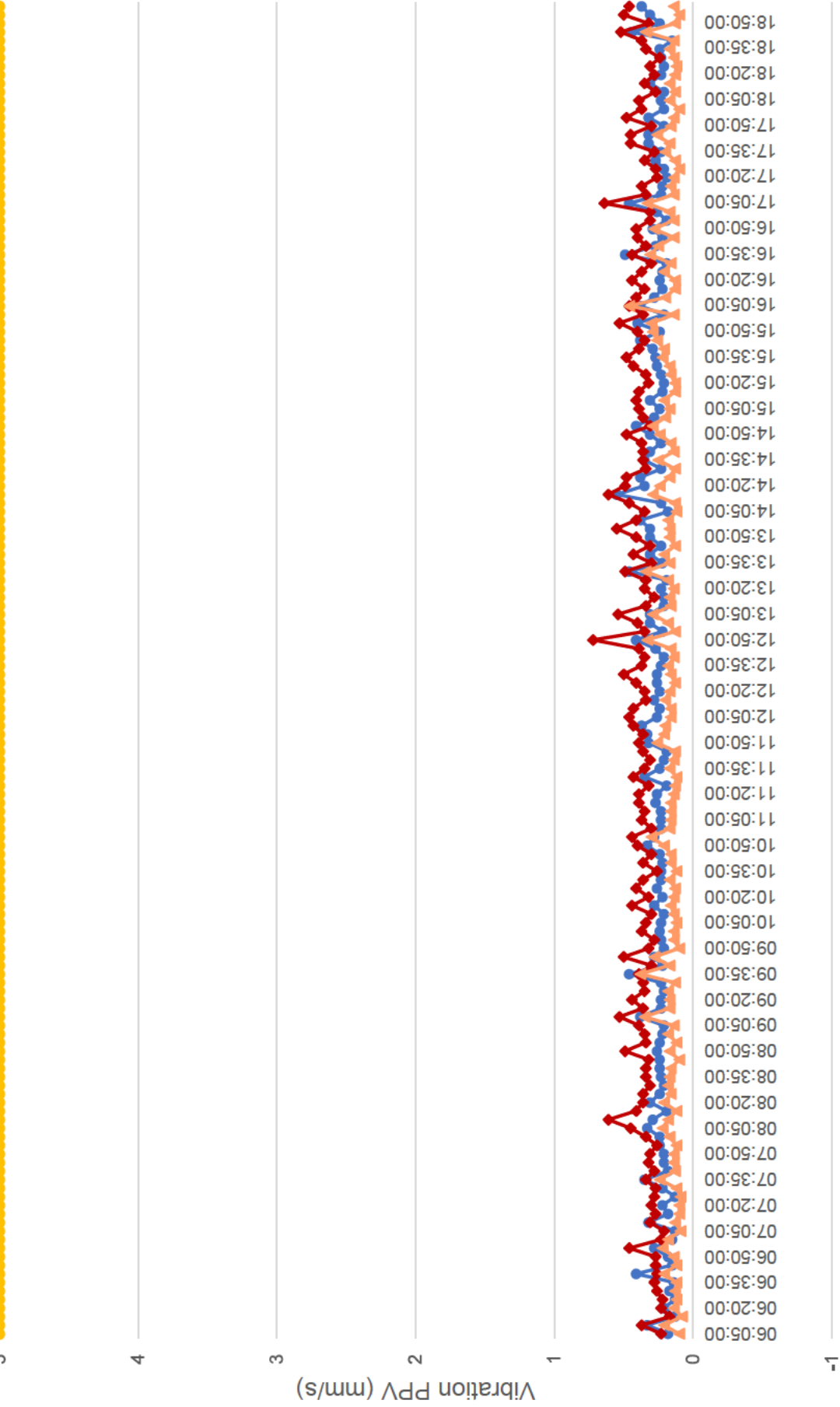
Vibration Monitoring: 04/06/2022





# ACOUSTIC LOGIC

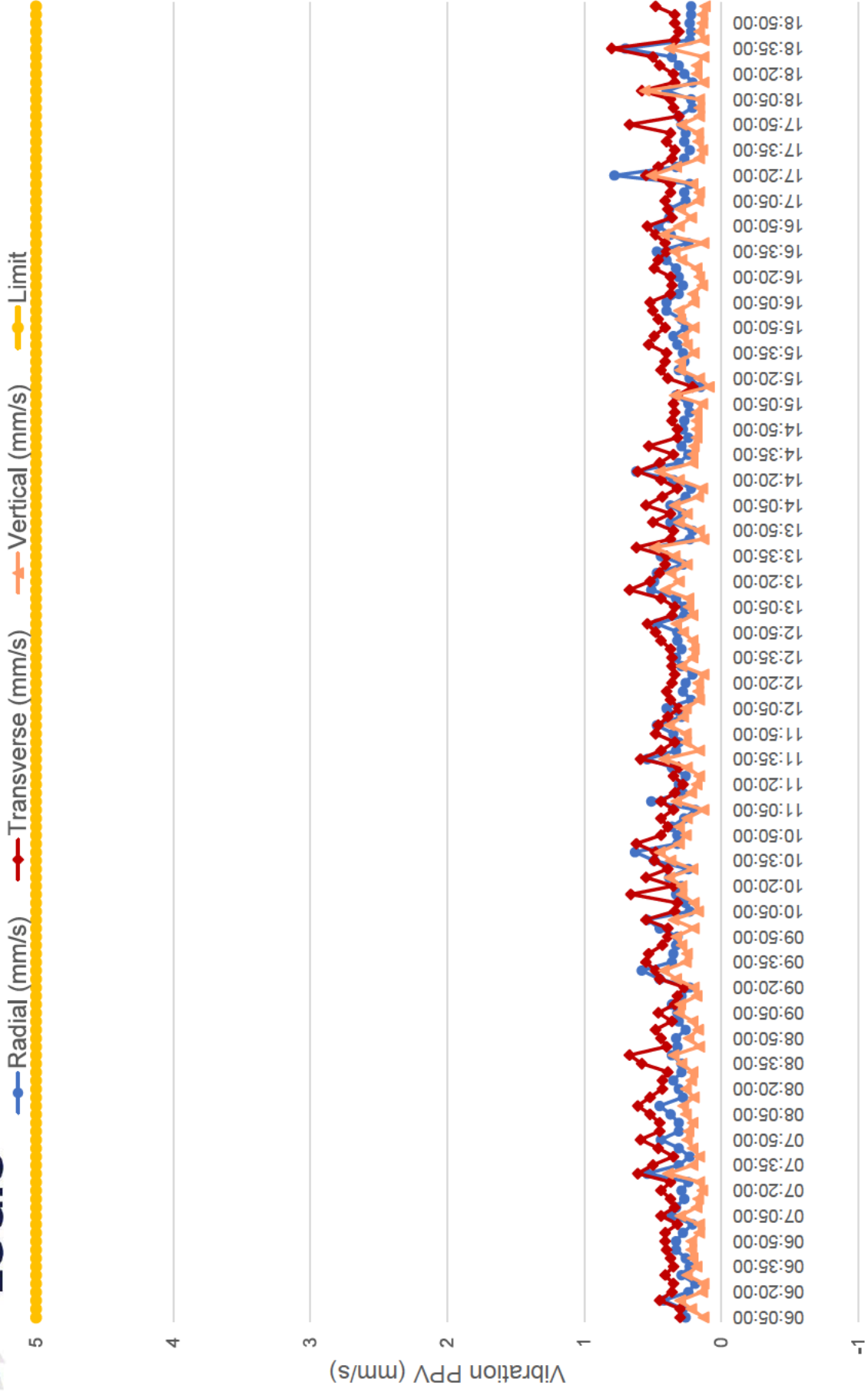
Vibration Monitoring: 05/06/2022





# ACOUSTIC LOGIC

Vibration Monitoring: 06/06/2022

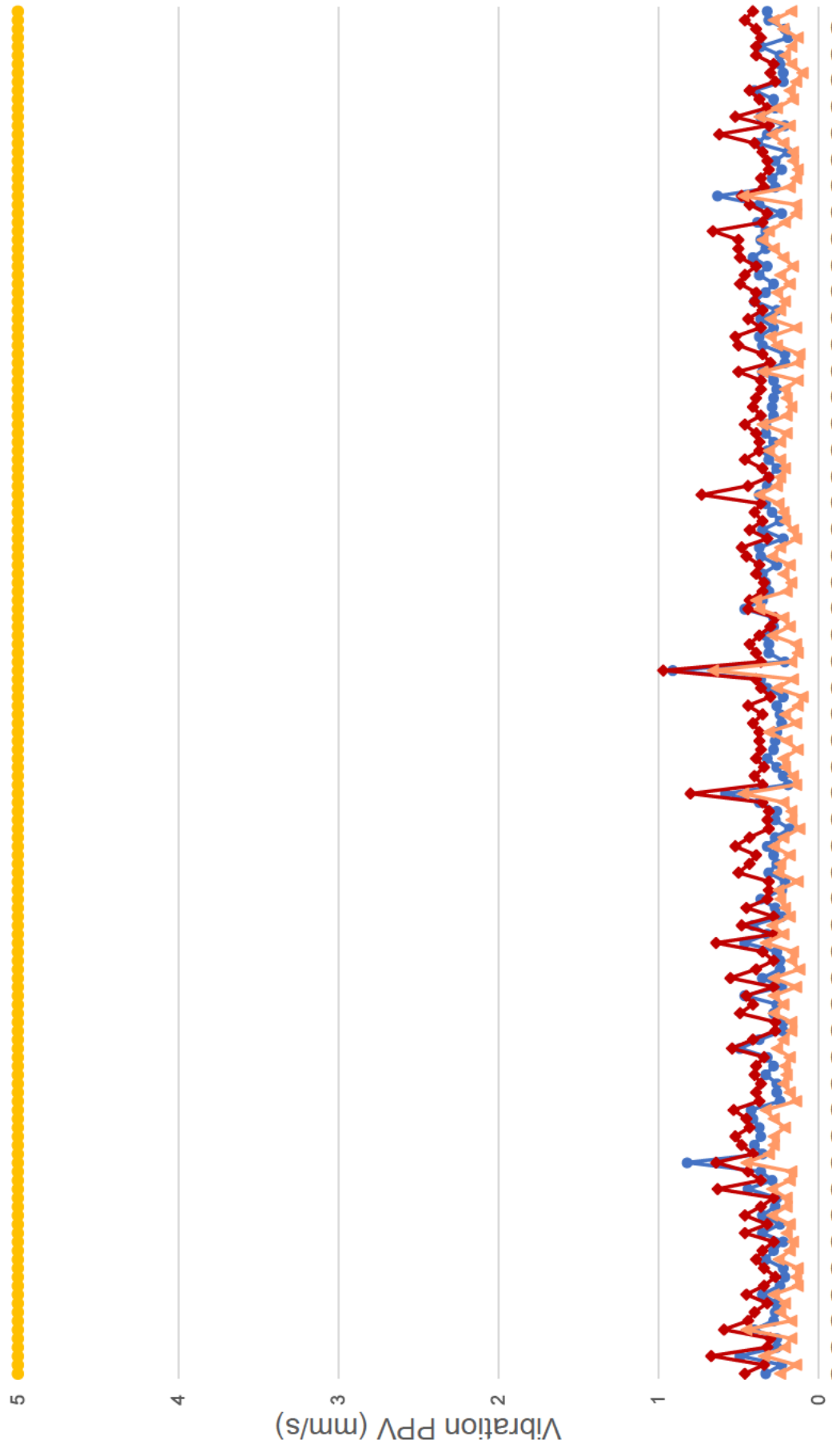




# ACOUSTIC LOGIC

Vibration Monitoring: 07/06/2022

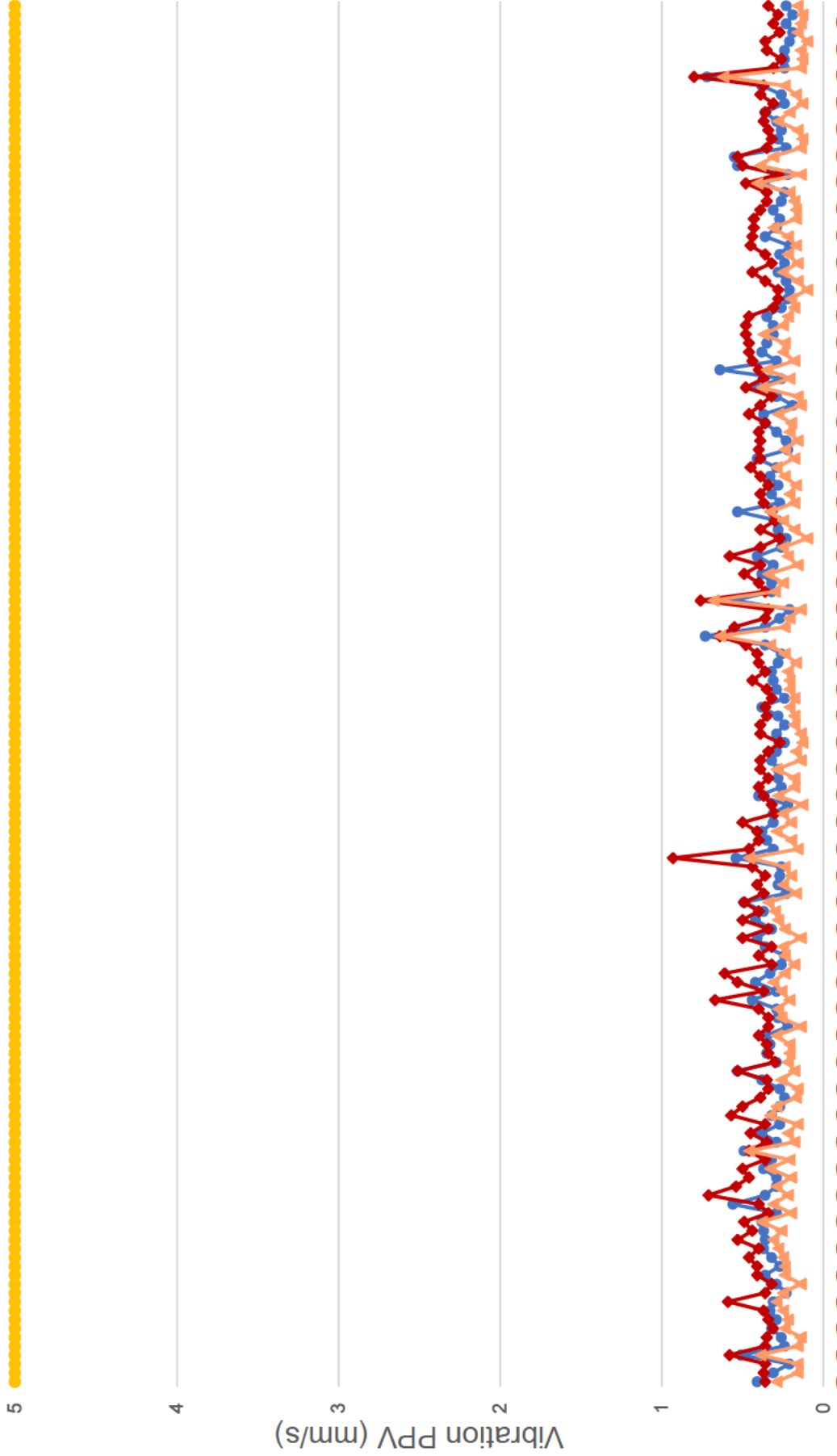
Radial (mm/s)    Transverse (mm/s)    Vertical (mm/s)    Limit





# Vibration Monitoring: 08/06/2022

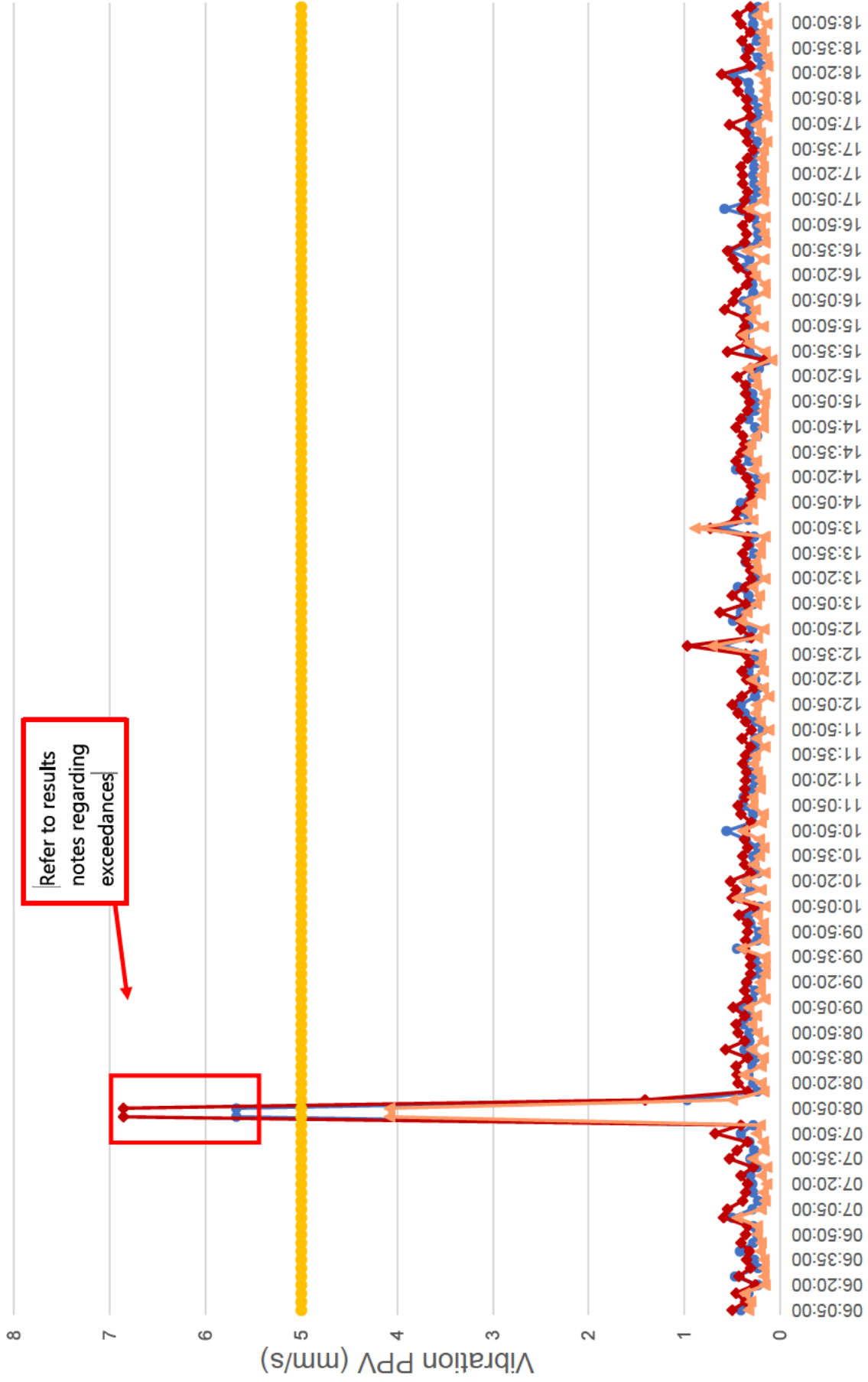
Radial (mm/s)    Transverse (mm/s)    Vertical (mm/s)    Limit





# Vibration Monitoring: 09/06/2022

Radial (mm/s)    Transverse (mm/s)    Vertical (mm/s)    Limit

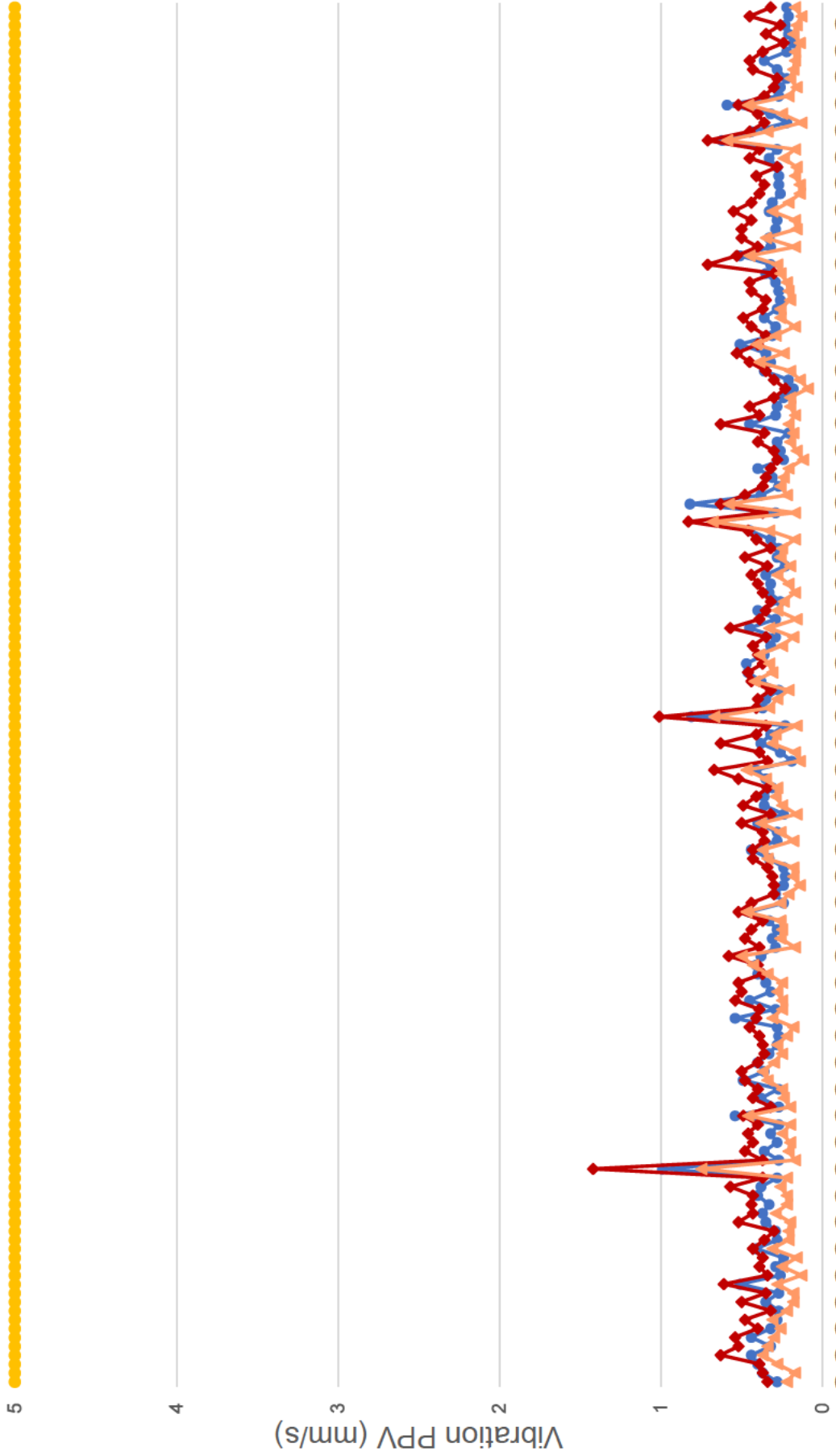




# ACOUSTIC LOGIC

Vibration Monitoring: 10/06/2022

Radial (mm/s)    Transverse (mm/s)    Vertical (mm/s)    Limit



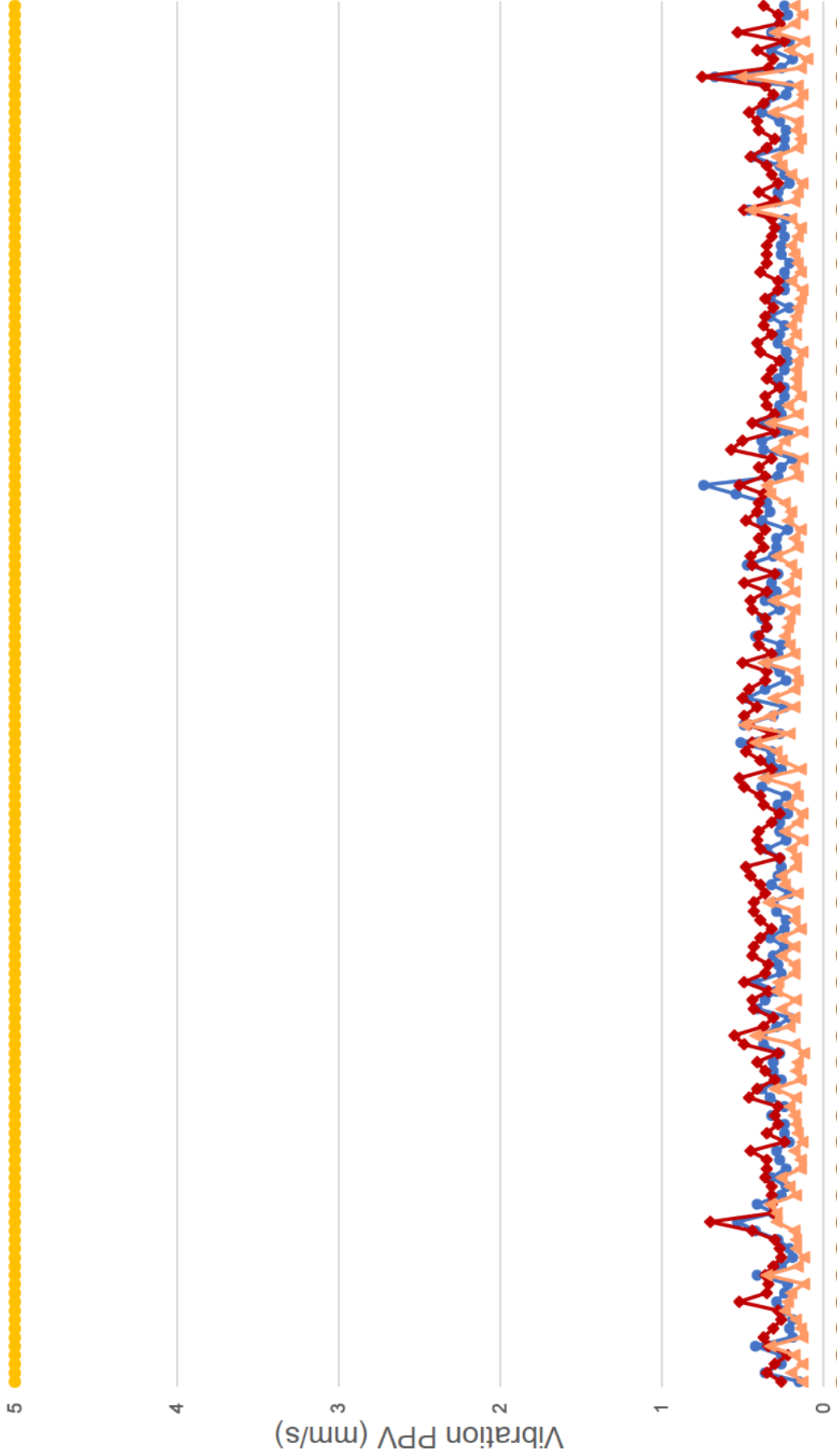




# ACOUSTIC LOGIC

Vibration Monitoring: 11/06/2022

Radial (mm/s)    Transverse (mm/s)    Vertical (mm/s)    Limit

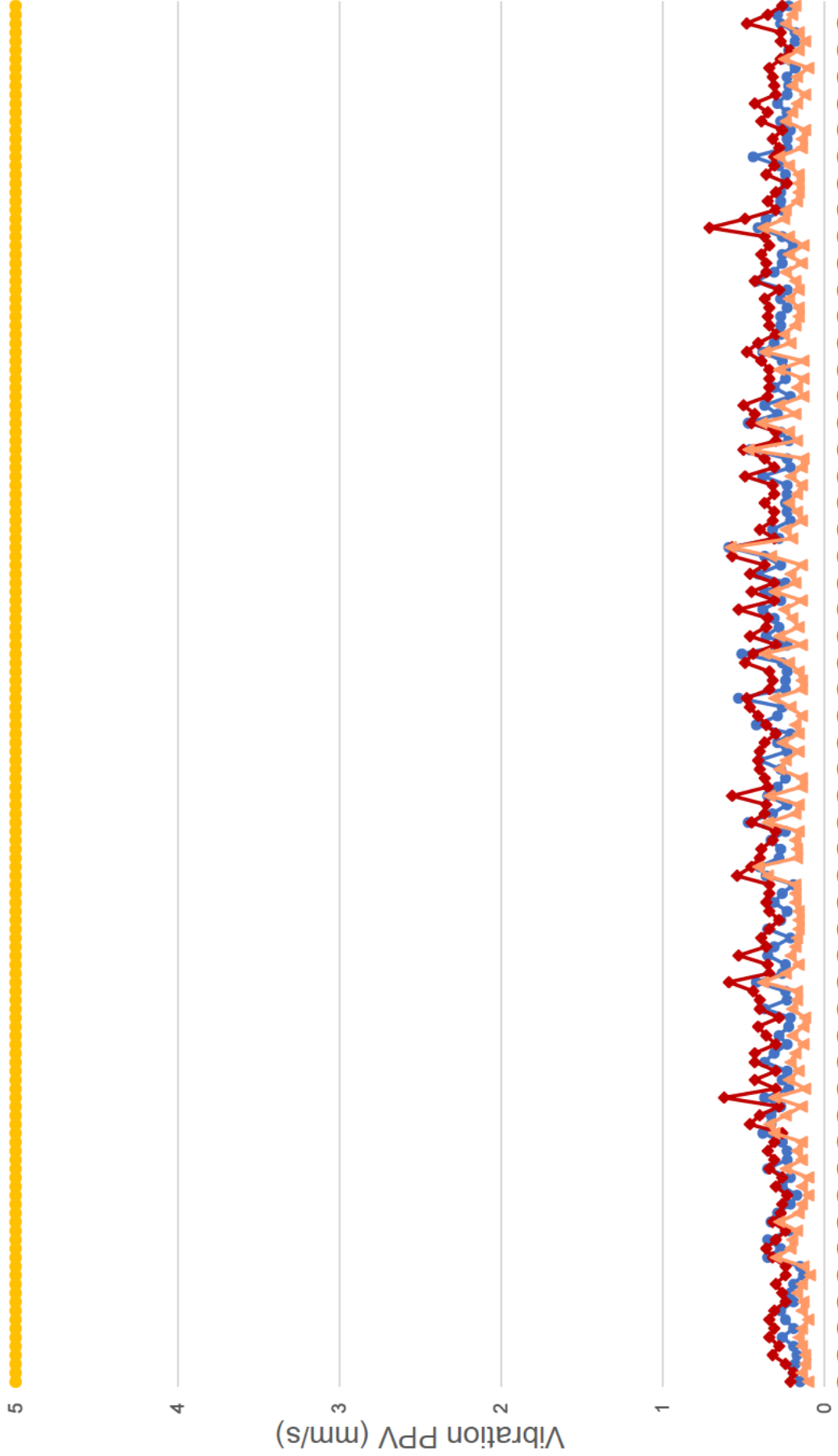




# ACOUSTIC LOGIC

Vibration Monitoring: 12/06/2022

Radial (mm/s)    Transverse (mm/s)    Vertical (mm/s)    Limit

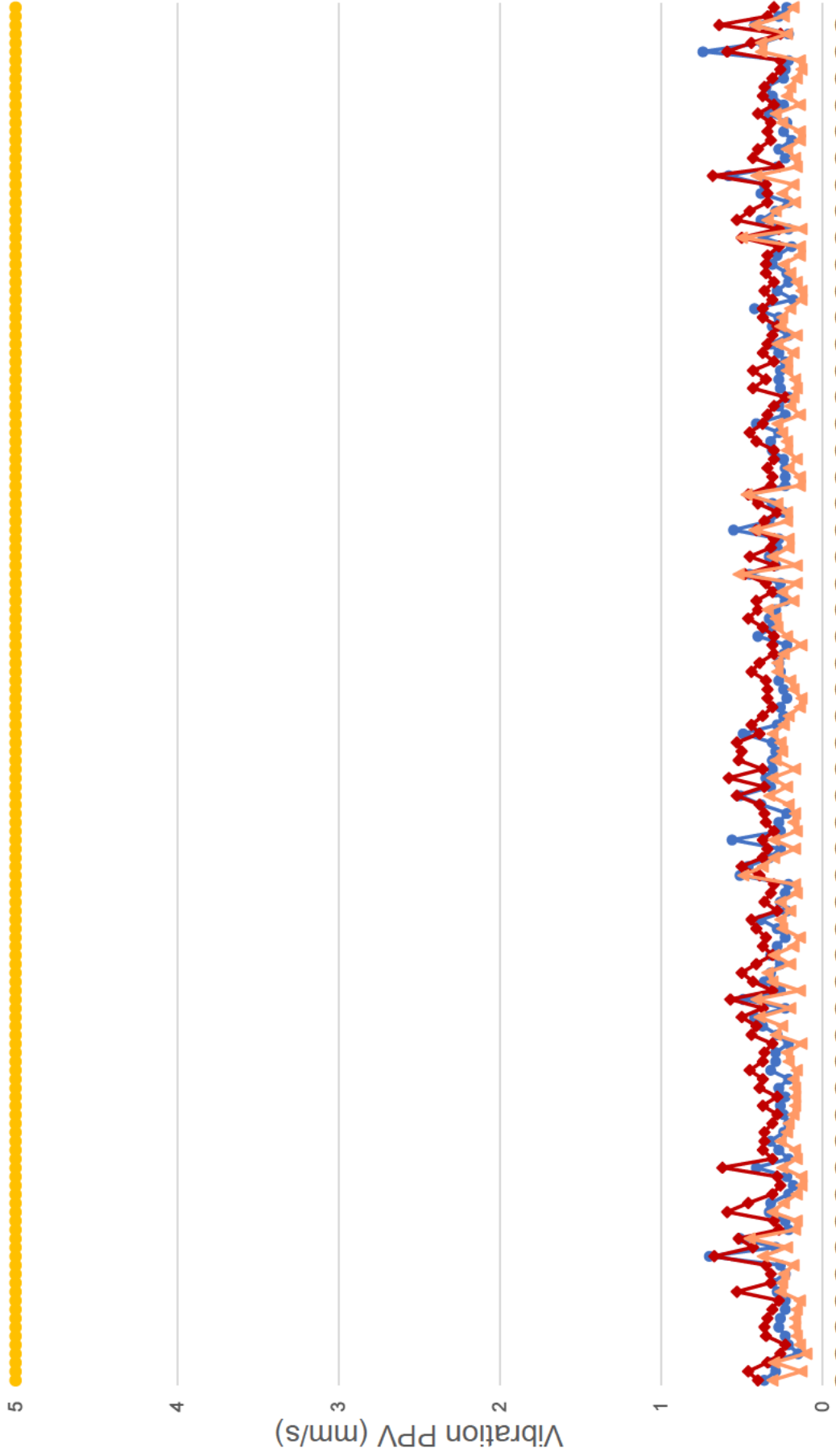




# ACOUSTIC LOGIC

Vibration Monitoring: 13/06/2022

Radial (mm/s)    Transverse (mm/s)    Vertical (mm/s)    Limit

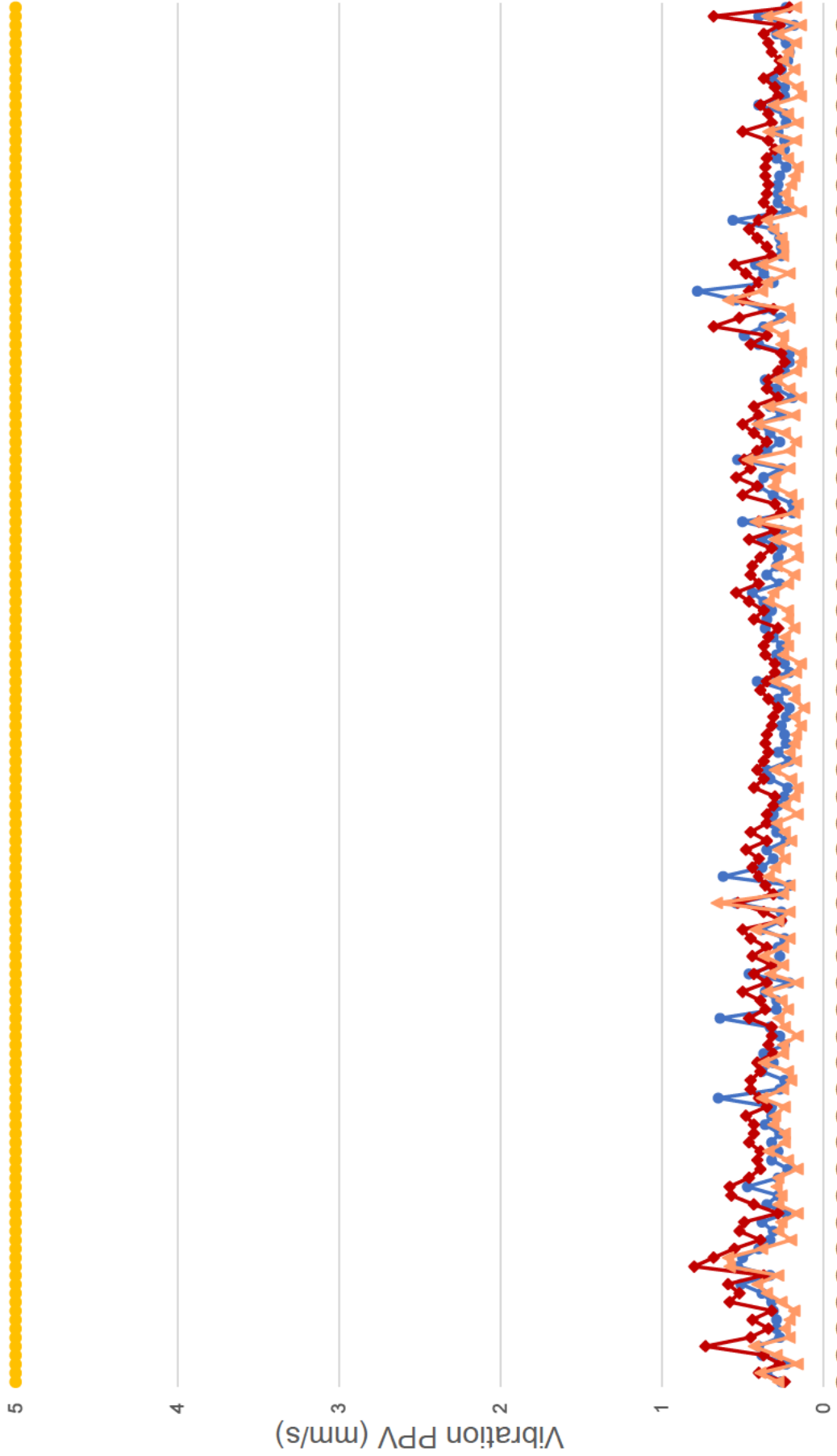




# ACOUSTIC LOGIC

Vibration Monitoring: 14/06/2022

—●— Radial (mm/s)    —●— Transverse (mm/s)    —●— Vertical (mm/s)    —●— Limit

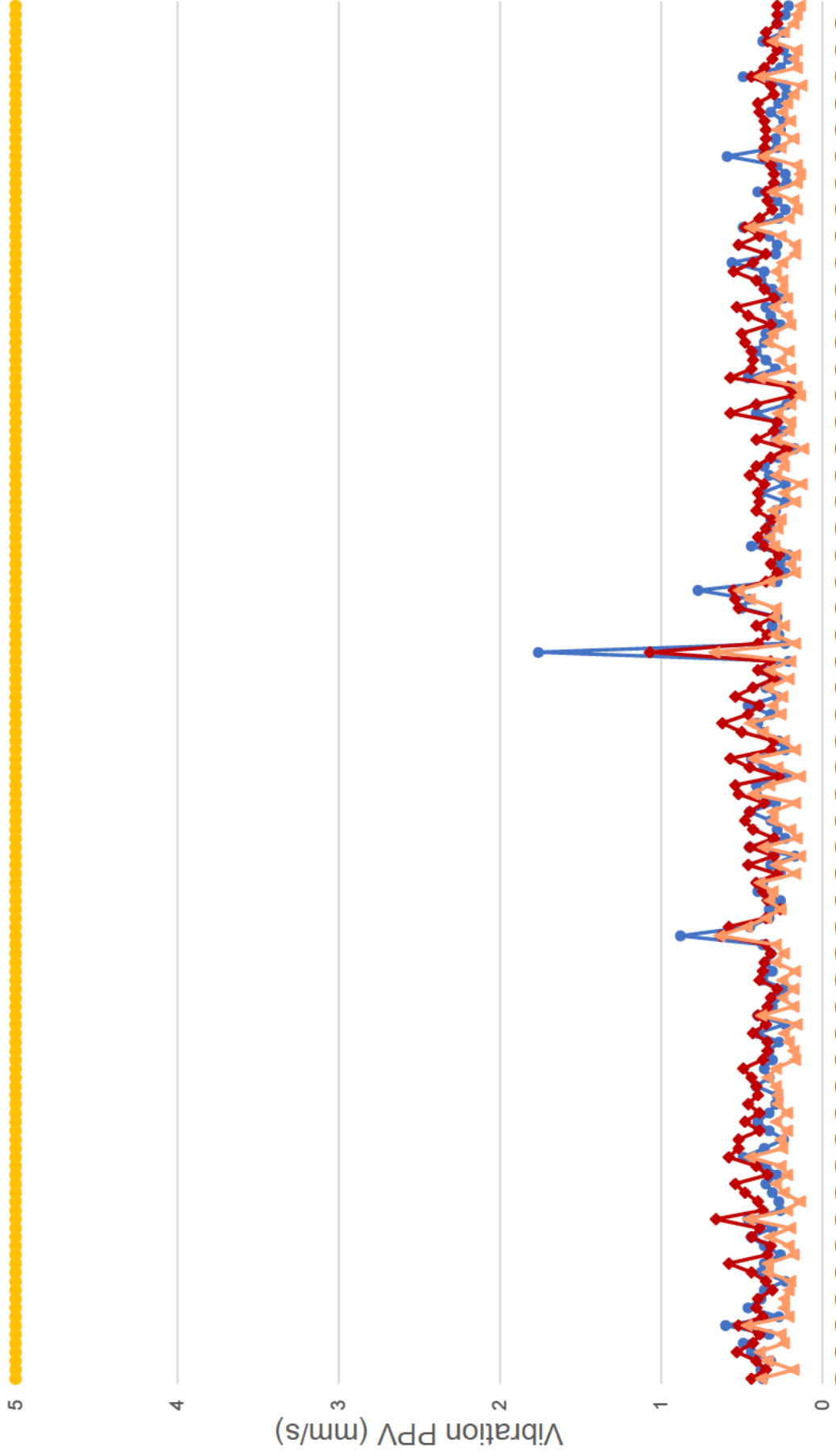




# ACOUSTIC LOGIC

Vibration Monitoring: 15/06/2022

Radial (mm/s) Transverse (mm/s) Vertical (mm/s) Limit

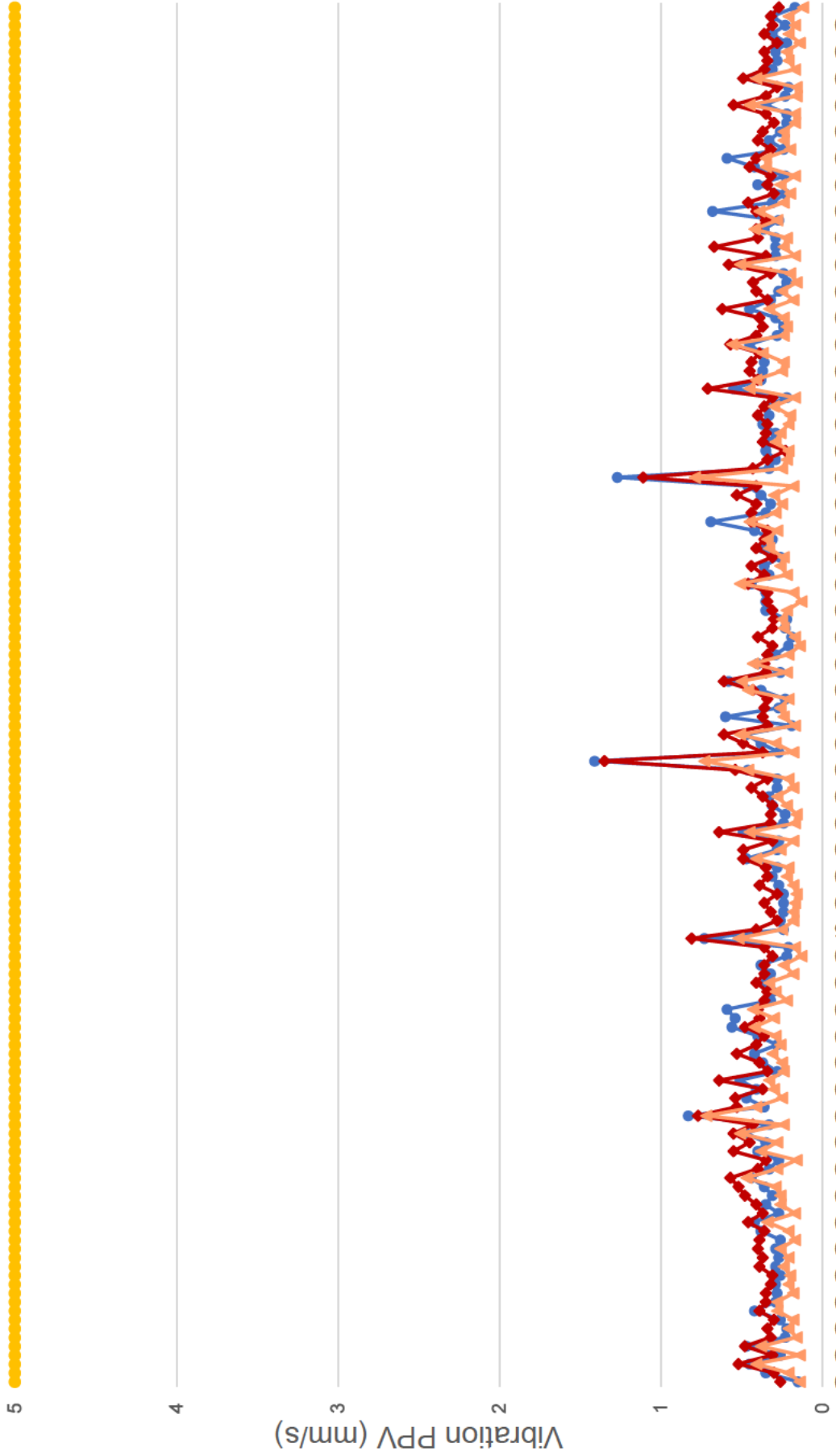




# ACOUSTIC LOGIC

## Vibration Monitoring: 16/06/2022

—●— Radial (mm/s)    —●— Transverse (mm/s)    —●— Vertical (mm/s)    —●— Limit

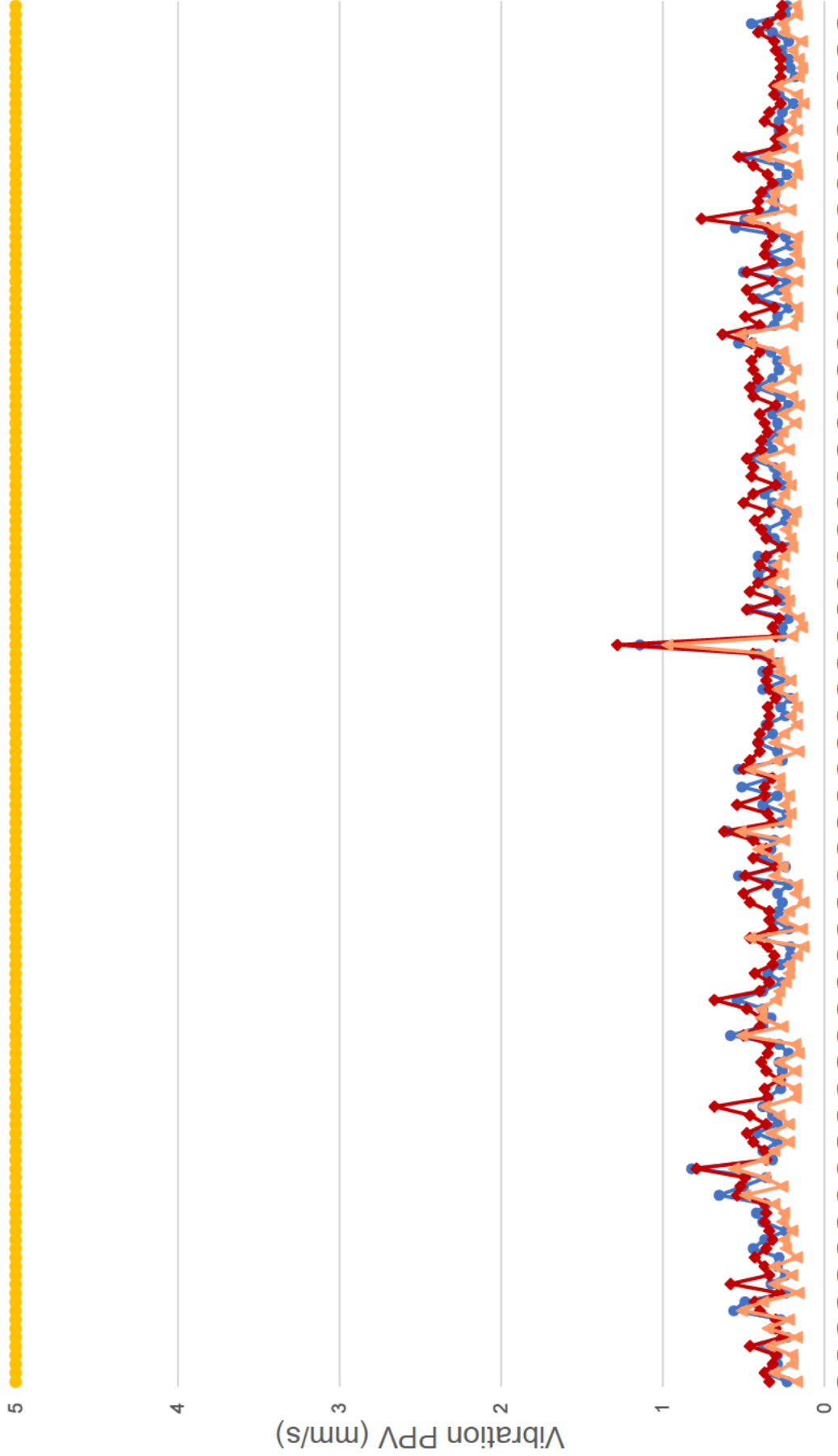




# ACOUSTIC LOGIC

Vibration Monitoring: 17/06/2022

Radial (mm/s) Transverse (mm/s) Vertical (mm/s) Limit

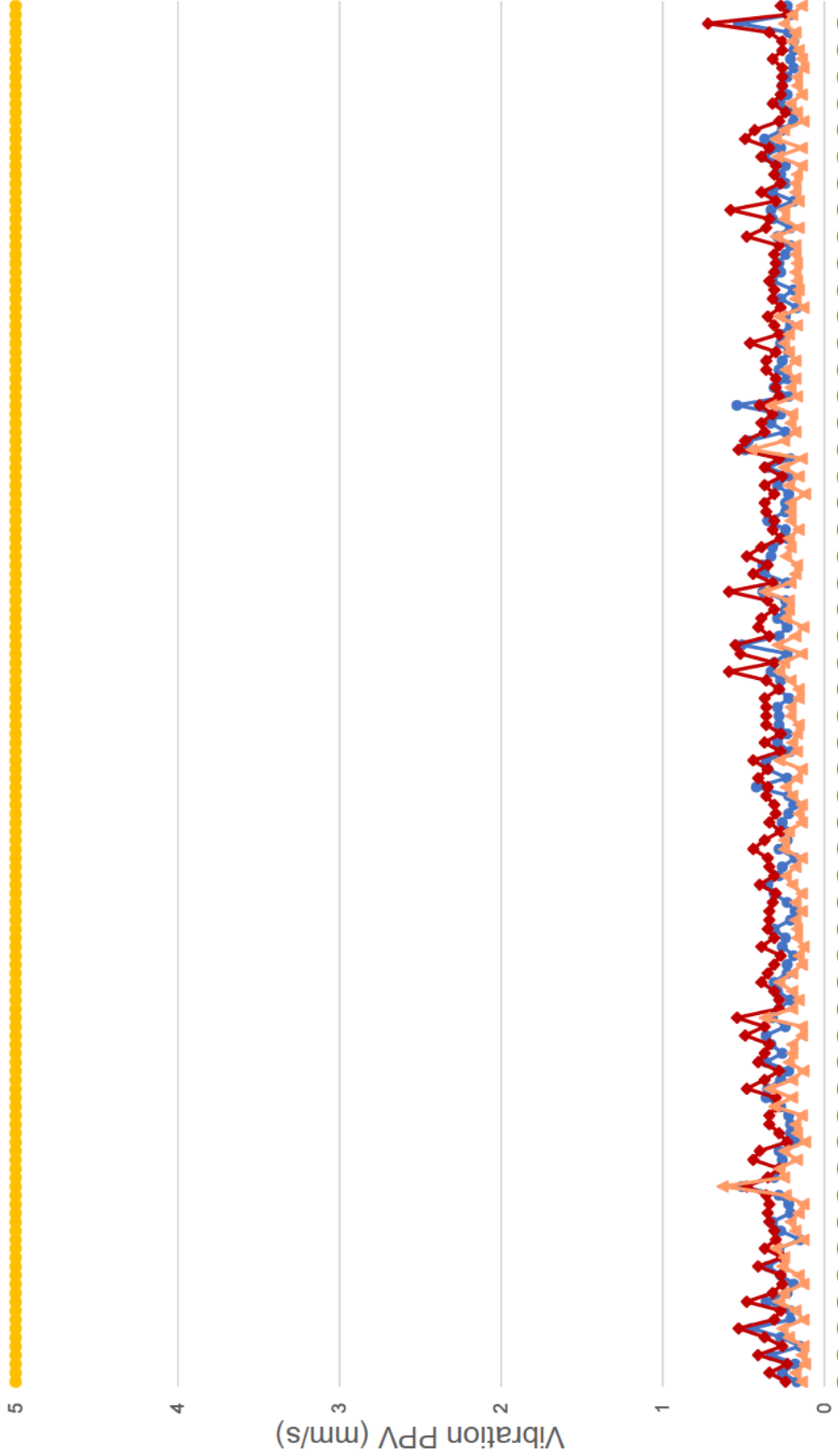




# ACOUSTIC LOGIC

Vibration Monitoring: 18/06/2022

Radial (mm/s)    Transverse (mm/s)    Vertical (mm/s)    Limit



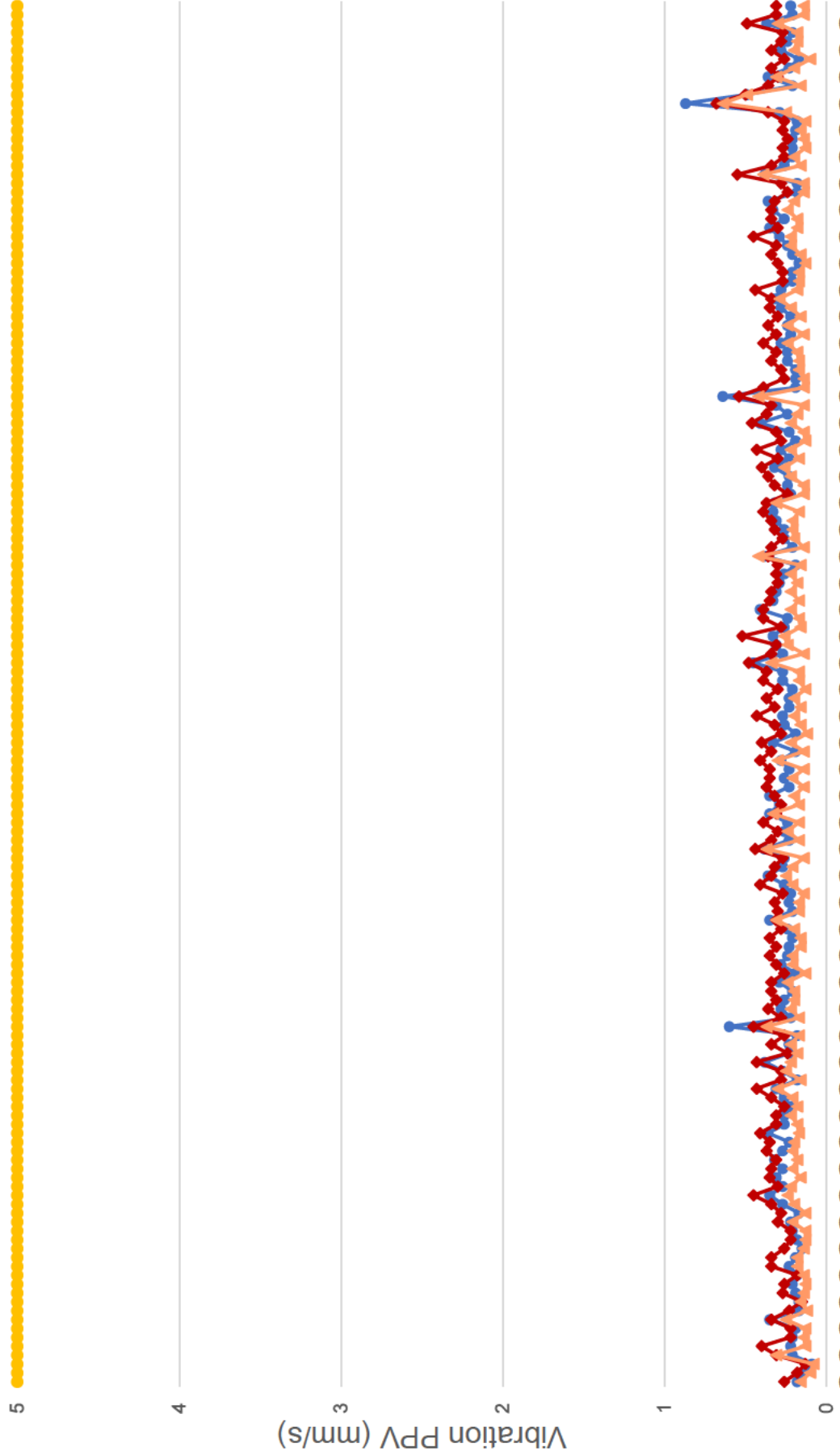




# ACOUSTIC LOGIC

## Vibration Monitoring: 19/06/2022

—●— Radial (mm/s)    —●— Transverse (mm/s)    —●— Vertical (mm/s)    —●— Limit



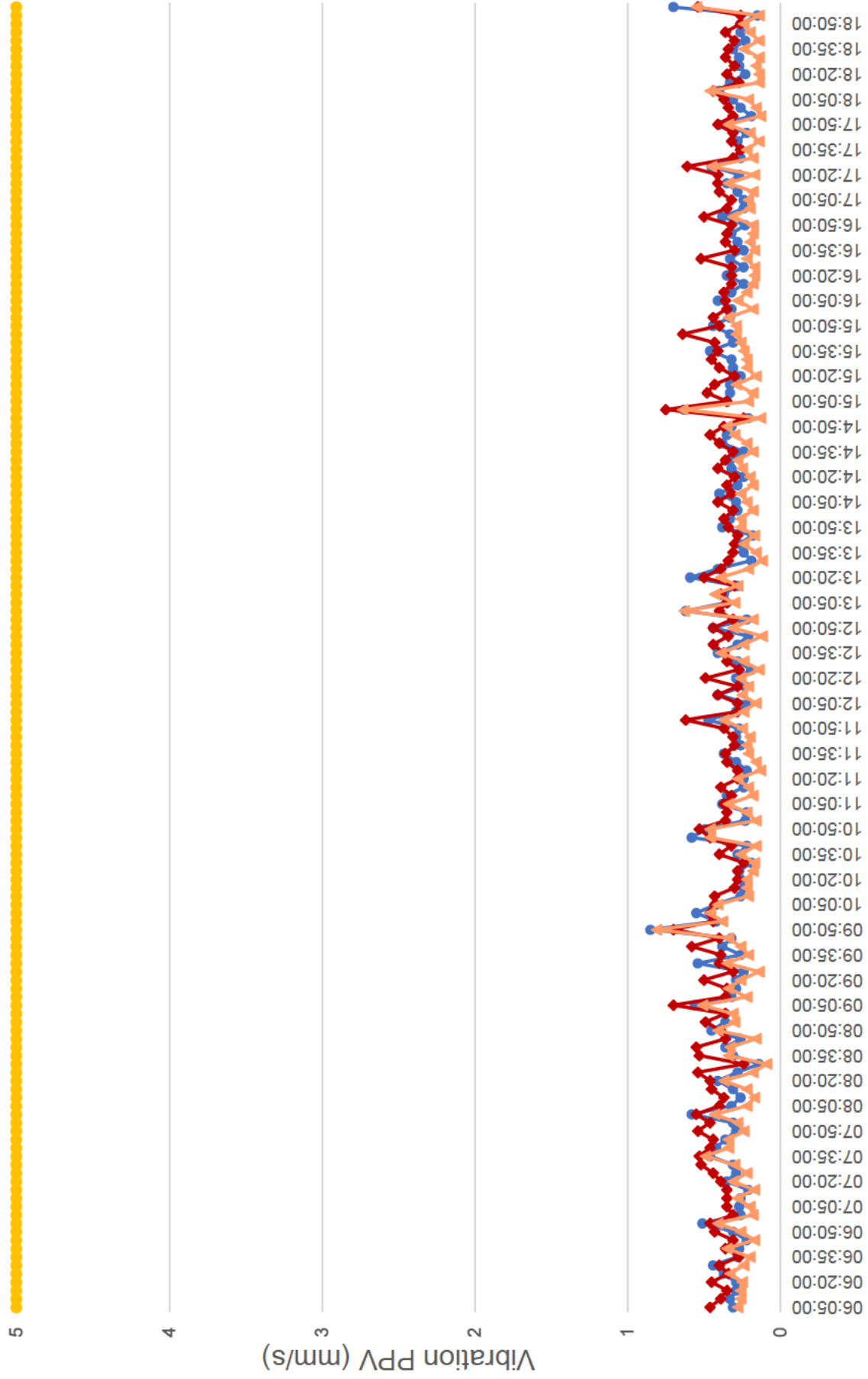
06:05:00 06:20:00 06:35:00 06:50:00 07:05:00 07:20:00 07:35:00 07:50:00 08:05:00 08:20:00 08:35:00 08:50:00 09:05:00 09:20:00 09:35:00 09:50:00 10:05:00 10:20:00 10:35:00 10:50:00 11:05:00 11:20:00 11:35:00 11:50:00 12:05:00 12:20:00 12:35:00 12:50:00 13:05:00 13:20:00 13:35:00 13:50:00 14:05:00 14:20:00 14:35:00 14:50:00 15:05:00 15:20:00 15:35:00 15:50:00 16:05:00 16:20:00 16:35:00 16:50:00 17:05:00 17:20:00 17:35:00 17:50:00 18:05:00 18:20:00 18:35:00 18:50:00



# ACOUSTIC LOGIC

Vibration Monitoring: 20/06/2022

—●— Radial (mm/s)    —●— Transverse (mm/s)    —●— Vertical (mm/s)    —●— Limit

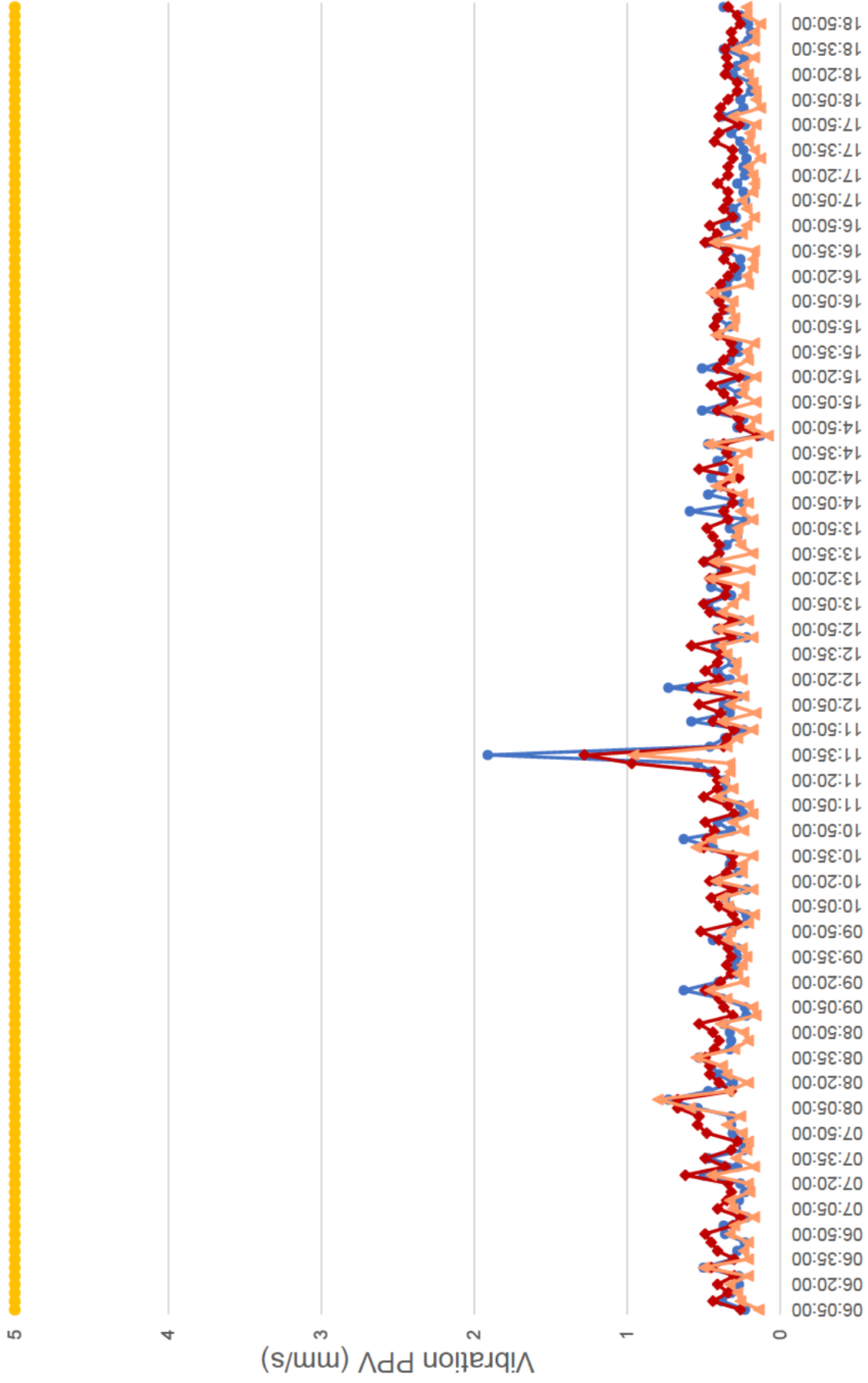




# ACOUSTIC LOGIC

## Vibration Monitoring: 21/06/2022

—●— Radial (mm/s)    —●— Transverse (mm/s)    —●— Vertical (mm/s)    —●— Limit

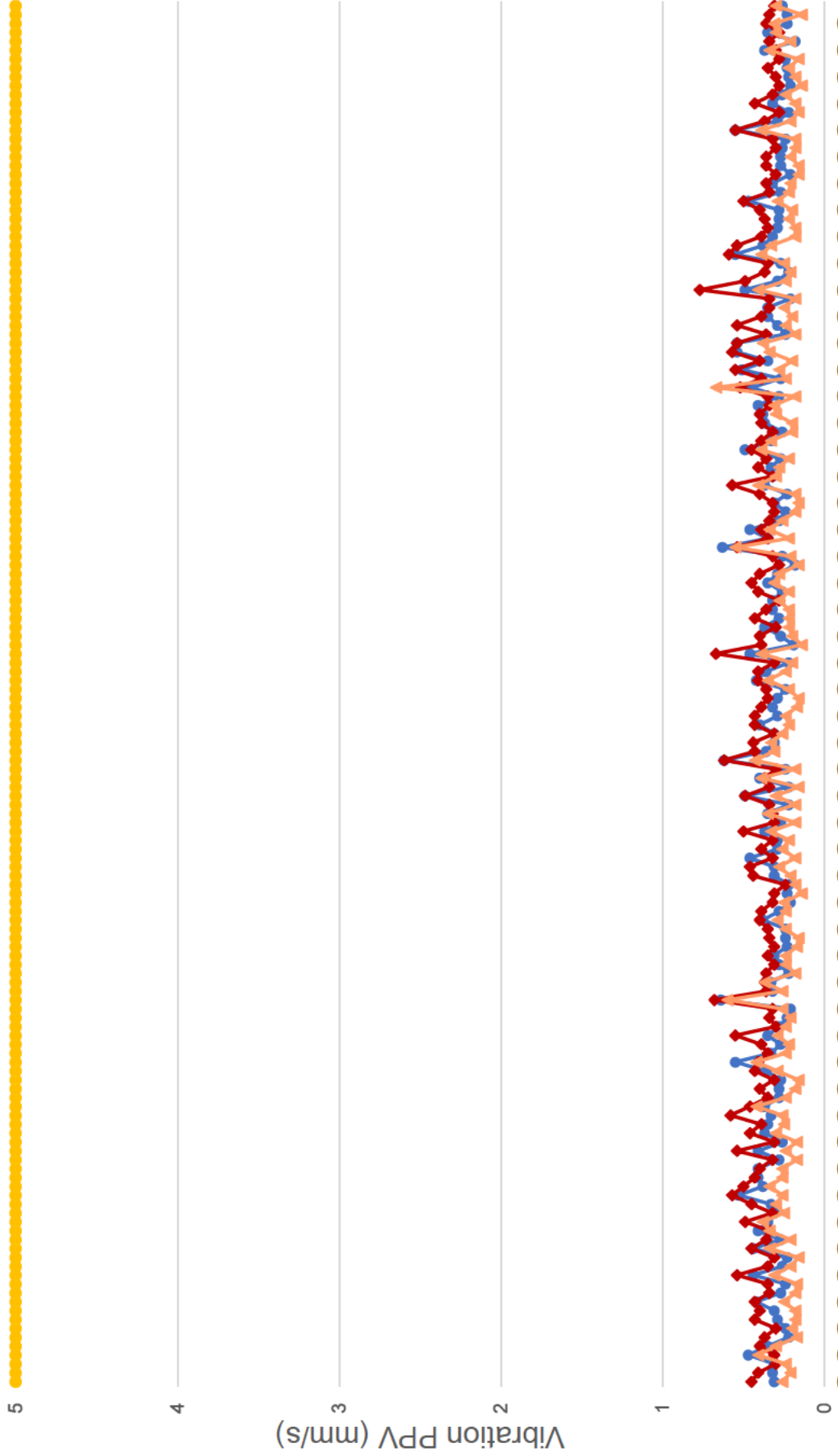




# ACOUSTIC LOGIC

Vibration Monitoring: 22/06/2022

—●— Radial (mm/s)    —●— Transverse (mm/s)    —●— Vertical (mm/s)    —●— Limit

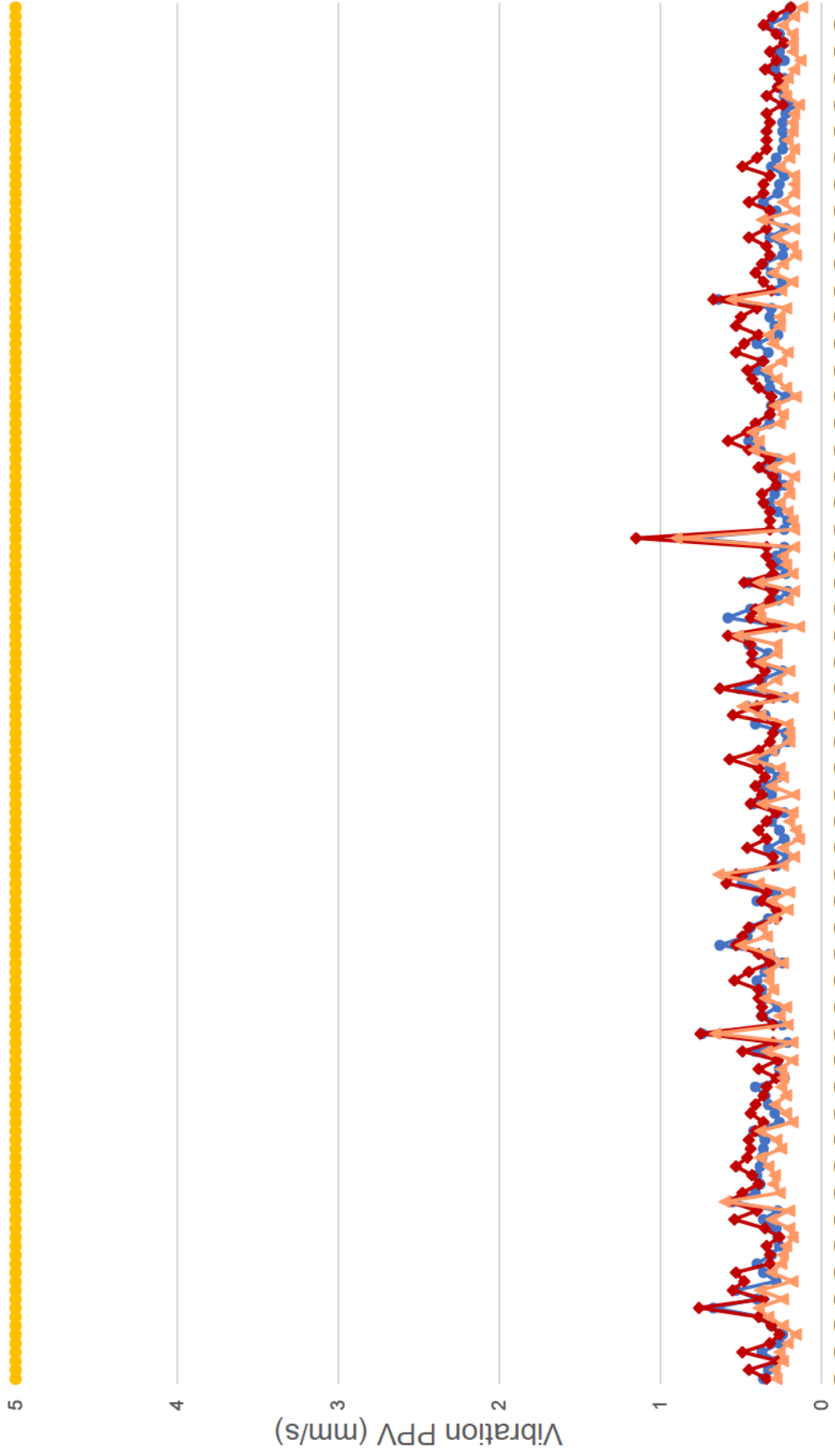




# ACOUSTIC LOGIC

Vibration Monitoring: 23/06/2022

Radial (mm/s)    Transverse (mm/s)    Vertical (mm/s)    Limit

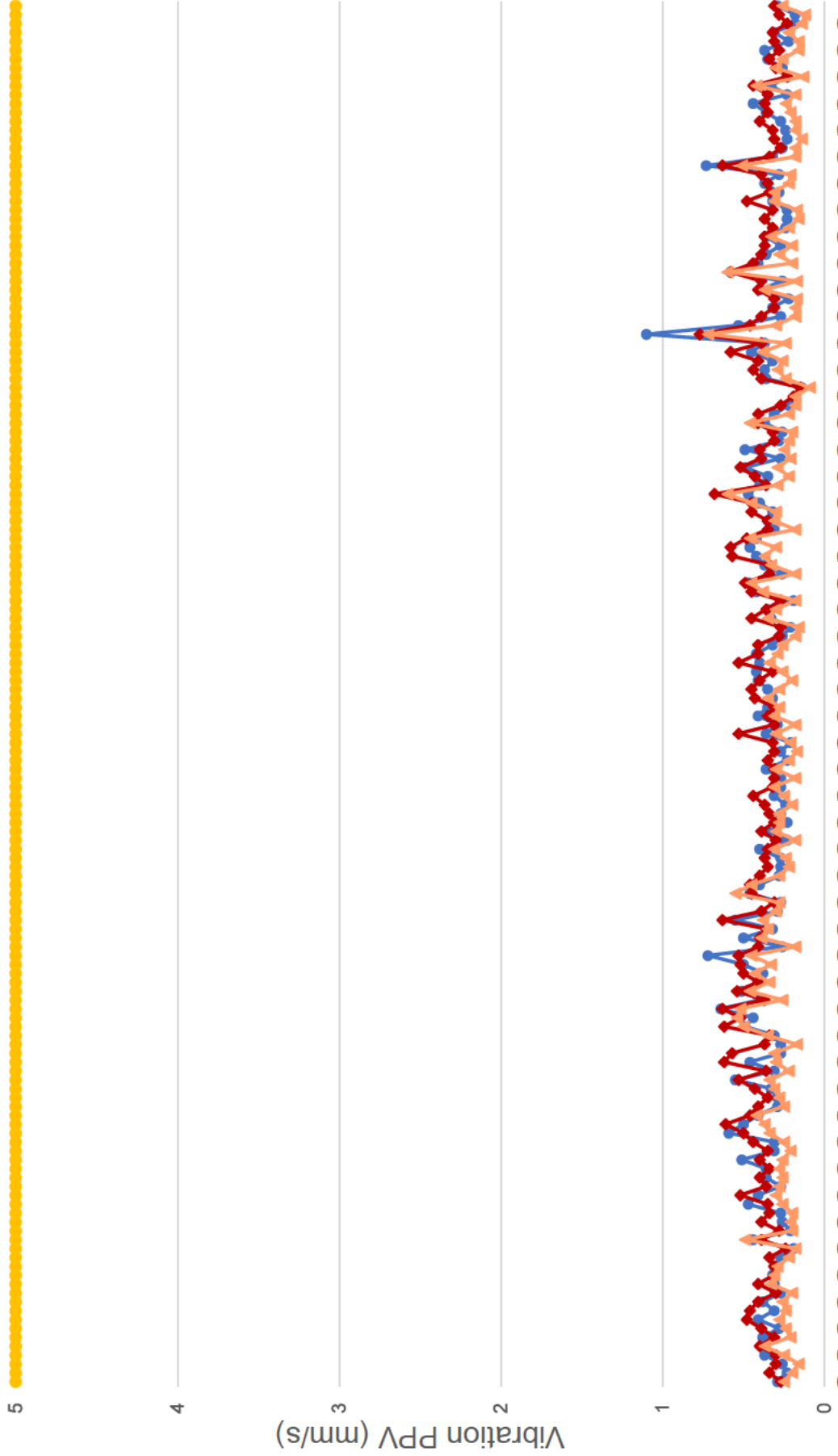




# ACOUSTIC LOGIC

Vibration Monitoring: 24/06/2022

Radial (mm/s)    Transverse (mm/s)    Vertical (mm/s)    Limit

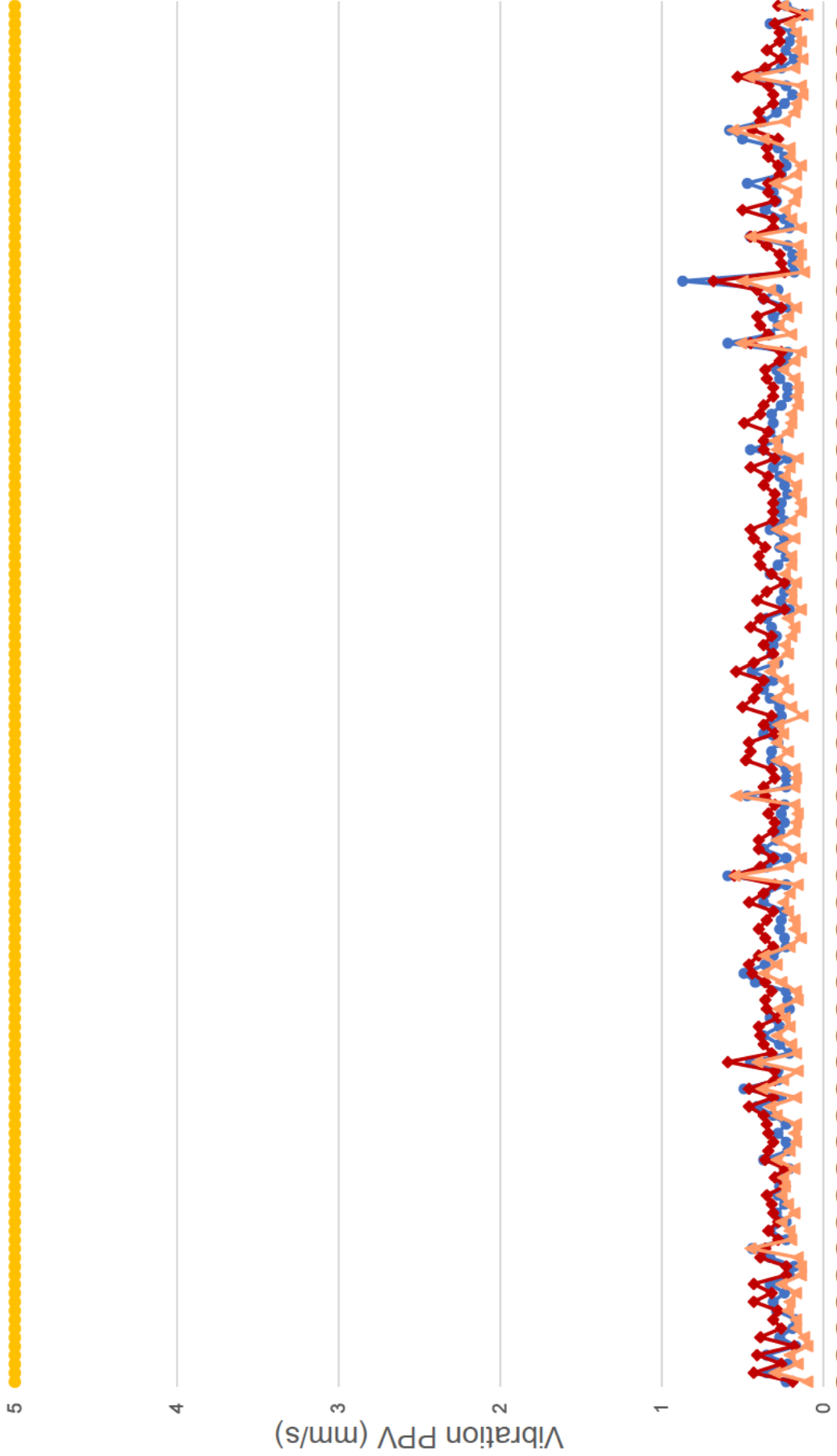




# ACOUSTIC LOGIC

Vibration Monitoring: 25/06/2022

Radial (mm/s)    Transverse (mm/s)    Vertical (mm/s)    Limit

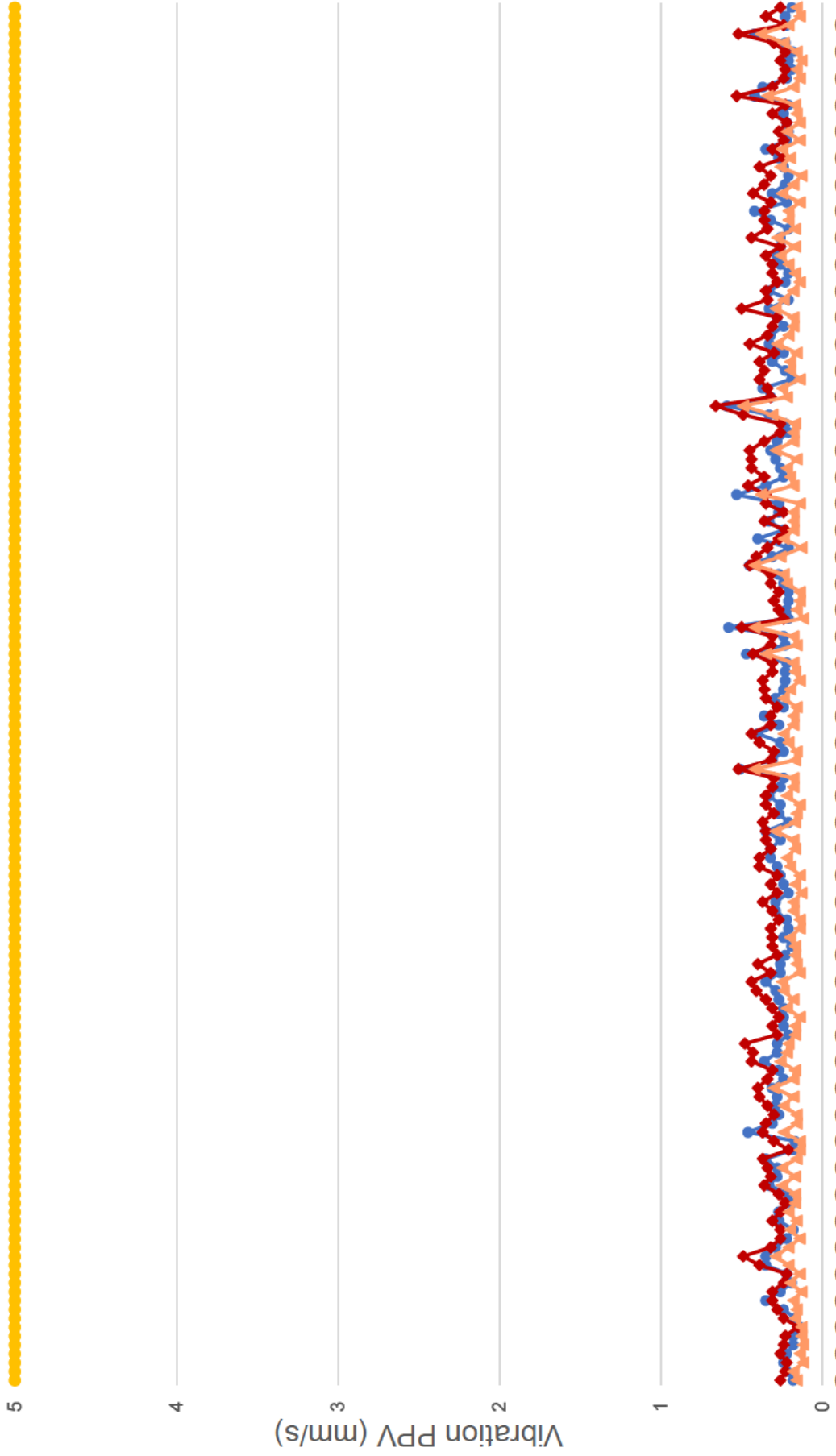




# ACOUSTIC LOGIC

Vibration Monitoring: 26/06/2022

Radial (mm/s)    Transverse (mm/s)    Vertical (mm/s)    Limit



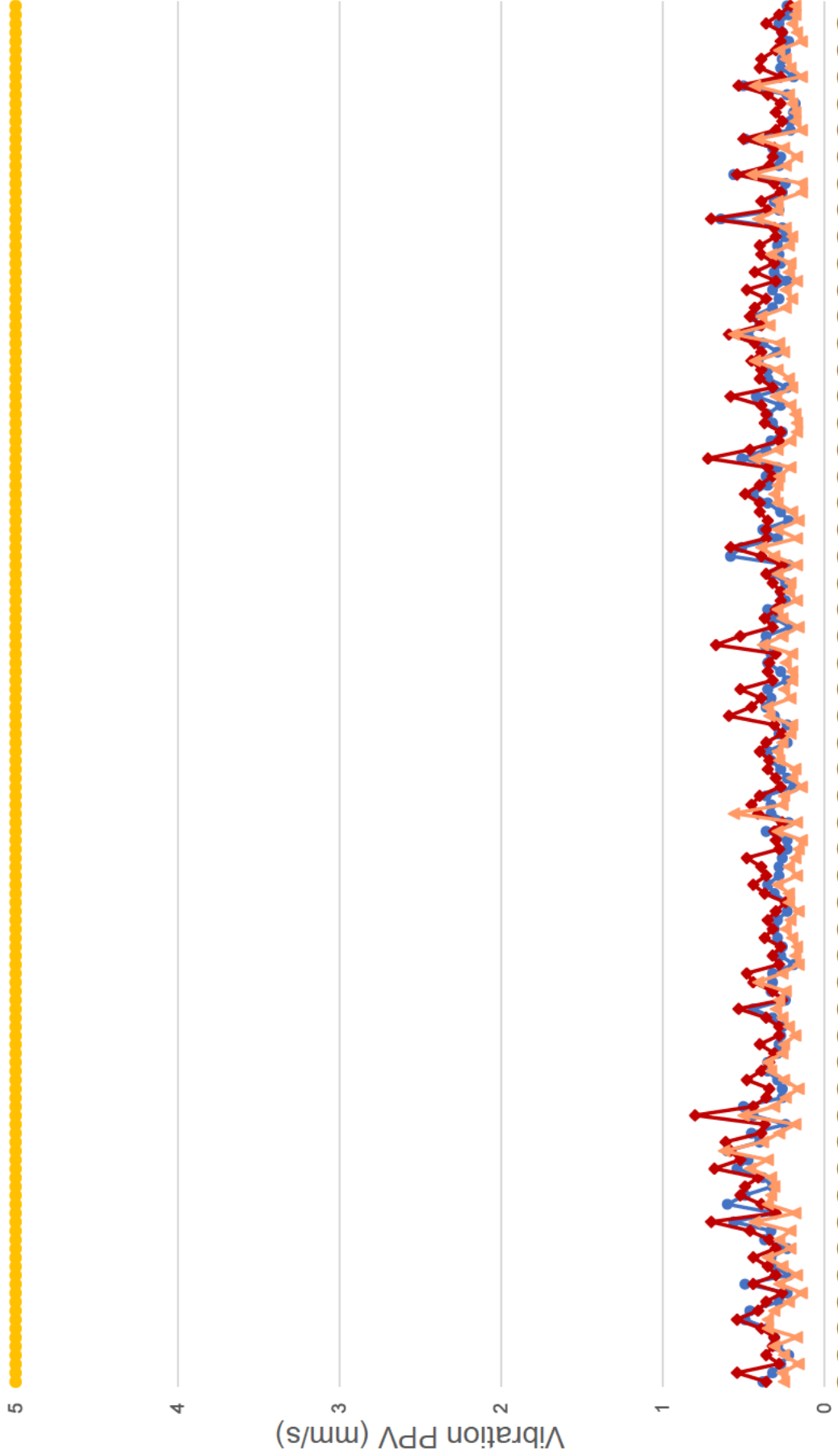




# ACOUSTIC LOGIC

## Vibration Monitoring: 27/06/2022

—●— Radial (mm/s)    —●— Transverse (mm/s)    —●— Vertical (mm/s)    —●— Limit

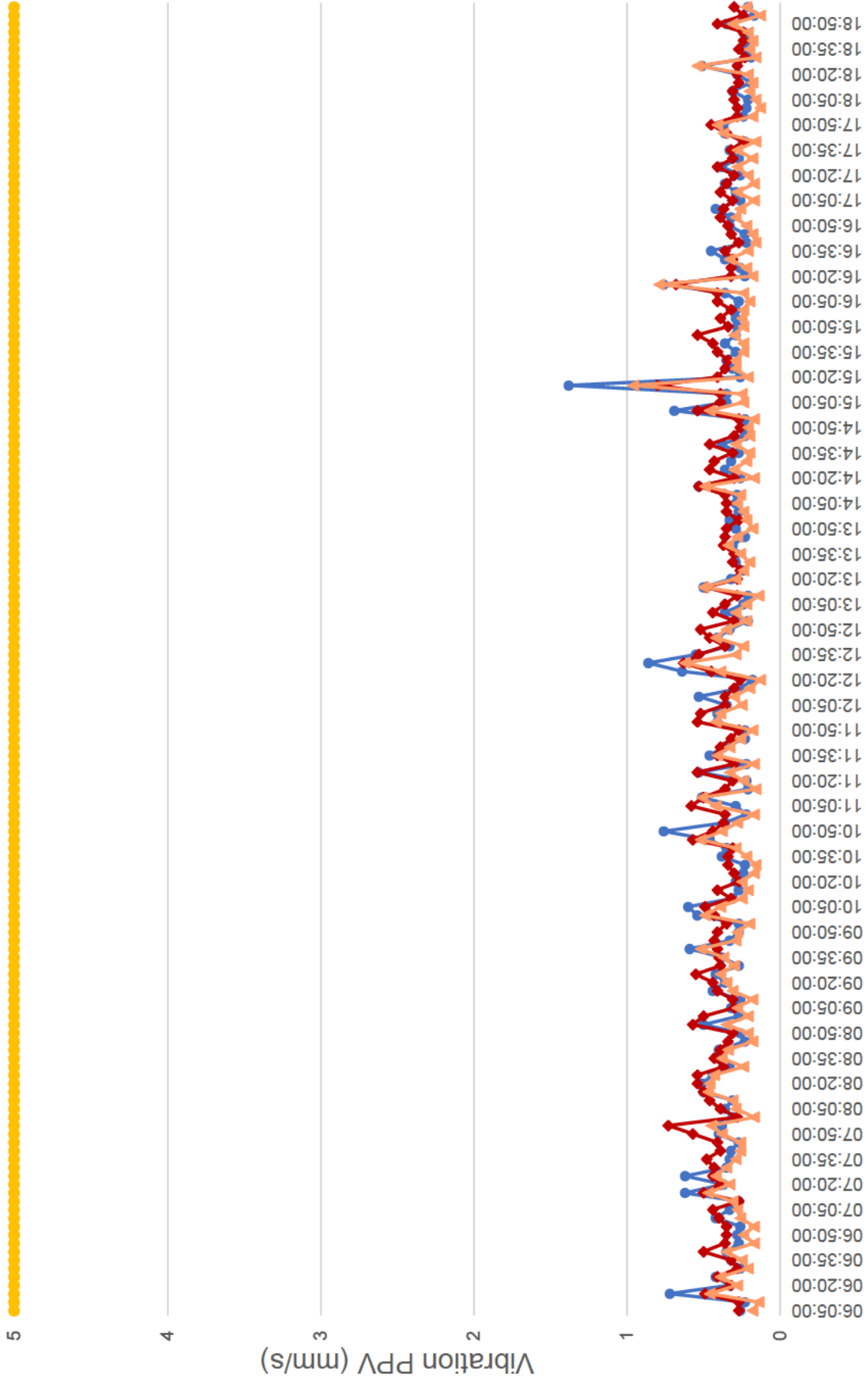




# ACOUSTIC LOGIC

Vibration Monitoring: 28/06/2022

—●— Radial (mm/s)    —●— Transverse (mm/s)    —●— Vertical (mm/s)    —●— Limit

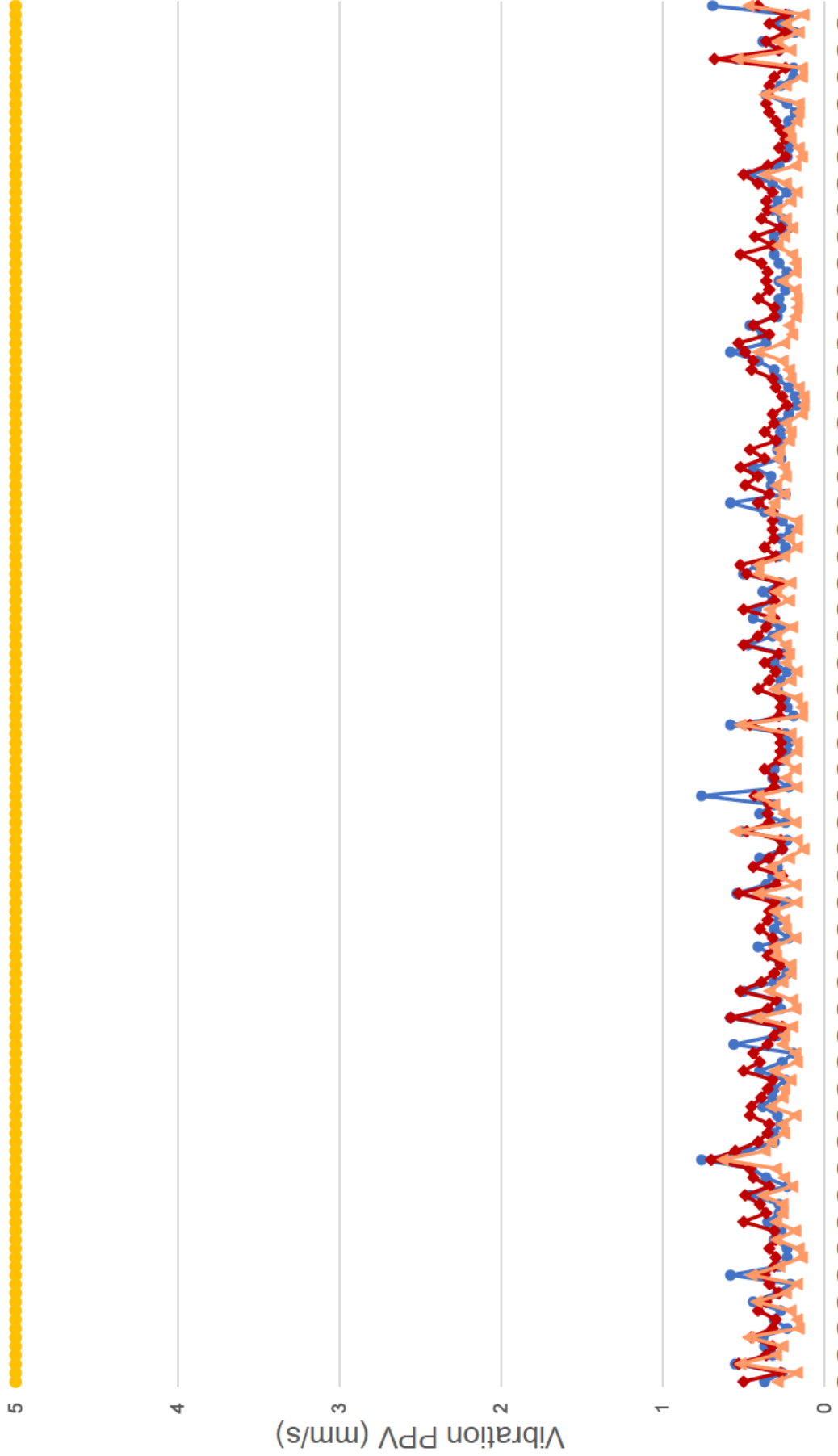




# ACOUSTIC LOGIC

Vibration Monitoring: 29/06/2022

—●— Radial (mm/s)    —●— Transverse (mm/s)    —●— Vertical (mm/s)    —●— Limit

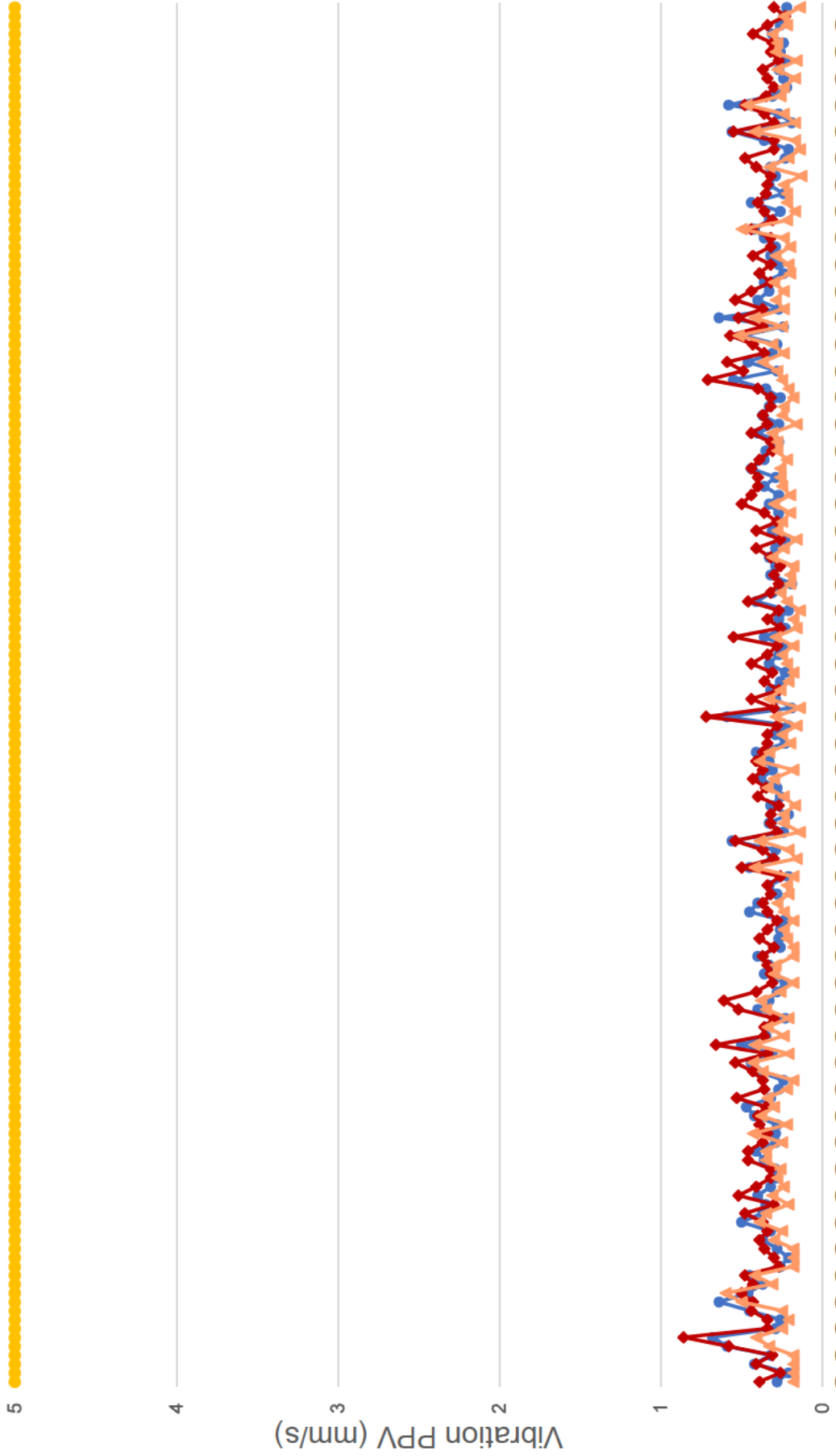




# ACOUSTIC LOGIC

Vibration Monitoring: 30/06/2022

—●— Radial (mm/s)    —●— Transverse (mm/s)    —●— Vertical (mm/s)    —●— Limit



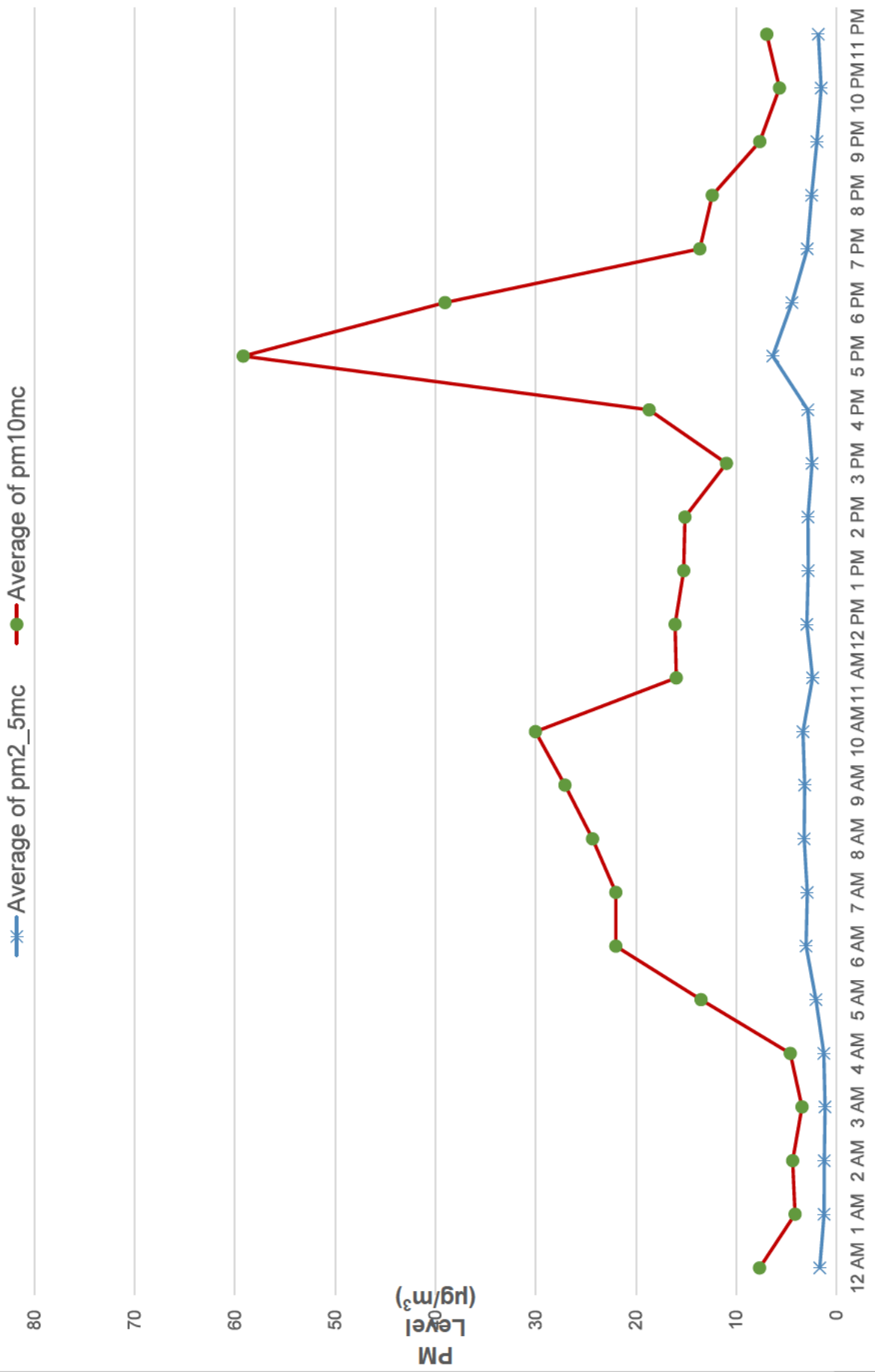
## APPENDIX 3 – DUST MONITORING RESULTS

### Dust Monitoring: 01/06/2022

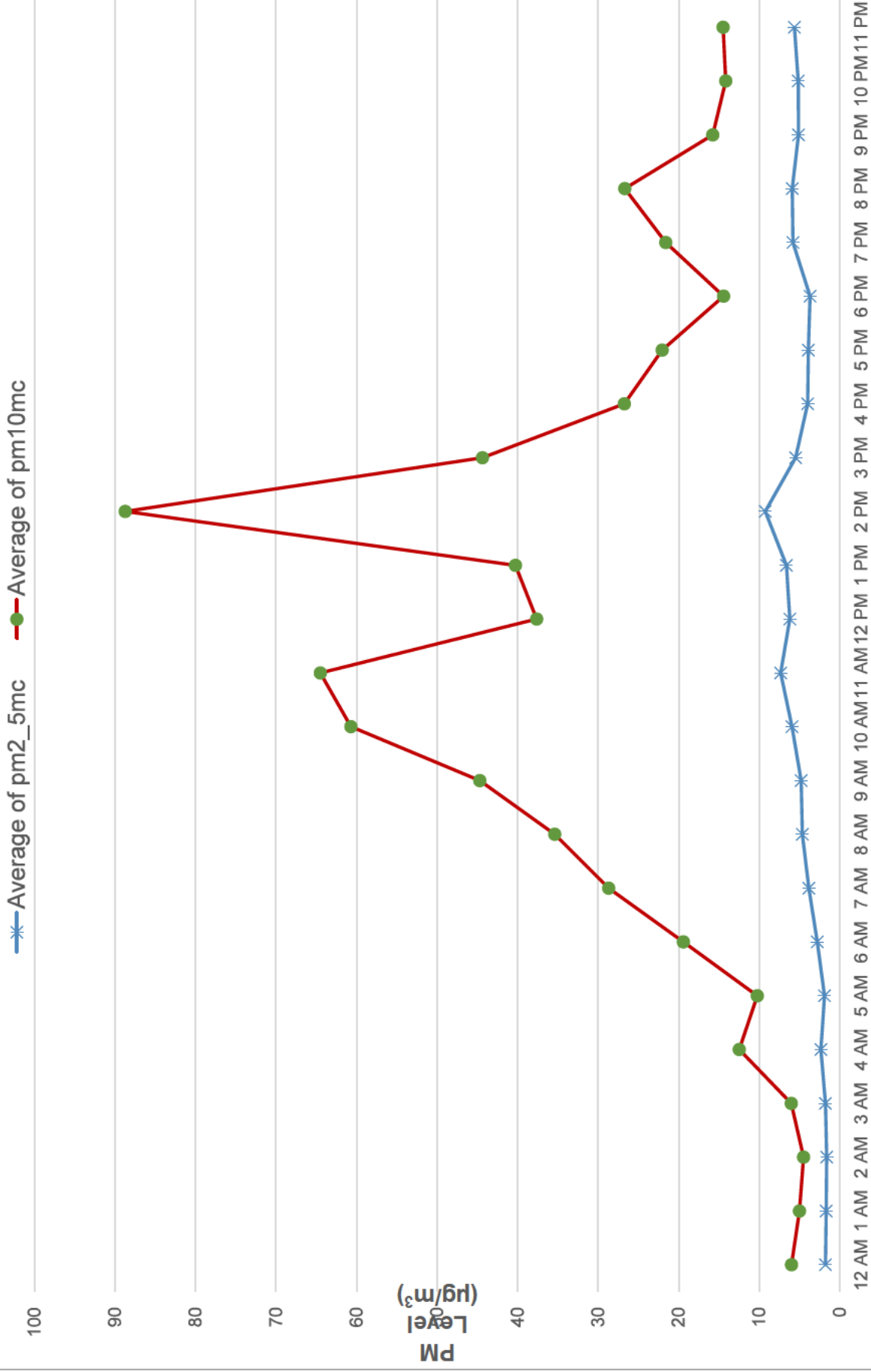




# Dust Monitoring: 02/06/2022

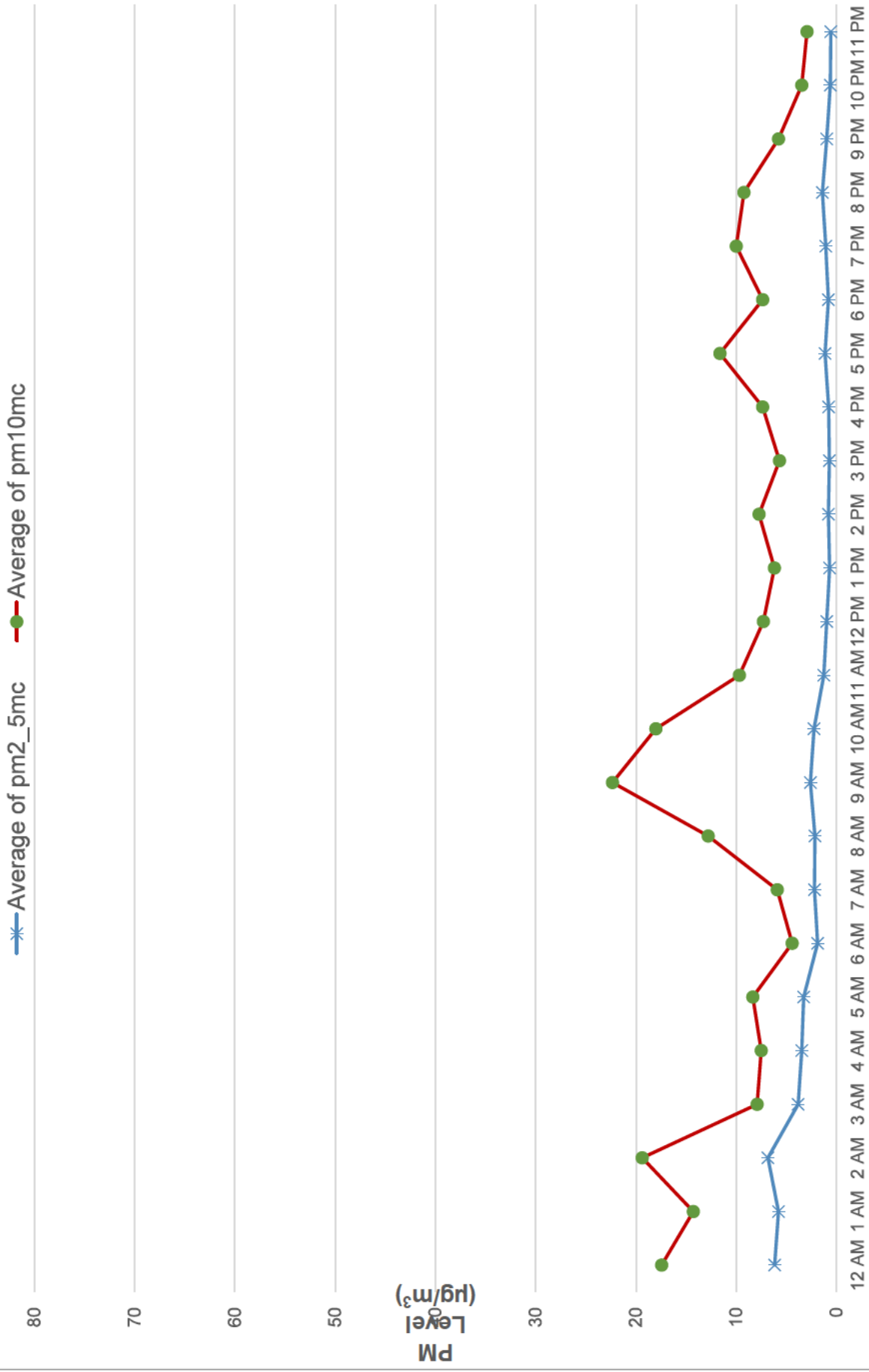


Dust Monitoring: 03/06/2022

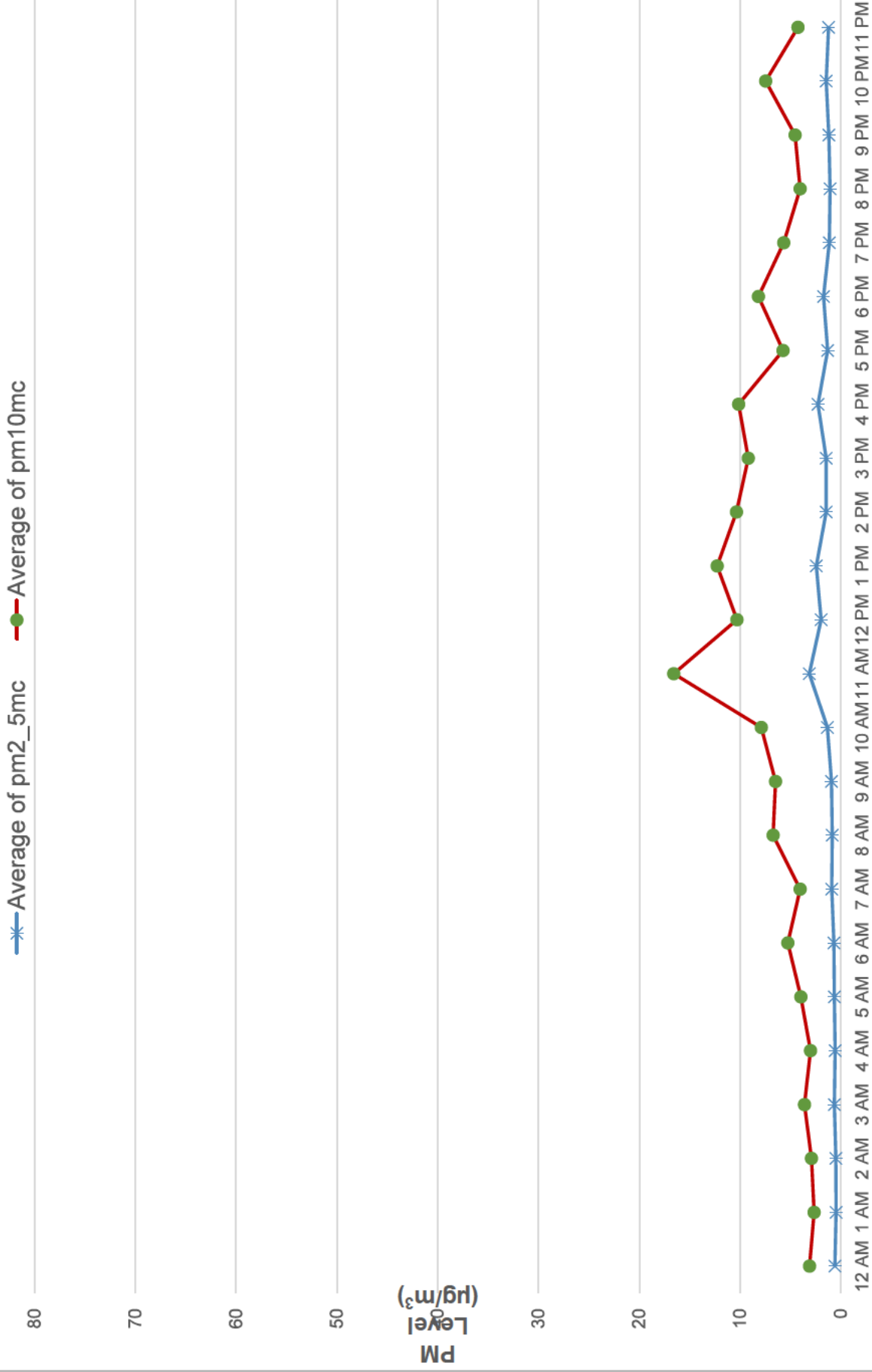




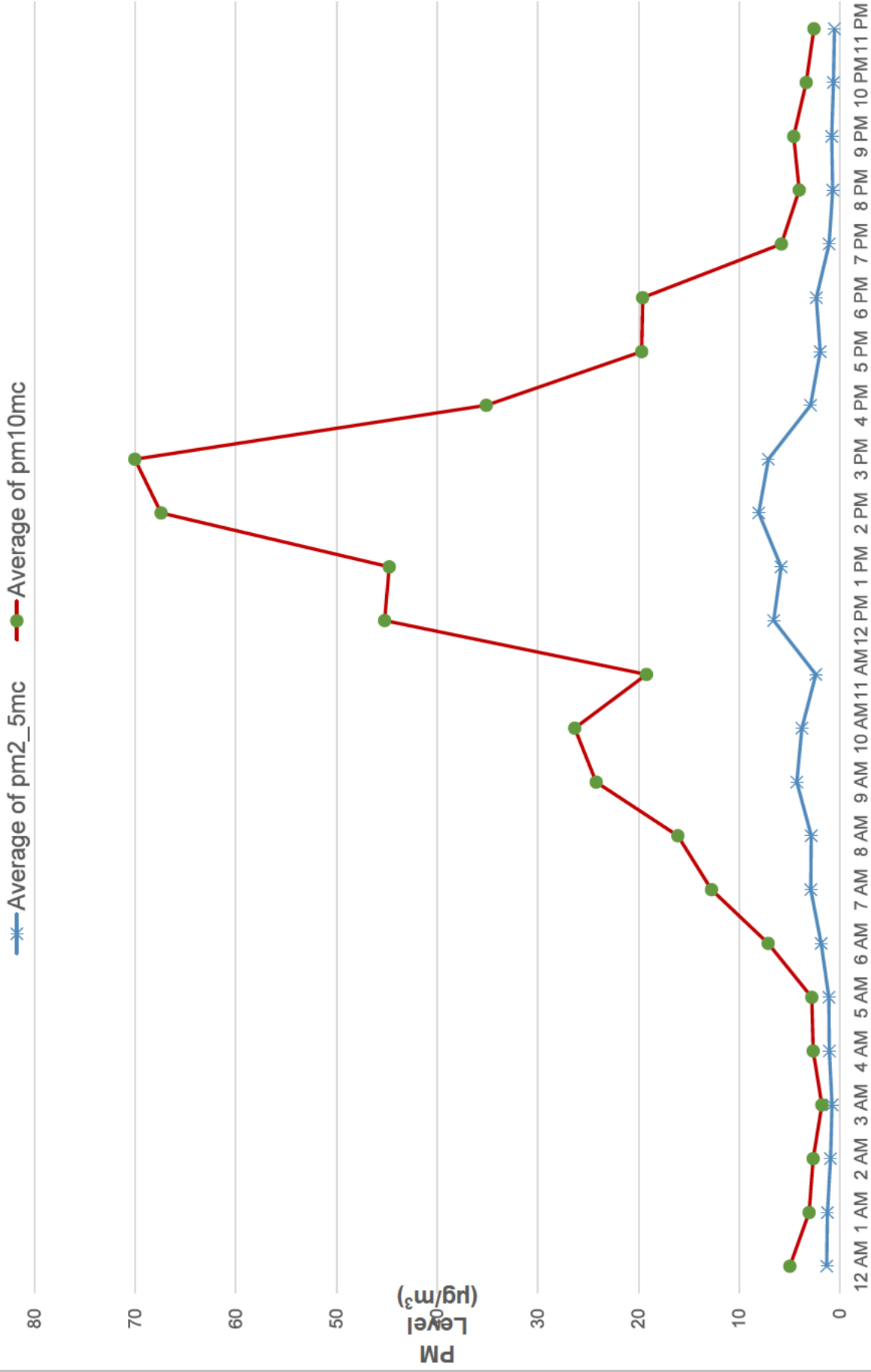
### Dust Monitoring: 04/06/2022



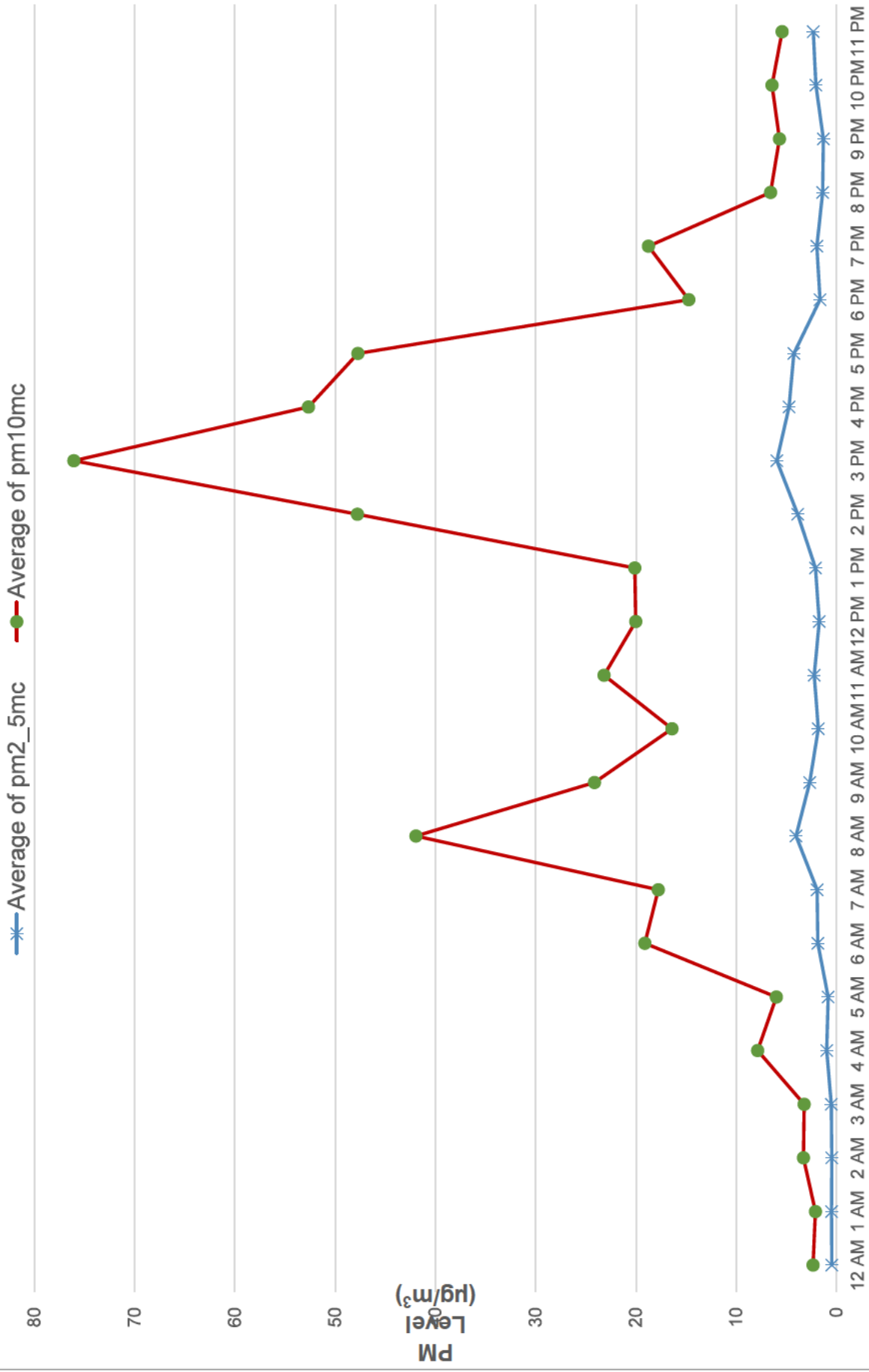
### Dust Monitoring: 05/06/2022



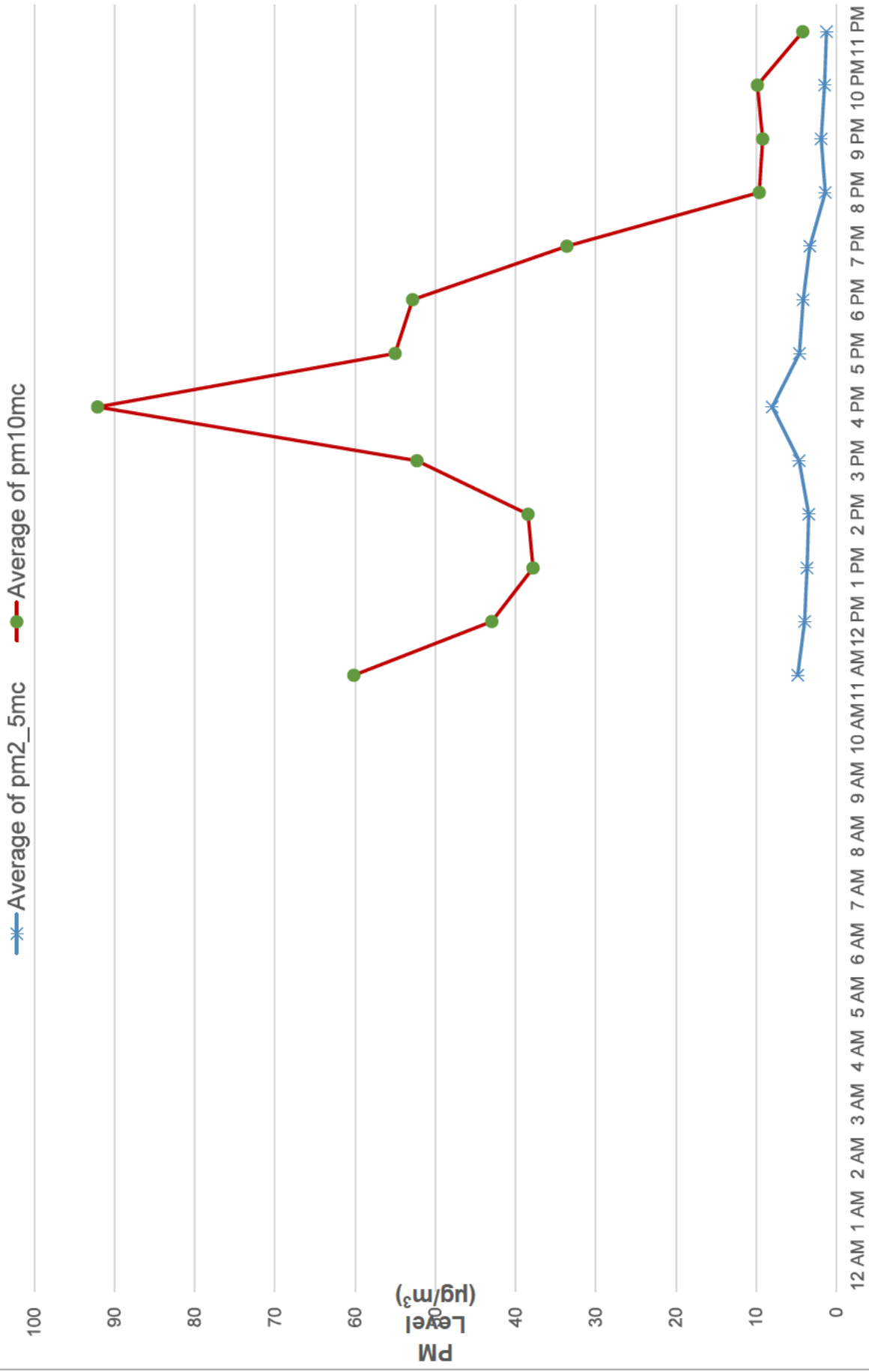
Dust Monitoring: 06/06/2022



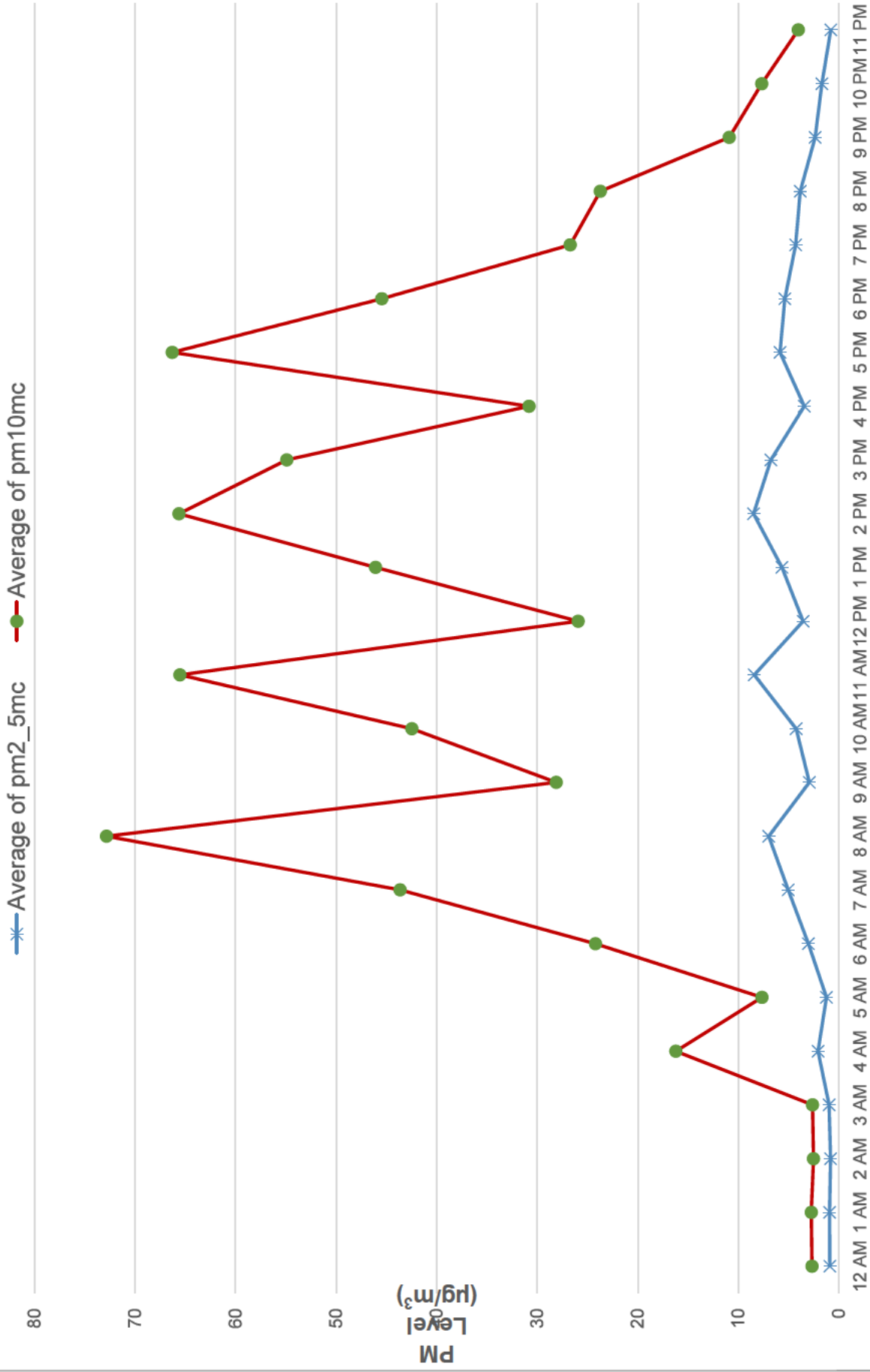
Dust Monitoring: 07/06/2022



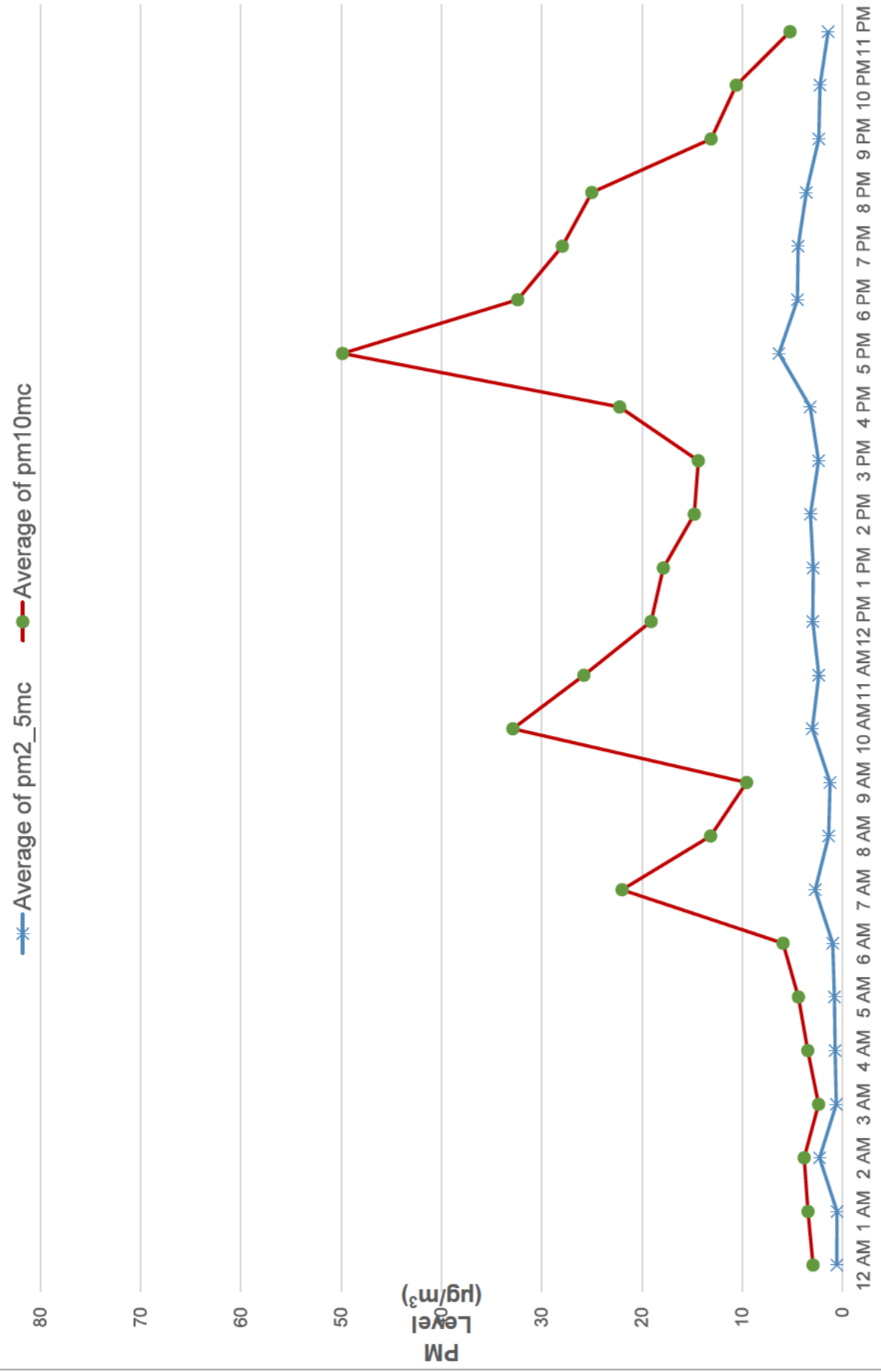
Dust Monitoring: 09/06/2022



Dust Monitoring: 10/06/2022

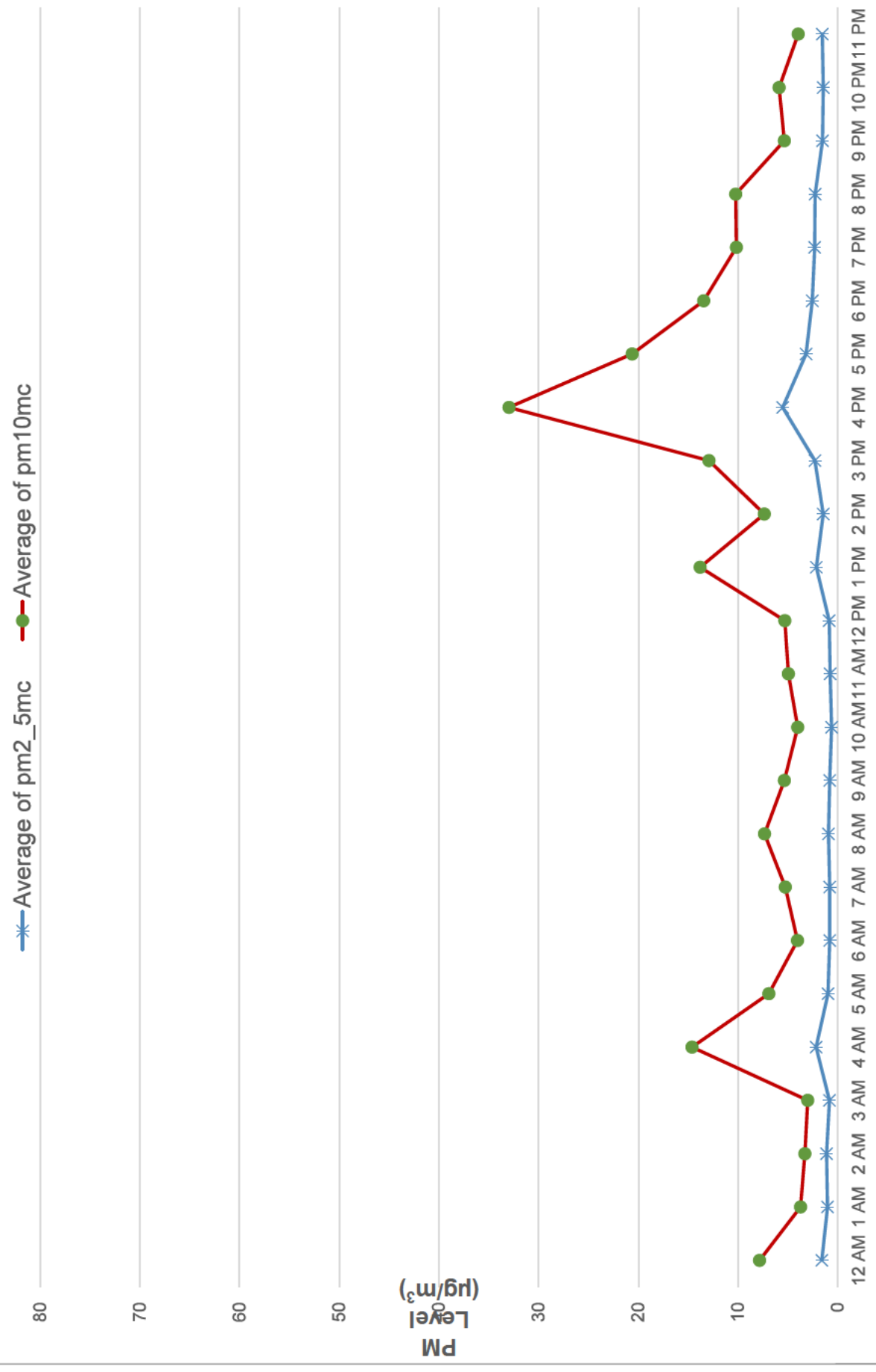


### Dust Monitoring: 11/06/2022



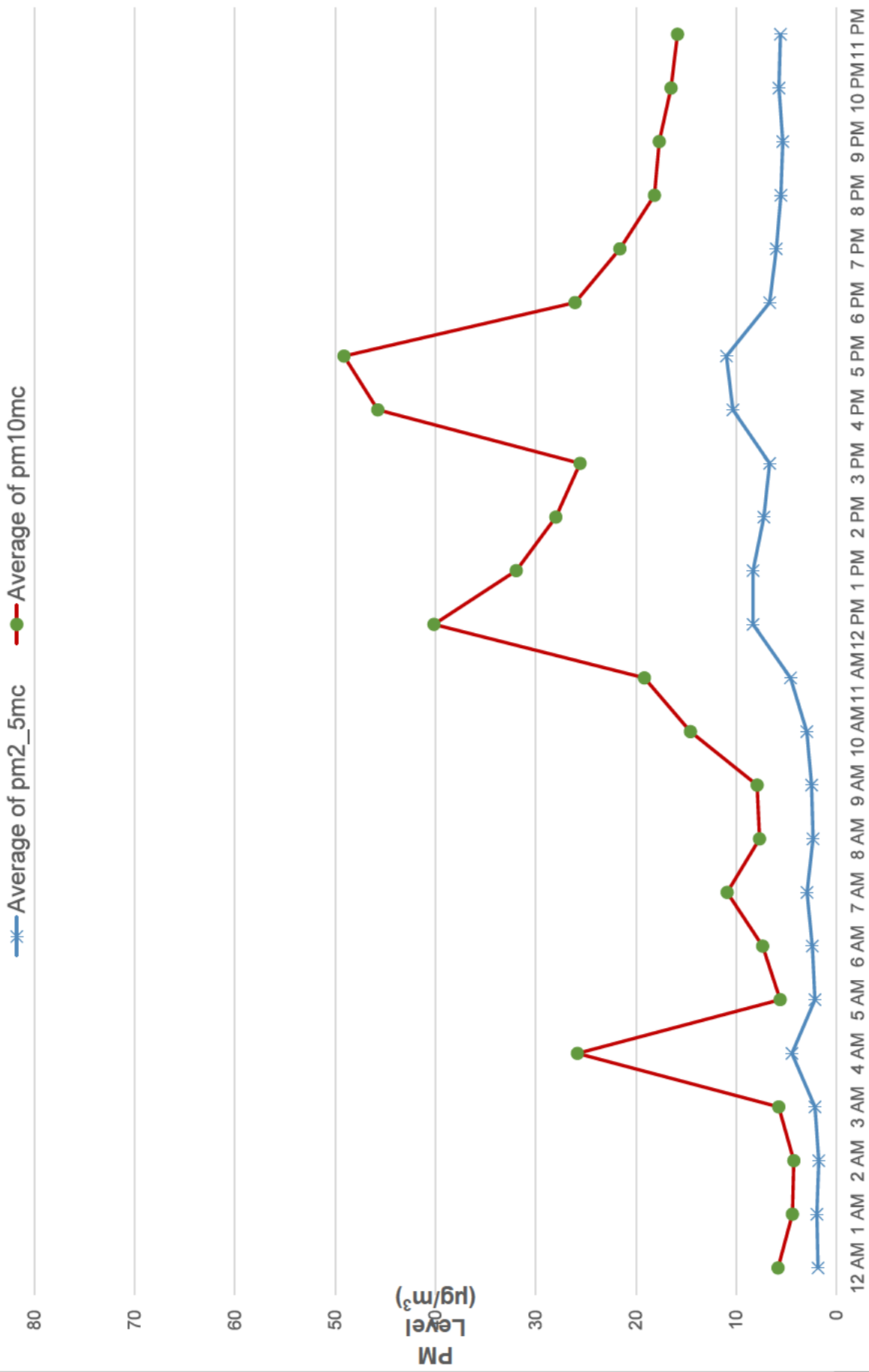


# Dust Monitoring: 12/06/2022

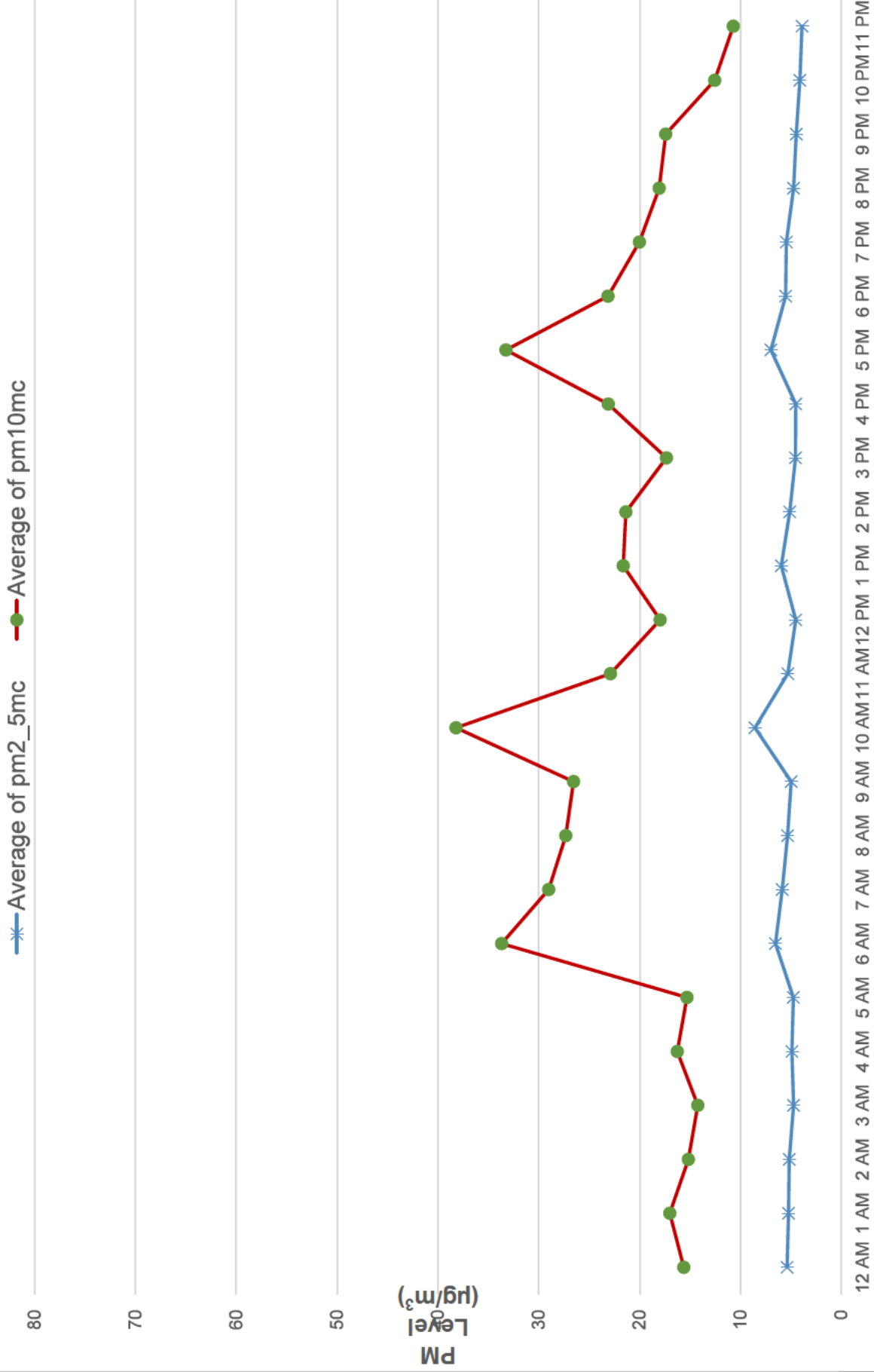




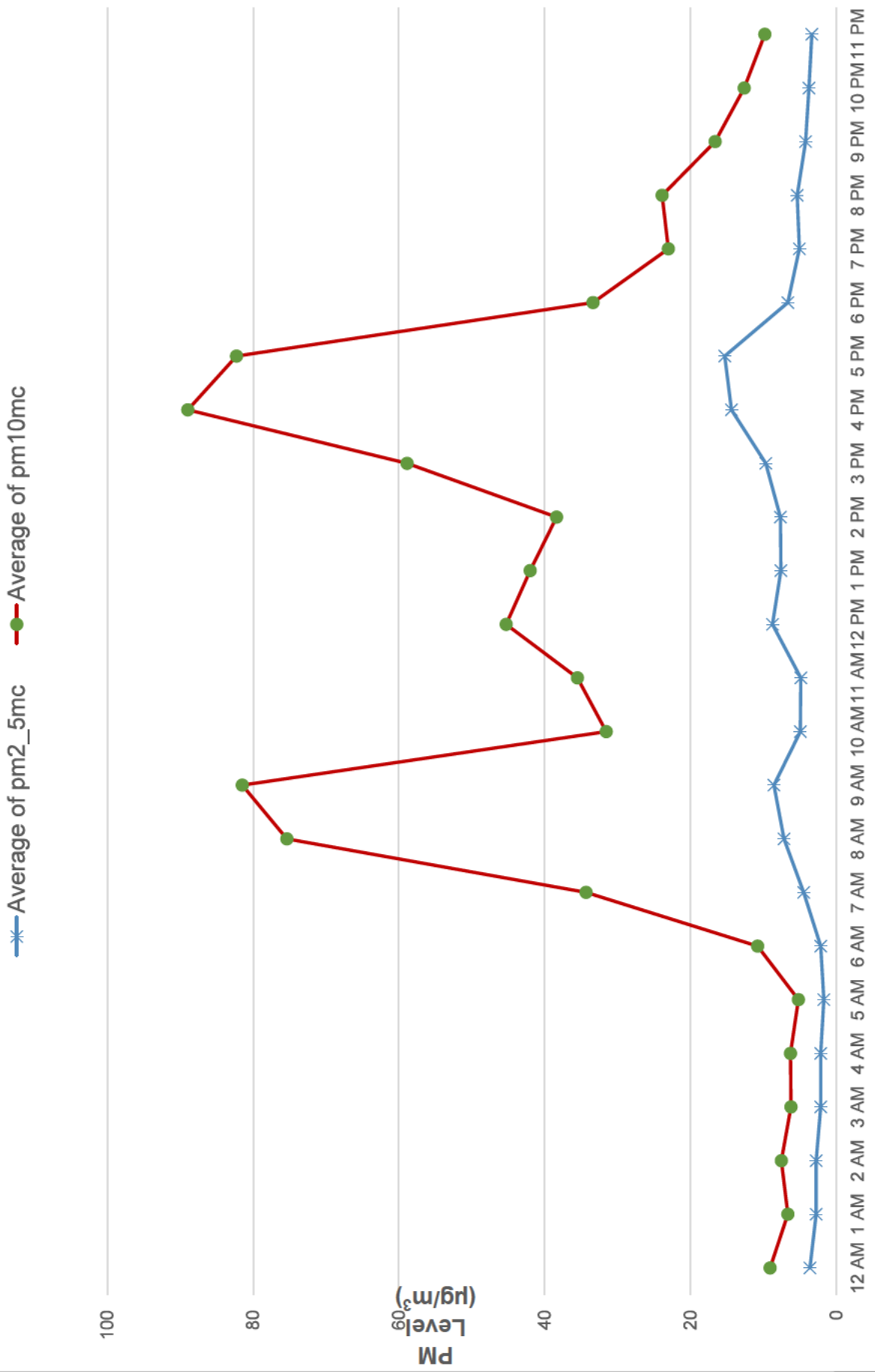
Dust Monitoring: 13/06/2022



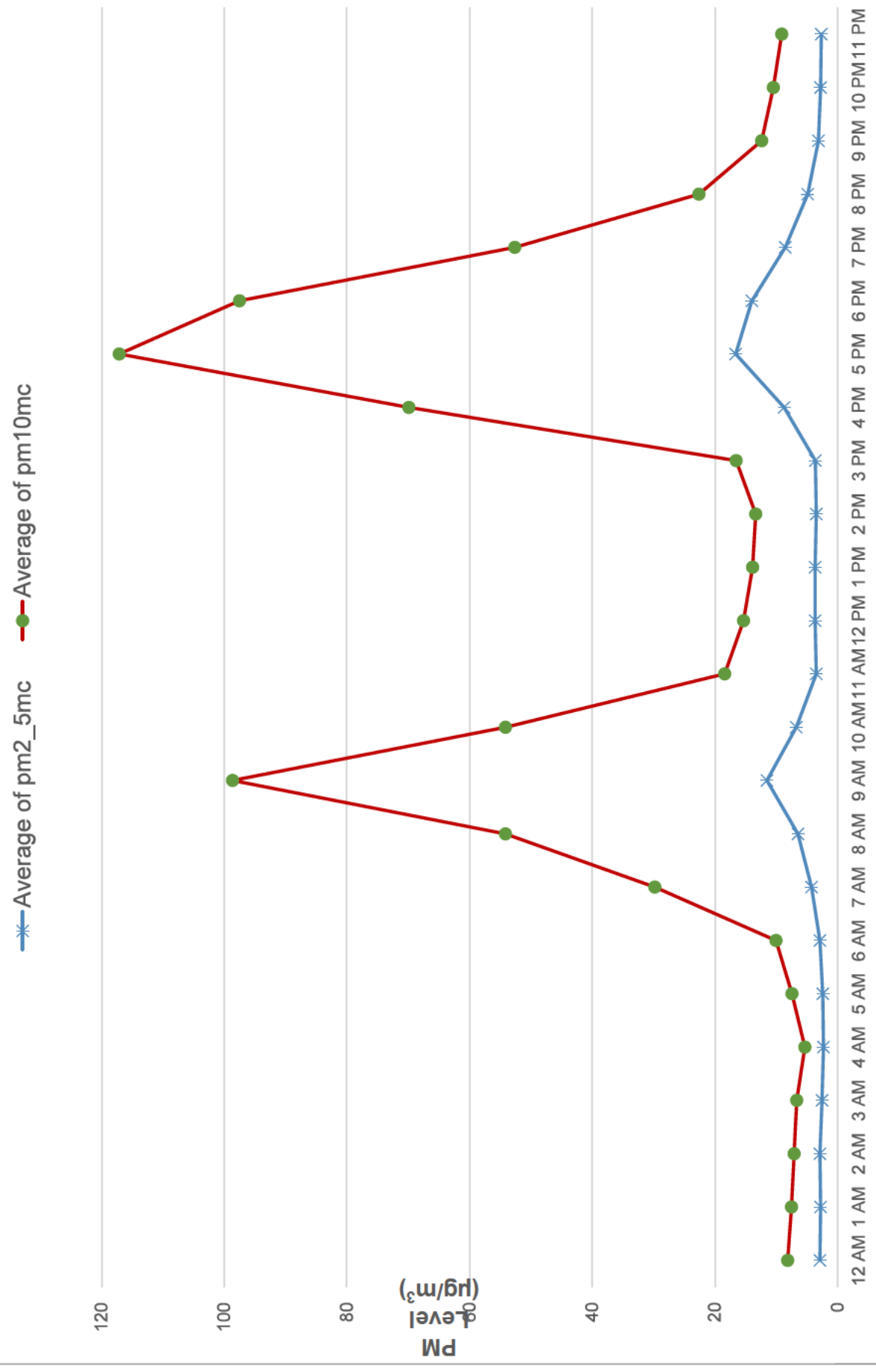
Dust Monitoring: 14/06/2022



Dust Monitoring: 15/06/2022

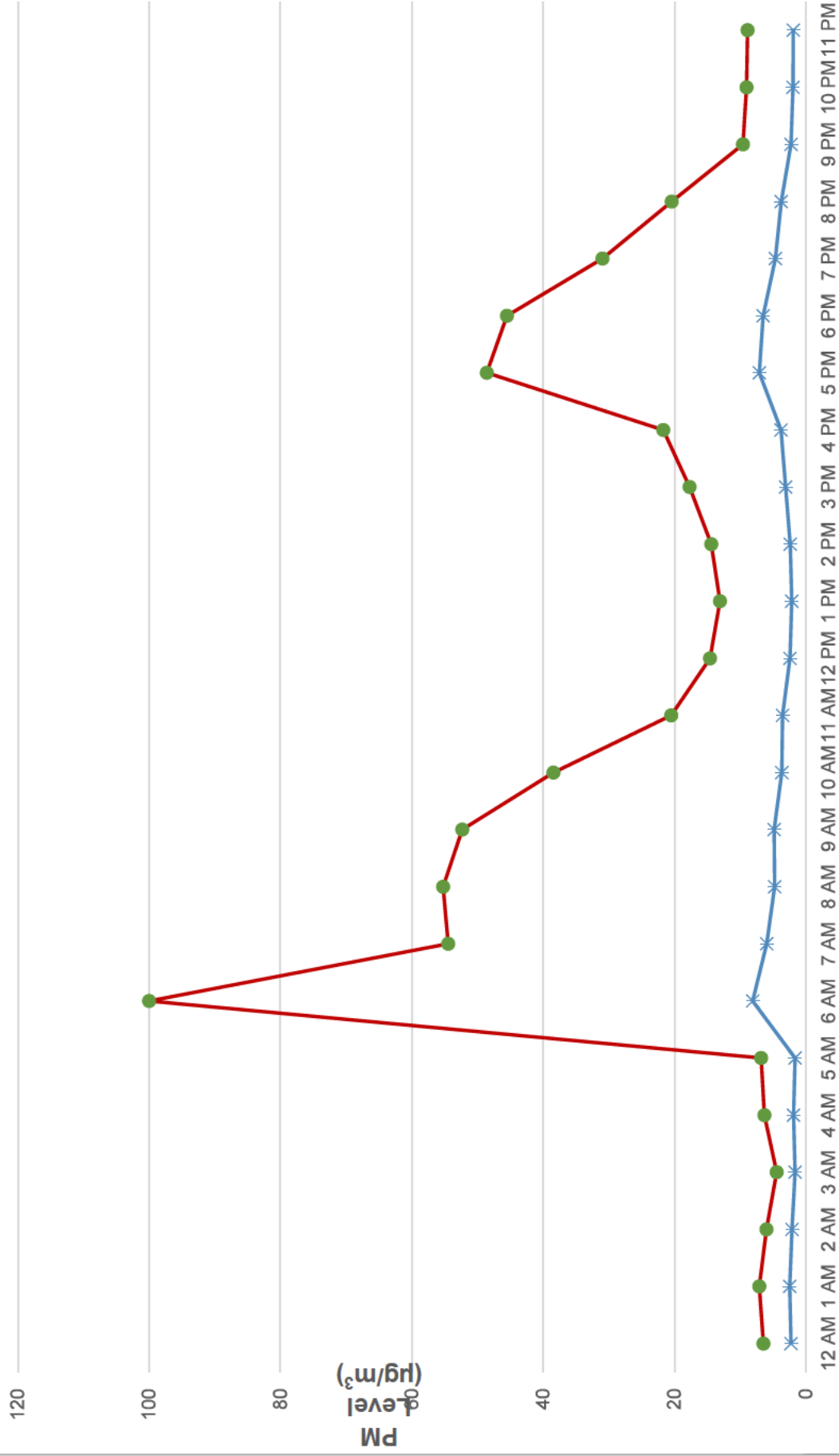


Dust Monitoring: 16/06/2022

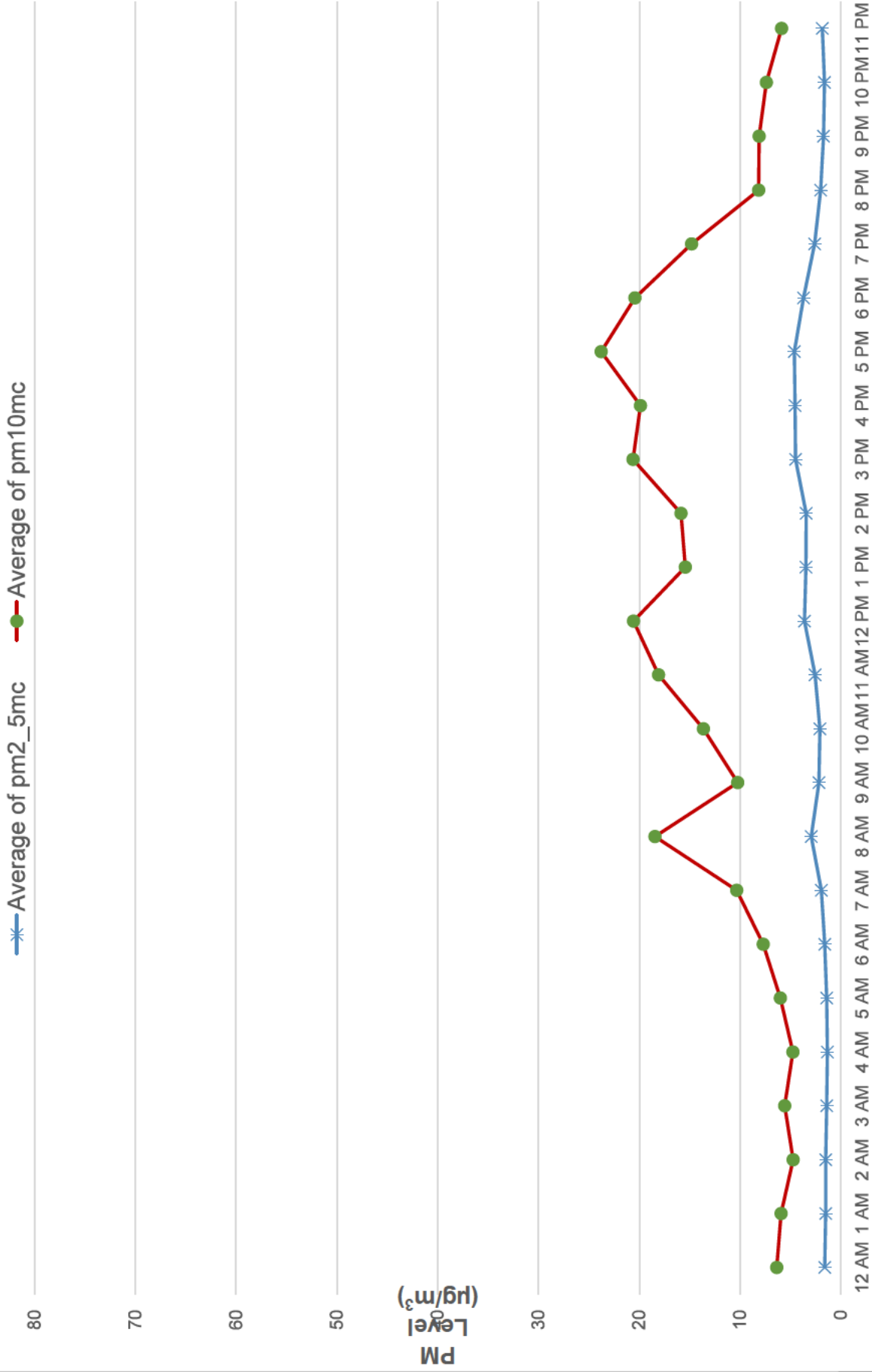


Dust Monitoring: 17/06/2022

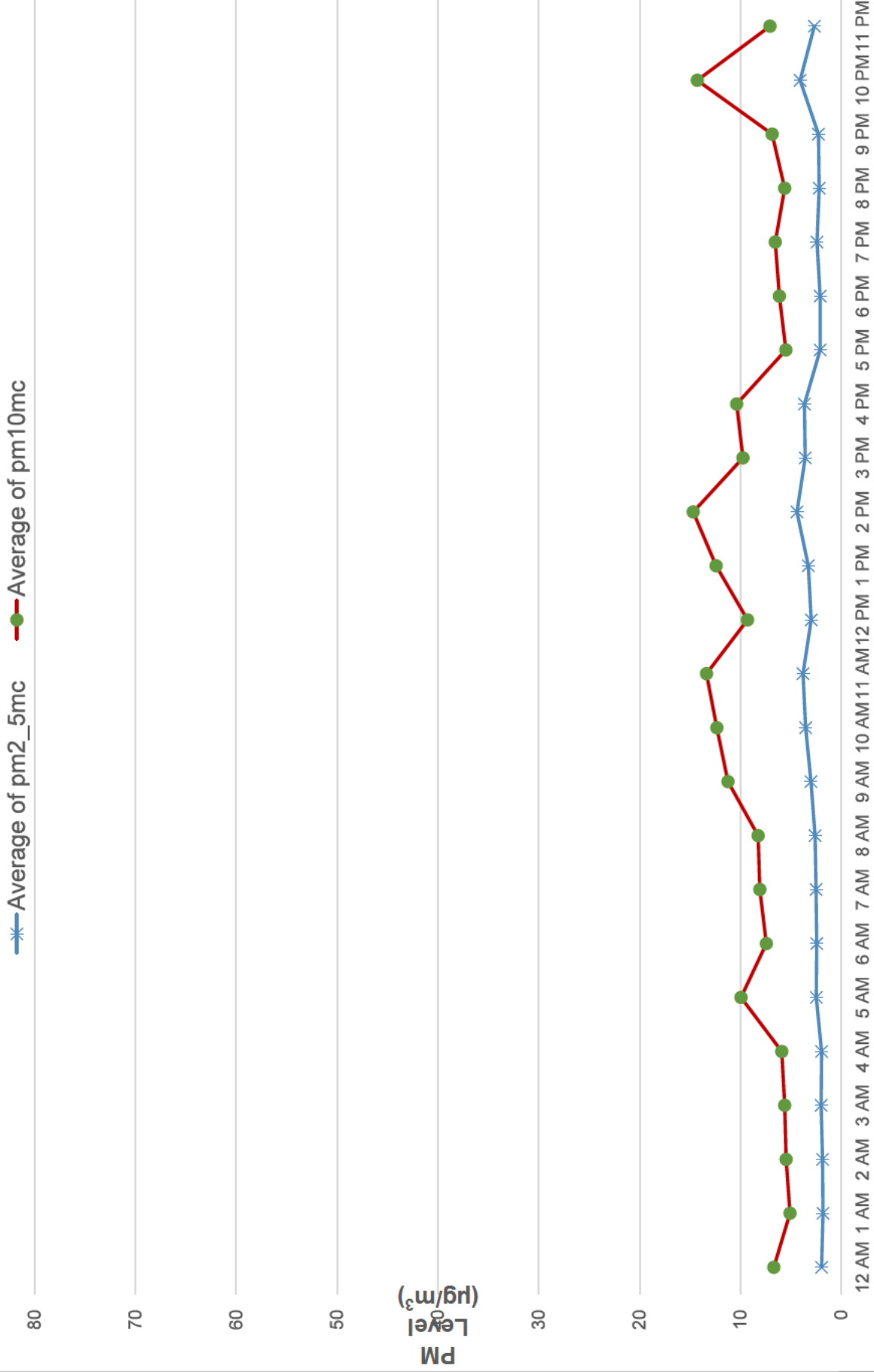
\* Average of pm2\_5mc    
 ● Average of pm10mc



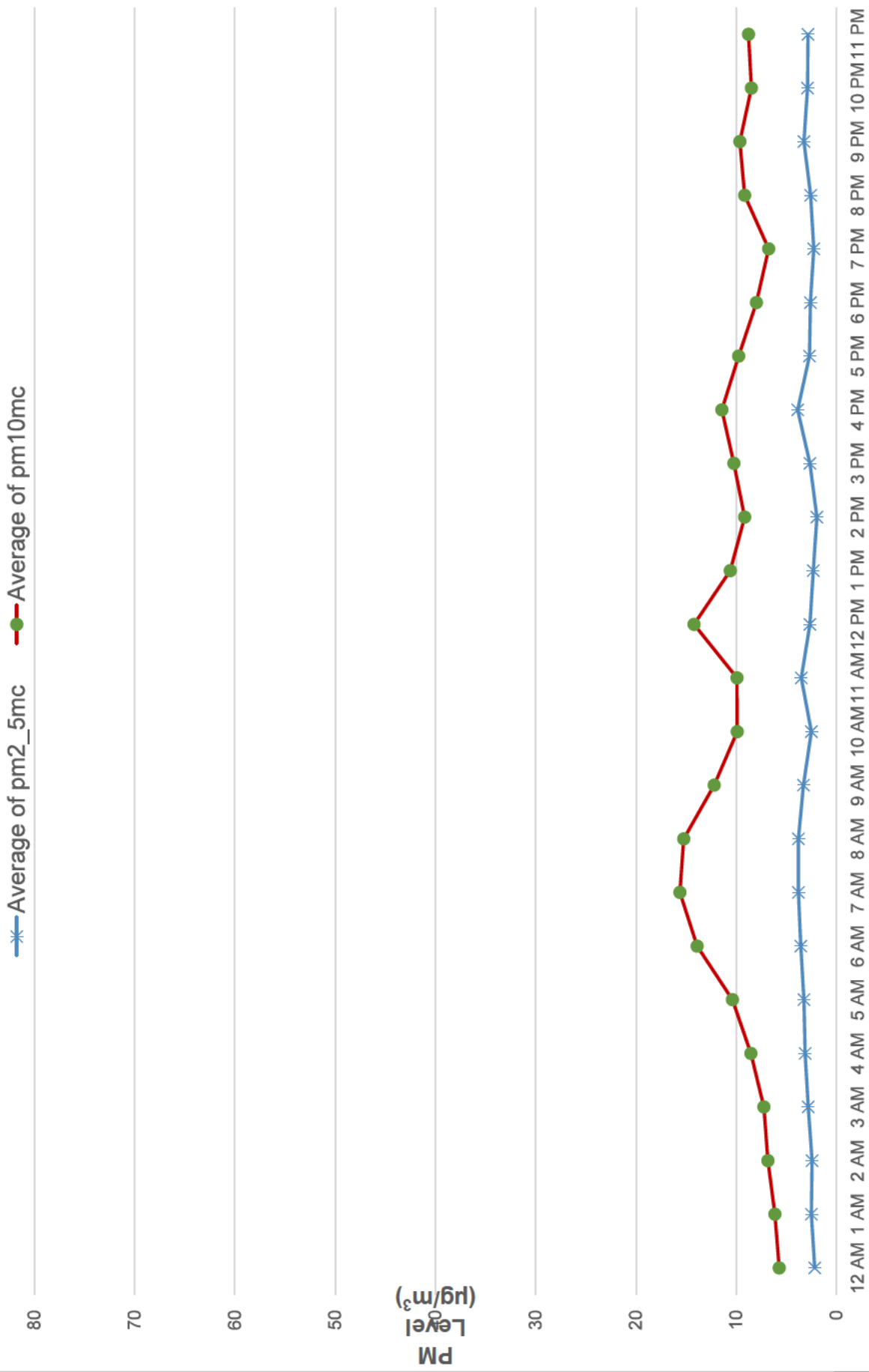
### Dust Monitoring: 18/06/2022



### Dust Monitoring: 19/06/2022

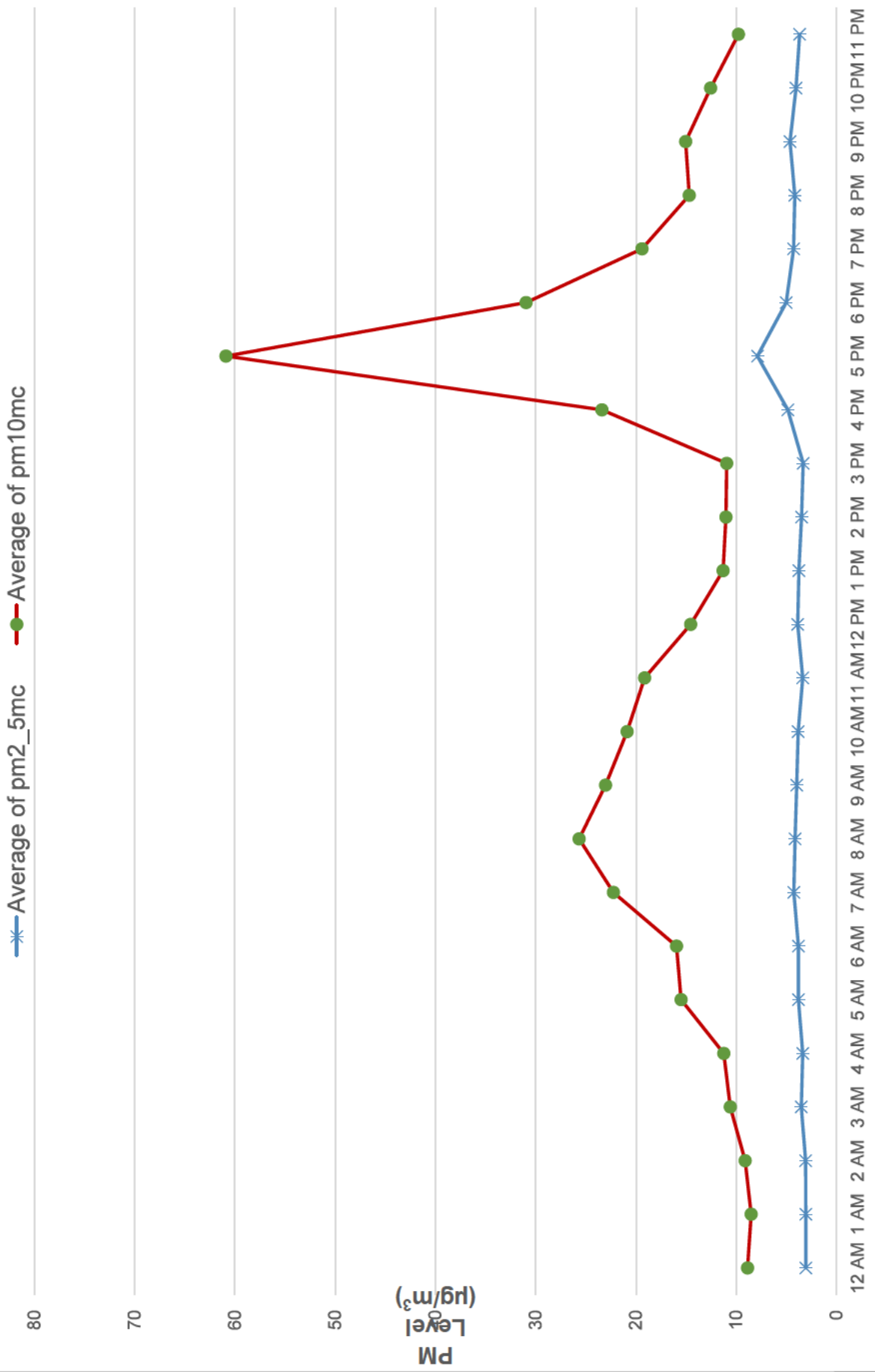


Dust Monitoring: 20/06/2022

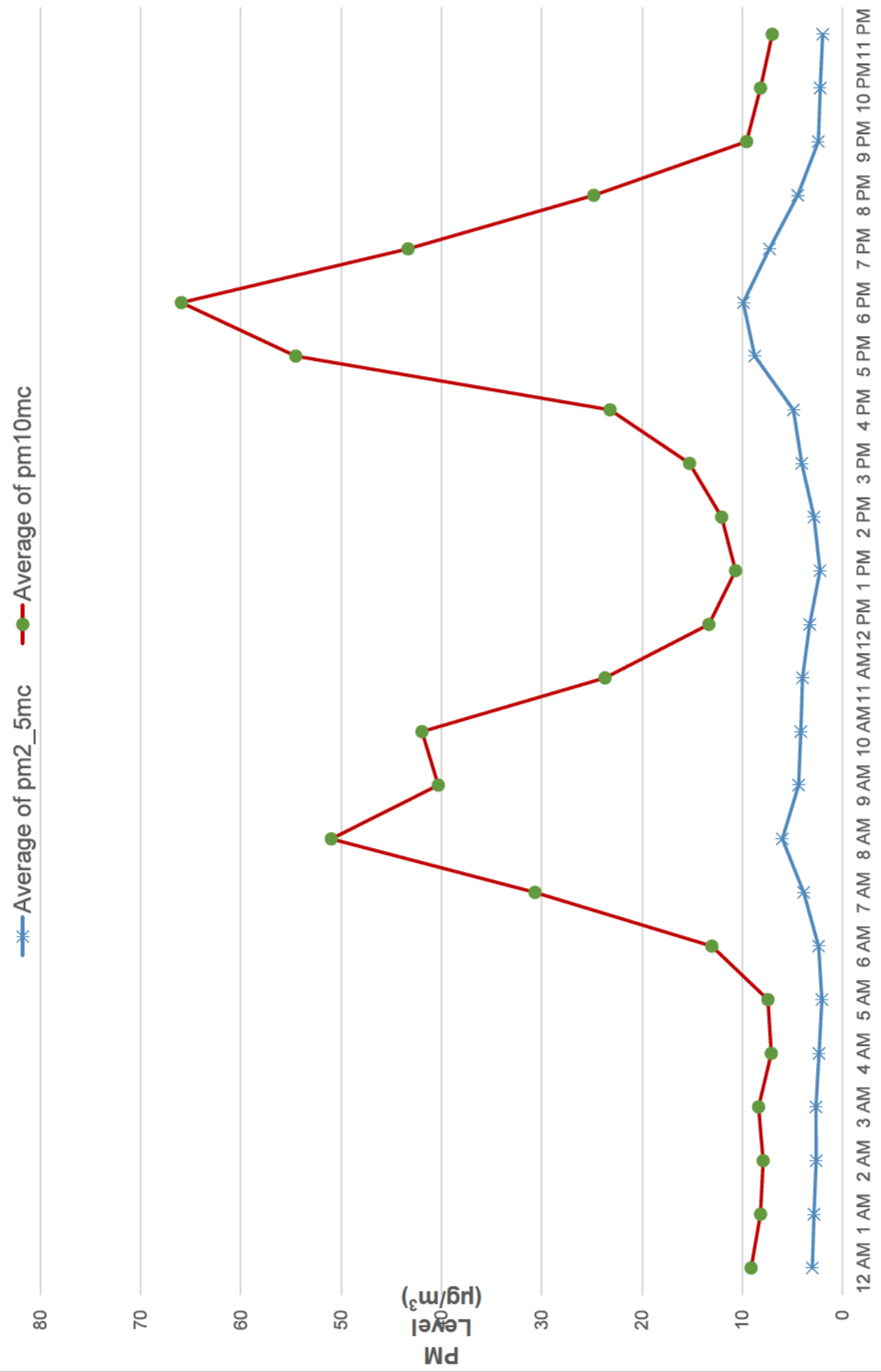




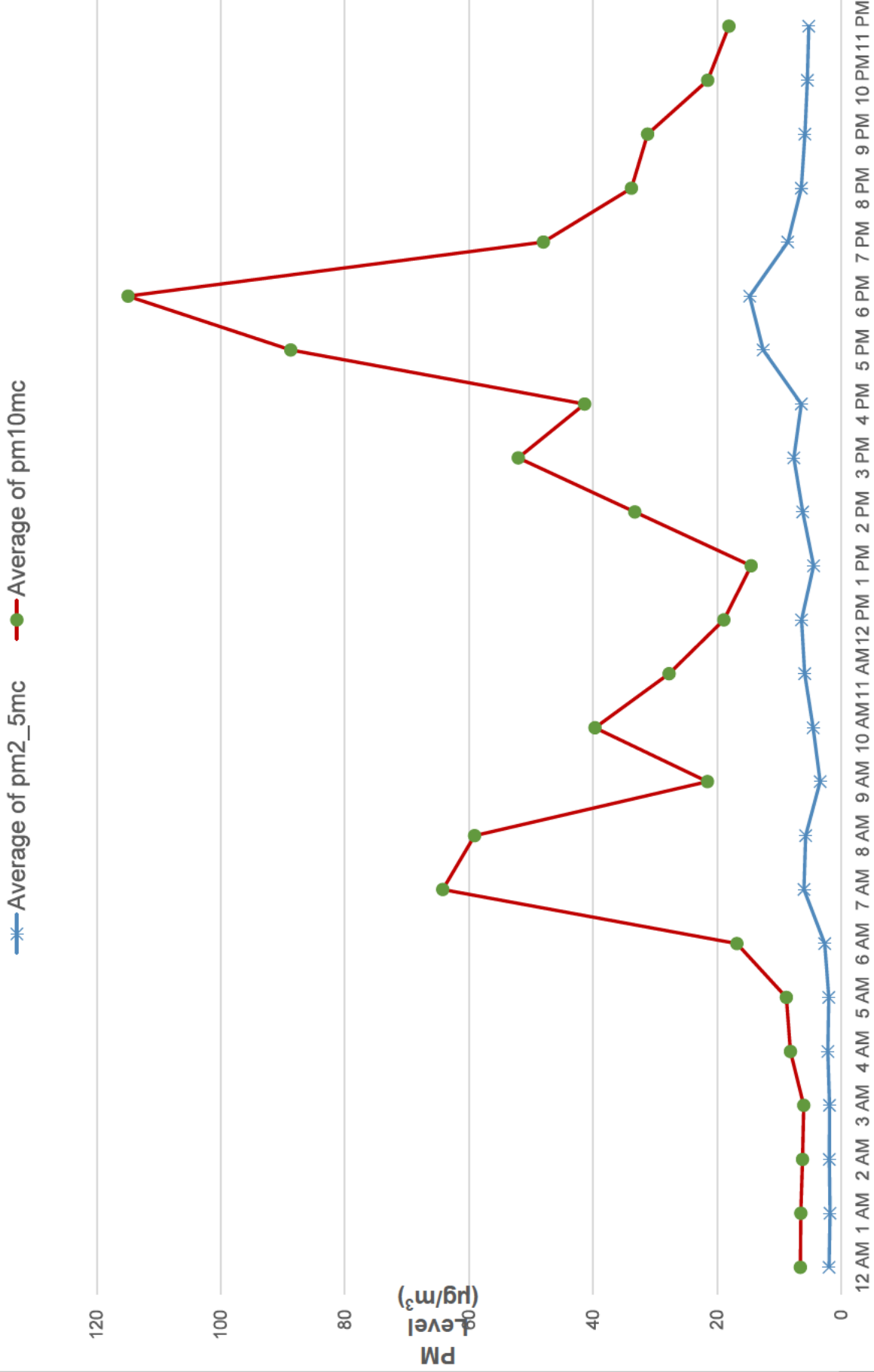
Dust Monitoring: 21/06/2022



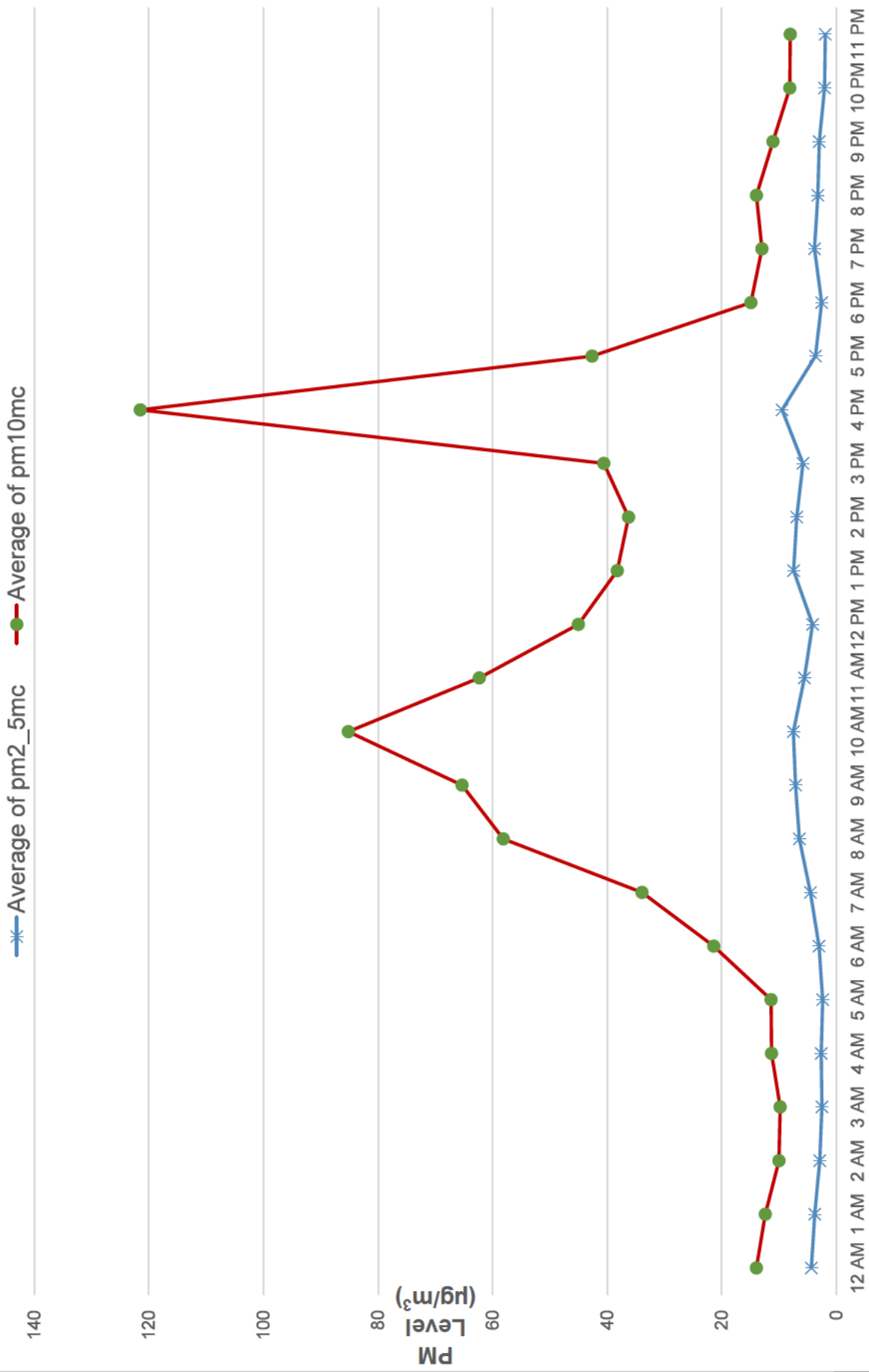
# Dust Monitoring: 22/06/2022



Dust Monitoring: 23/06/2022

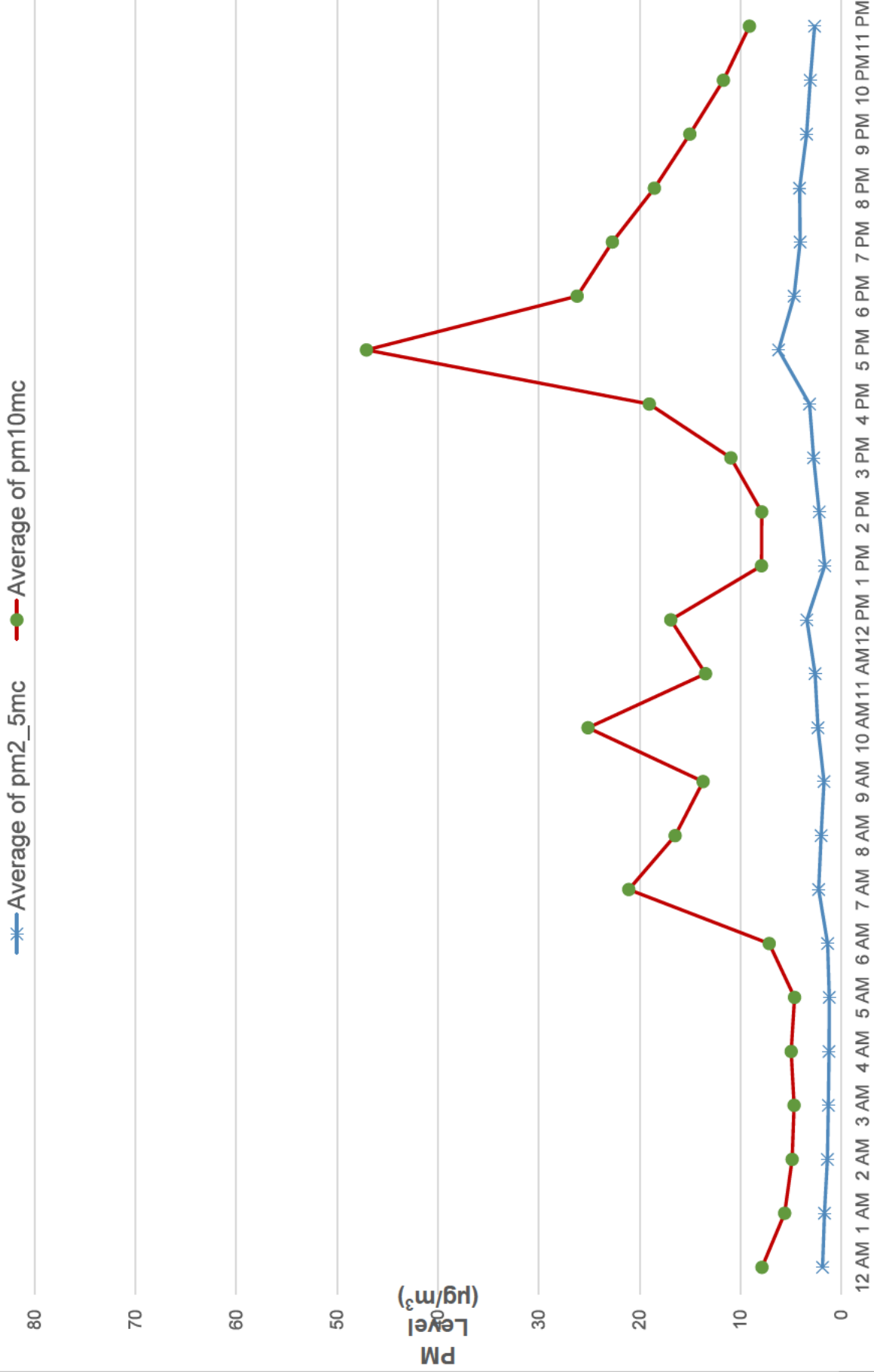


Dust Monitoring: 24/06/2022

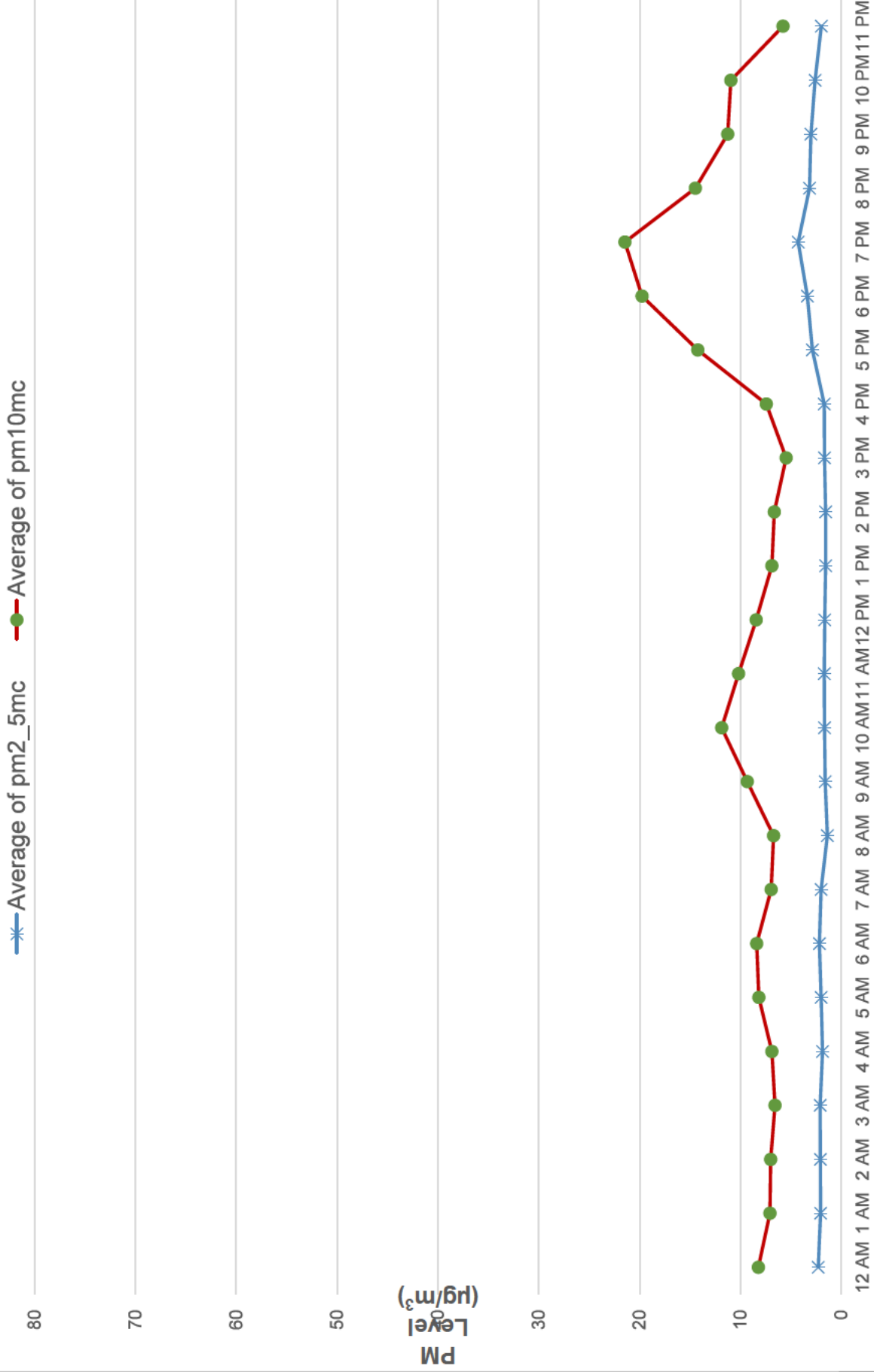


\* Average of pm2\_5mc    
 ● Average of pm10mc

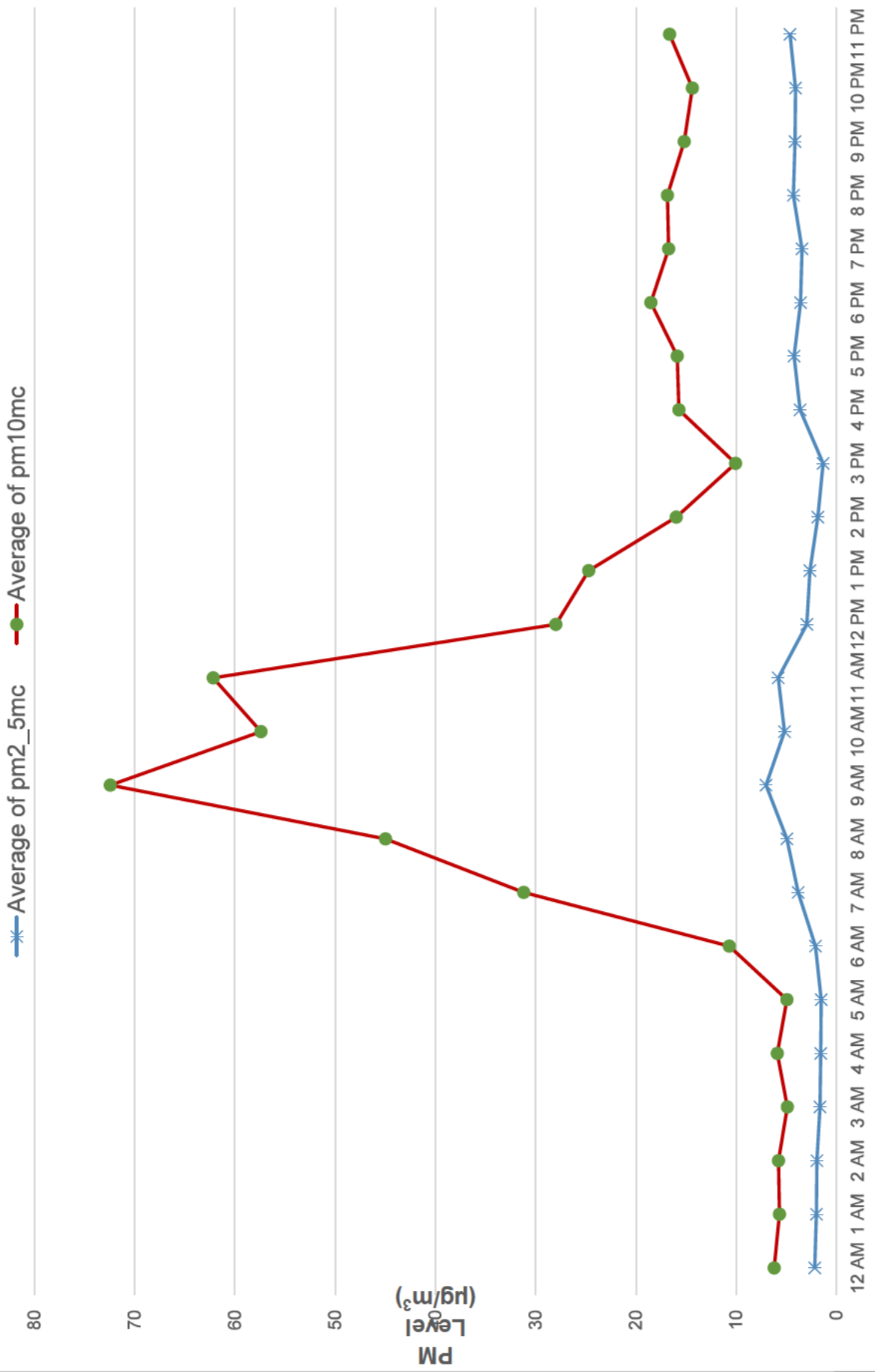
Dust Monitoring: 25/06/2022



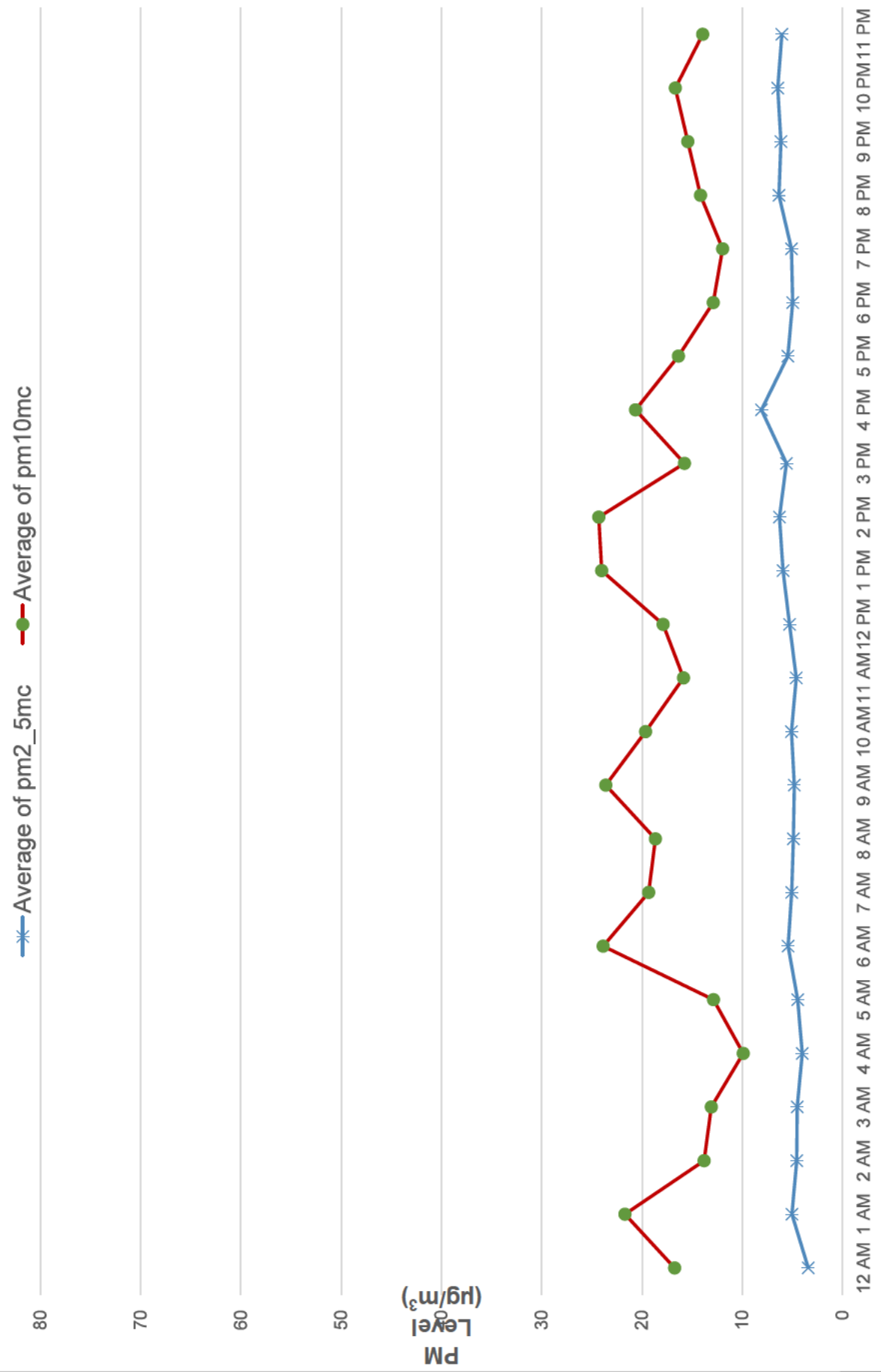
# Dust Monitoring: 26/06/2022



Dust Monitoring: 27/06/2022

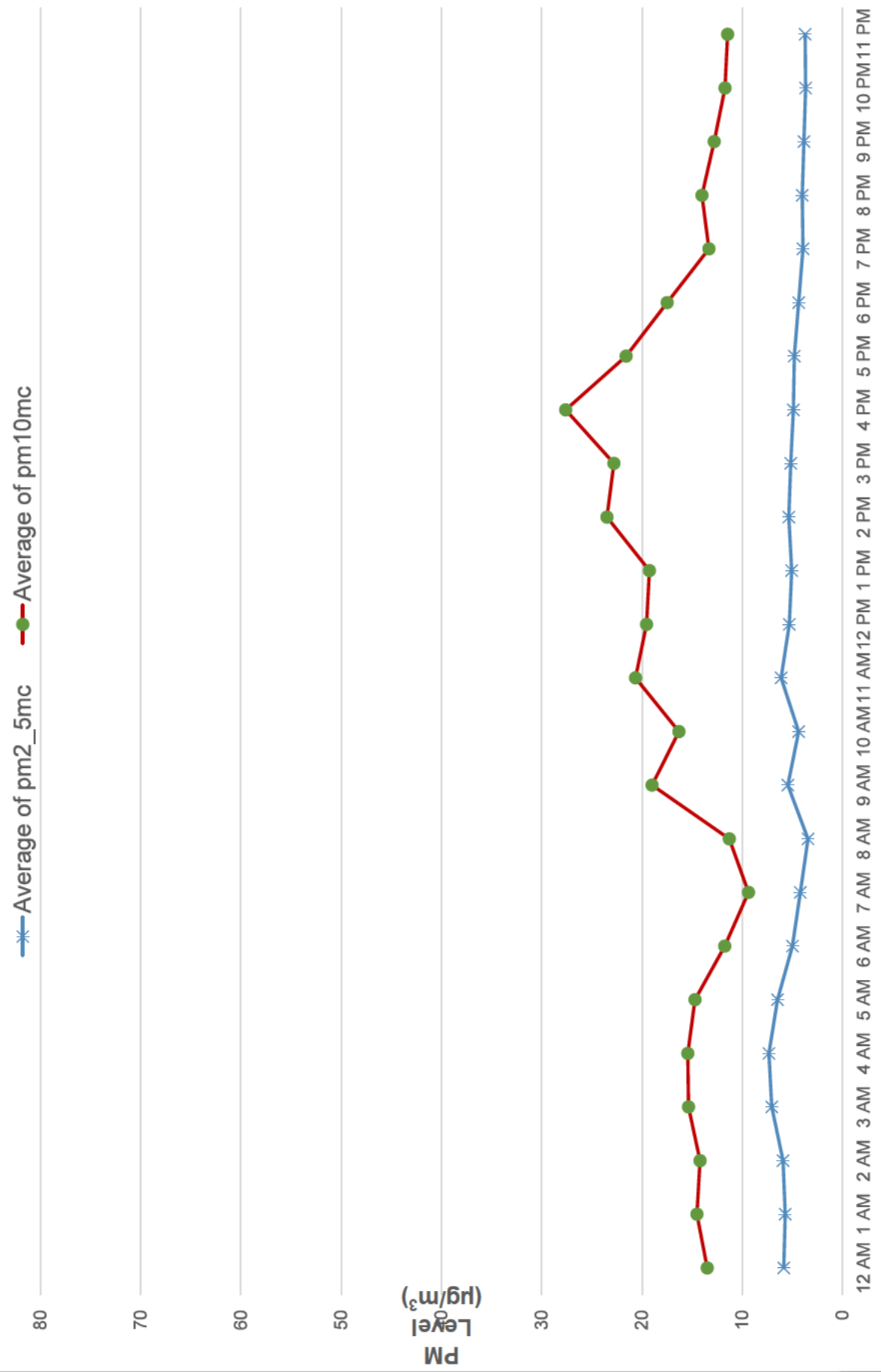


### Dust Monitoring: 28/06/2022





Dust Monitoring: 29/06/2022



\* Average of pm2\_5mc    
 ● Average of pm10mc

PM Level ( $\mu\text{g}/\text{m}^3$ )

12 AM 1 AM 2 AM 3 AM 4 AM 5 AM 6 AM 7 AM 8 AM 9 AM 10 AM 11 AM 12 PM 1 PM 2 PM 3 PM 4 PM 5 PM 6 PM 7 PM 8 PM 9 PM 10 PM 11 PM

### Dust Monitoring: 30/06/2022



## APPENDIX 4 – SITE PHOTO OF MONITORING LOCATION

