

Royal Prince Alfred Hospital Redevelopment (RPAH
Redevelopment)

Construction Noise and Vibration Monitoring Report 3

RPA-ACO-ACL-RPT-MW-000006

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Attention To	CPB Contractors Pty Limited

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1 INTRODUCTION

This report presents the results of the noise and vibration monitoring conducted by Acoustic Logic during the site establishment works for the RPA Hospital redevelopment, located at 50 Missenden Road, Camperdown. Details presented in this report include monitoring locations, relevant noise and vibration objectives, measured noise and vibration levels over the presented monitoring period and a discussion of results where applicable.

This report covers the third fortnight since the beginning of construction monitoring, being between Monday 08th January, 2024 and Sunday 21st January, 2024.

Unattended noise and vibration monitoring has been undertaken to satisfy the requirements of Condition B26 of SSD-47662959's Development Consent, in conjunction with the noise and vibration management levels established within the *Early Works Construction Noise and Vibration Management Plan*, prepared by this office, and as they are so updated throughout the construction process where necessitated (Ref: 20230239.9/0610A/R1/LA). Condition B26 of SSD-47662959's Development Consent is provided below for reference:

"Environmental Management Plan Requirements

B26. *Management plans required under this consent must be prepared having regard to the relevant guidelines, including but not limited to the Environmental Management Plan Guideline: Guideline for Infrastructure Projects (DPIE April 2020).*

Notes:

The Environmental Management Plan Guideline is available on the Planning Portal at: <https://www.planningportal.nsw.gov.au/major-projects/assessment/post-approval>.

The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans."

2 SITE DESCRIPTION

The site is maintained on Lot 1000 DP 1159799, and is bound by the existing operational RPA Hospital to the west, the Centenary Institute to the north, and University of Sydney’s Bruce William Pavilion and Susan Wakil Health Building to the east and south respectively. The site is surrounded by various residential, commercial, hospital, university, research and active recreation sensitive receivers generally.

The works maintained within Early Works and Site Establishment pertain specifically to works along Lambie Dew Drive and John Hopkins Drive.

The surrounding affected sensitive receivers that are investigated within the contents of this monitoring assessment are as presented below:

Table 1 – Surrounding Sensitive Receivers

ID No.	Receiver Description	Receiver Category
Re1	Centenary Institute	Research Facilities
E1	CreateSpace and Susan Wakil Health Building	Education
E2	Charles Perkins Centre	

See an aerial photo in Figure 1 below for detailed receiver locations.

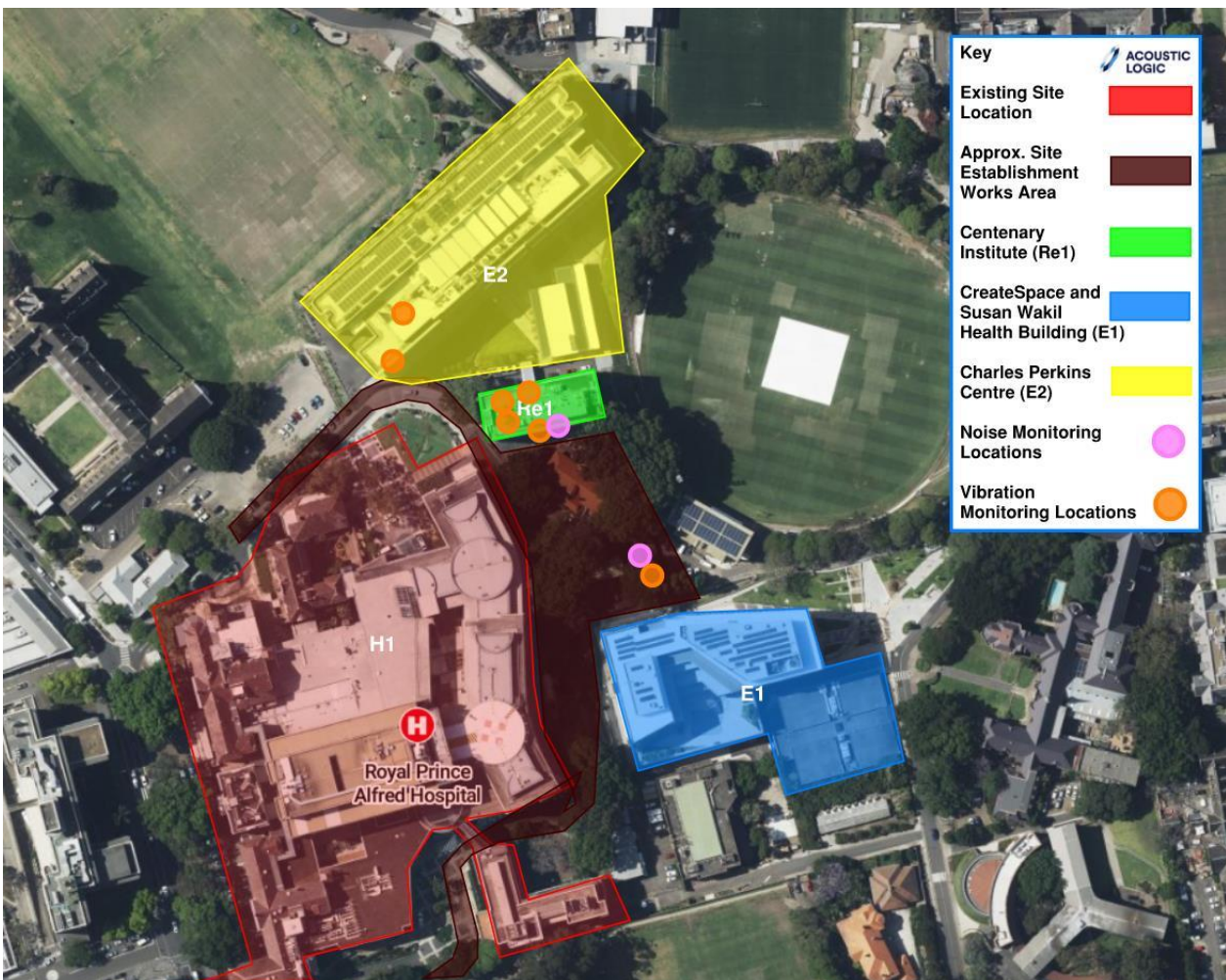


Figure 1: Aerial Site Map with Nearest Sensitive Receivers (Sourced from Sixmaps)

3 NOISE AND VIBRATION MANAGEMENT LEVELS

The following section details the relevant construction noise and vibration requirements assessed throughout the monitoring period.

3.1 NOISE MANAGEMENT LEVELS

Noise Management levels relevant to the contents of this report are summarised in the table below, as provided within the *Early Works Construction Noise and Vibration Management Plan*, prepared for the project by this office (Ref: 20230239.9/0610A/R1/LA):

Table 2 – Noise Management Levels

Receiver	Room Usage	Noise Management Level dB(A) $L_{eq}(15min)$
E1 and E2	All	45 (Internally)
R1	Laser Scanning Microscope	58 (Internally)
	Animal Housing / Breeding / Observation Rooms	64 (Internally)
	Rat Operating Room	46 (Internally)

3.2 PROJECT VIBRATION CRITERIA

Relevant project vibration criteria to the contents of this report are provided within the table below. Vibration criteria presented for spaces within Re1 and E2 have been updated based upon the conclusion of the “Baseline Monitoring Results,” report, as well as the “Construction Noise and Vibration Monitoring Report 1,” both of which were prepared by this office for the project (Ref: 20230239.17/0412A/R1/LA and 20230239.17/2301A/R0/LA):

Table 3 – Summarised Proposed Project Vibration Limits

Receiver	Location	Vibration Criteria (μms^{-1})
Re1 Centenary Institute	L1 Laser Room	VC-B (ASHRAE Handbook) (25 μms^{-1}) RMS Velocity
	L3 Fish Tank Room	400 μms^{-1} Peak Particle Velocity
	L4 – Animal Behaviour / Holding / Breeding Rooms	VC-A (ASHRAE Handbook) (50 μms^{-1}) RMS Velocity
E1 Createspace and Susan Wakil Health Building	All spaces	DIN 4150-3 Type 1 Criteria (20,000 μms^{-1} / 20 mms^{-1}) Peak Particle Velocity
E2 Charles Perkins Centre	Imaging Equipment (Southern Wing Corridor)	VC-B (ASHRAE Handbook) (25 μms^{-1}) RMS Velocity

	Animal Behaviour / Holding / Breeding Rooms	200 μms^{-1} Peak Particle Velocity
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4 MONITORING EQUIPMENT AND LOCATIONS

4.1 NOISE MONITORING EQUIPMENT AND LOCATIONS

Unattended noise monitoring was conducted using Acoustic Research Laboratories Pty Ltd noise loggers. The loggers were programmed to store 15-minute statistical noise levels throughout the monitoring period. The equipment was calibrated at the beginning and the end of each measurement using a Rion NC-73 calibrator; no significant drift was detected. All measurements were taken on A-weighted fast response mode.

Two individual noise monitors have been installed surrounding the site at the following locations:

- Centenary Institute Level 4 Surgery (Southern Façade).
- Outside Susan Wakil Health Building, on grade.

Please refer to Figure 1 for detailed monitoring locations. Appendix C provides photos of the monitors installed at the project site.

4.2 VIBRATION MONITORING EQUIPMENT AND LOCATIONS

Vibration monitoring was conducted using either Texcel ETM vibration monitors with external Tri-axial Geophones, or Bruel and Kjaer Type 4450 vibration monitors.

Three Texcel ETM monitors have been placed surrounding the site at the following locations:

- Centenary Institute Level 3, Fish Tanks.
- Charles Perkins Centre Level B1, Southern Wing Observation Room E.
- Outside Susan Wakil Health Building, on grade.

Additionally, four Bruel and Kjaer Type 4450 Vibration monitors have been installed surrounding the site at the following locations:

- Centenary Institute:
 - Level 1 Laser Imaging Room.
 - Level 4 Surgery (Southern Façade).
 - Level 4 Change Rooms (Northern Façade)
- Charles Perkins Centre Level B1, Southern Wing Corridor.

Please refer to Figure 1 for detailed monitoring locations. Appendix C provides photos of the monitors installed at the project site.

5 RESULTS

Appendix A presents the results of the noise monitoring, whilst Appendix B presents the results of the vibration monitoring for the monitoring period as presented within the contents of this report.

A discussion pertaining the findings of the noise and vibration monitoring undertaken during this monitoring period is provided within the proceeding sections.

5.1 NOISE MONITING RESULTS DISCUSSION

Noise monitoring conducted throughout the monitoring period shows general adherence to the noise management levels provided within Section 3 of this letter.

With regards to the noise monitor in place within the L4 Surgery Room of Centenary Institute, we note the following:

- Due to a technical issue with the control software for the monitoring station, there has been no data collated at this monitoring station during this monitoring period. Equipment has been updated and replaced on site.
- Data being collated at this monitoring location has recommenced during the following monitoring period to this report on Wednesday 31st January 2024.

With regards to the noise monitor in place for the Susan Wakil Health Building, we note the following:

- The monitor maintained outside of the Susan Wakil Health Building is maintained within the demolition site boundary and is approximately 15m closer to the area of the works than the façade of the Susan Wakil Health Building.
- Noting this increased distance attenuation, in conjunction with the transmission loss experienced through the inoperable façade of the Susan Wakil Health Building when comparing internal and external noise levels, Acoustic Logic expect that, at minimum, there is a 30dB reduction between the measured noise levels by the monitor, when compared with the resultant internal noise levels within the receiver.
- Hence, the noise levels generated by construction works, measured by this monitoring station are shown to adhere to the noise management levels provided within Section 3 of this letter.

5.2 VIBRATION MONITORING RESULTS DISCUSSION

With regards to the vibration measured vibration levels during the monitoring period, we note the following:

- Note that the graphs presented within the Appendix of this document show the maximum recorded velocity for each individual frequency within a given day's monitoring period.
- Centenary Institute:
 - Level 1 – Laser Imaging Room:
 - Measured vibration levels throughout the monitoring period show ongoing exceedances of the VC-B vibration criteria.
 - Generally, exceedances are sporadic and varying in nature and magnitude. This would generally not be considered consistent with vibration impacts expected from construction activity, noting that construction vibration tends to show gradual peaks of exceedances as continuous construction activity occurs.
 - Due to the highly sensitive vibration criteria set for this space, there are various sources of vibration impacting the monitoring station exclusive of the construction activity which may result in "Phantom" exceedances of criteria within the monitored space.
 - Sources of vibration which may incite phantom exceedances may include, but are not limited to, footsteps (Both within the monitored room and in adjacent rooms), moving of materials and equipment, and operation of surrounding equipment which may produce vibration.
 - Based on these exceedances, the use of vibration curve VC-B may not be appropriate for the monitoring of vibration impacts on the Laser Imaging Room, and the use of this curve for criteria will be assessed throughout future monitoring periods in order to assess its validity for controlling construction vibration.
 - Level 3 Fish Tanks and Level 4 Animal Testing:
 - No exceedances of the relevant imposed vibration criteria were observed during the monitoring period.
- Charles Perkins Centre:
 - Southern Corridor (Imaging):
 - Measured vibration levels throughout the monitoring period show ongoing exceedances of the VC-B vibration criteria.
 - We note that façade upgrade works of the Charles Perkins Centre Facility are currently underway and exclusive from the scope of construction activity pertaining this monitoring report.
 - Through analysis and comparison of results at separate monitoring stations, it is determined that none of the prolonged periods of exceedance recorded within the monitoring period align with similar spikes measured by other monitoring stations around the works, and hence it is concluded that these spikes are caused by operational activity exclusive of the construction works.
 - Based on these exceedances, the use of vibration curve VC-B may not be appropriate for the monitoring of vibration impacts on the B1 imaging equipment, and the use of this curve for criteria will be assessed throughout future monitoring periods in order to assess its validity for controlling construction vibration.

- Observation Room E:
 - No exceedances of the relevant imposed vibration criteria were observed during the monitoring period.
- Susan Wakil Health Building:
 - No exceedances of the relevant imposed vibration criteria were observed during the monitoring period.

6 CONCLUSION

Noise and vibration monitoring has been conducted by Acoustic Logic for the Early Works being undertaken for SSD-47662959, the RPA Hospital Redevelopment, located at 50 Missenden Road, Camperdown.

This letter presents the results of the monitoring between the period of Monday 08th January 2024 and Sunday 21st January 2024.

Monitoring results have been provided with reference to the Noise and Vibration Management Levels established within the *Early Works Construction Noise and Vibration Management Plan*, prepared by this office, or as they have been updated throughout the construction process, specifically pertaining to the recommendations of the *Baseline Monitoring Results* and *Construction Noise and Vibration Monitoring Report 1*, both also prepared by this office (Ref: 20230239.9/0610A/R1/LA, 20230239.17/0412A/R1/LA and 20230239.17/2301A/R0/LA).

Noise monitoring results have been provided within Appendix A, whilst vibration monitoring results have been provided throughout Appendix B of this letter.

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

Yours faithfully,



Acoustic Logic Pty Ltd
Lachlan Abood

APPENDIX A – NOISE MONITORING RESULTS

CENTENARY INSTITUTE – LEVEL 4 SURGERY ROOM (SOUTHERN FAÇADE)

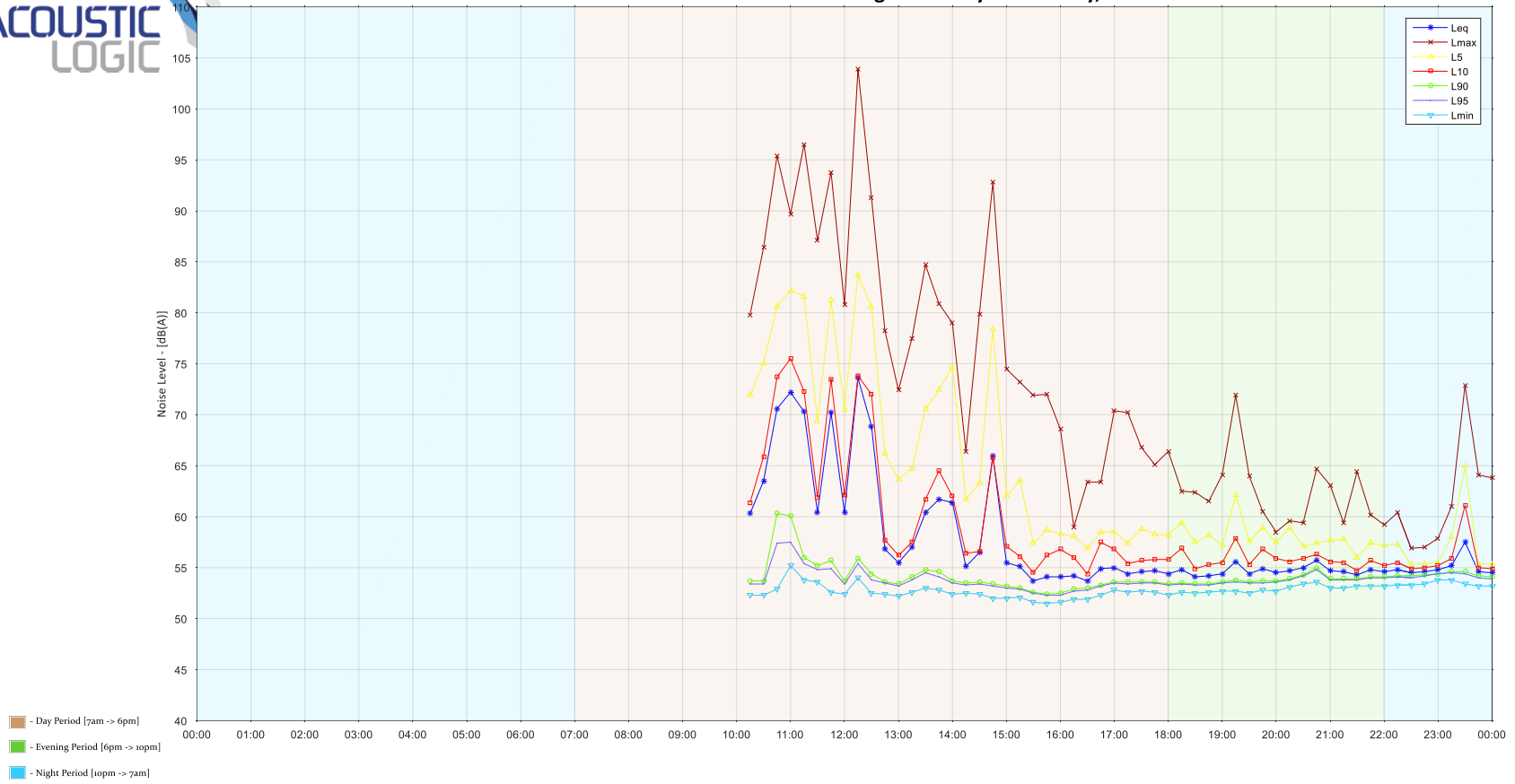
Due to a technical issue with the control software for the monitoring station, there has been no data collated at this monitoring station during this monitoring period. Equipment has been updated and replaced on site.

Data being collated at this monitoring location has recommenced during the following monitoring period to this report on Wednesday 31st January 2024.

OUTSIDE SUSAN WAKIL HEALTH BUILDING

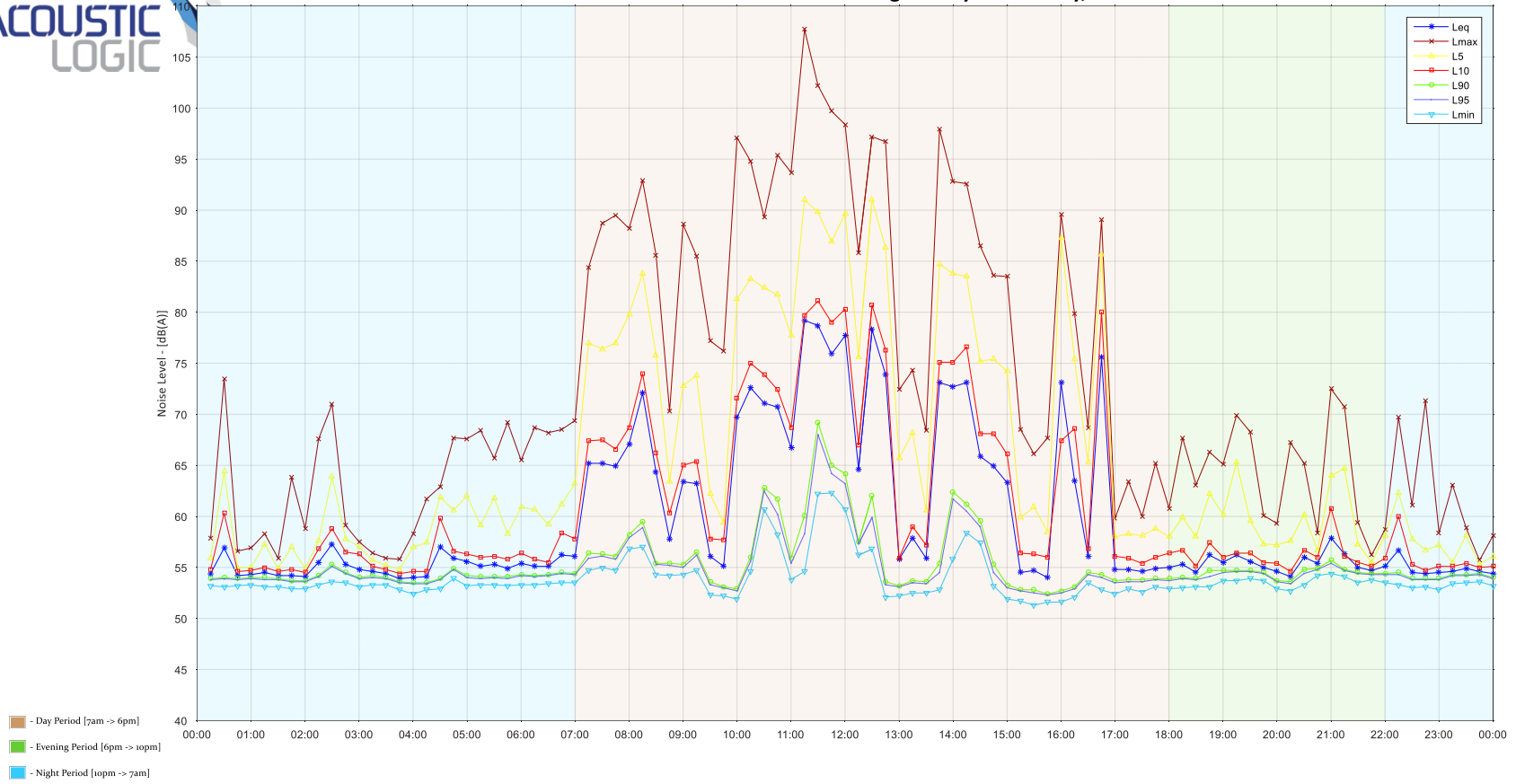


Outside Susan Wakil Health Building: Thursday 11 January, 2024



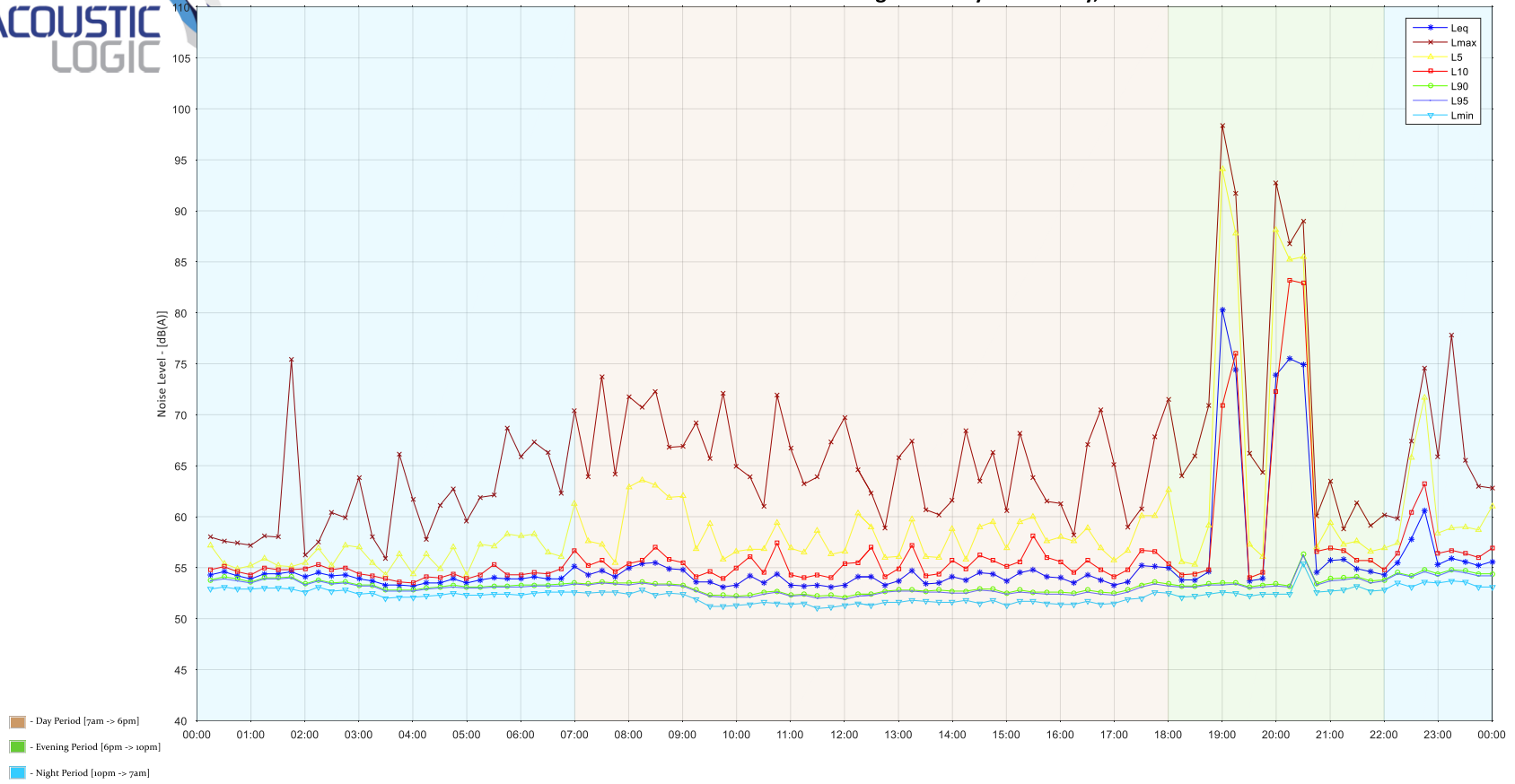


Outside Susan Wakil Health Building: Friday 12 January, 2024



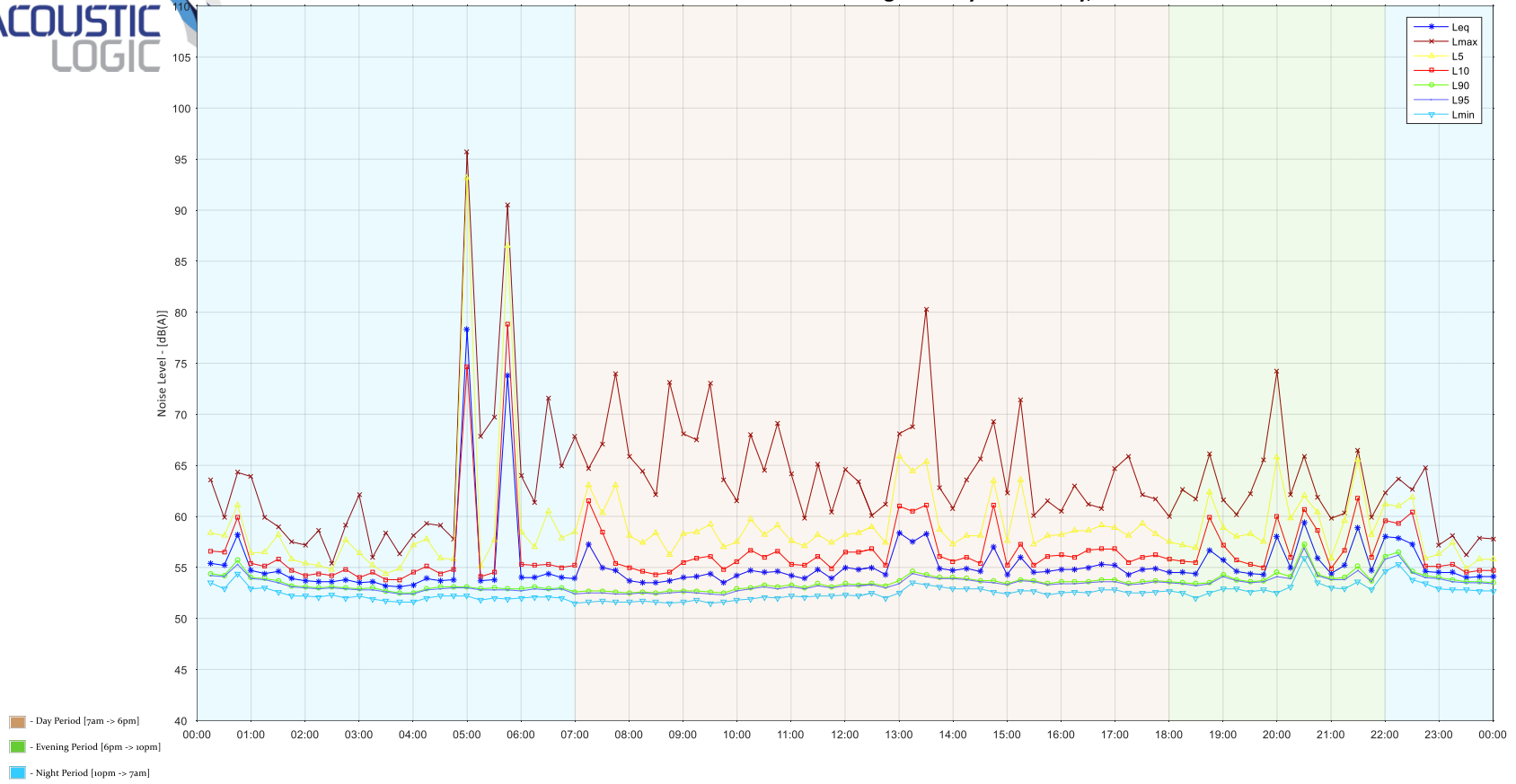


Outside Susan Wakil Health Building: Saturday 13 January, 2024



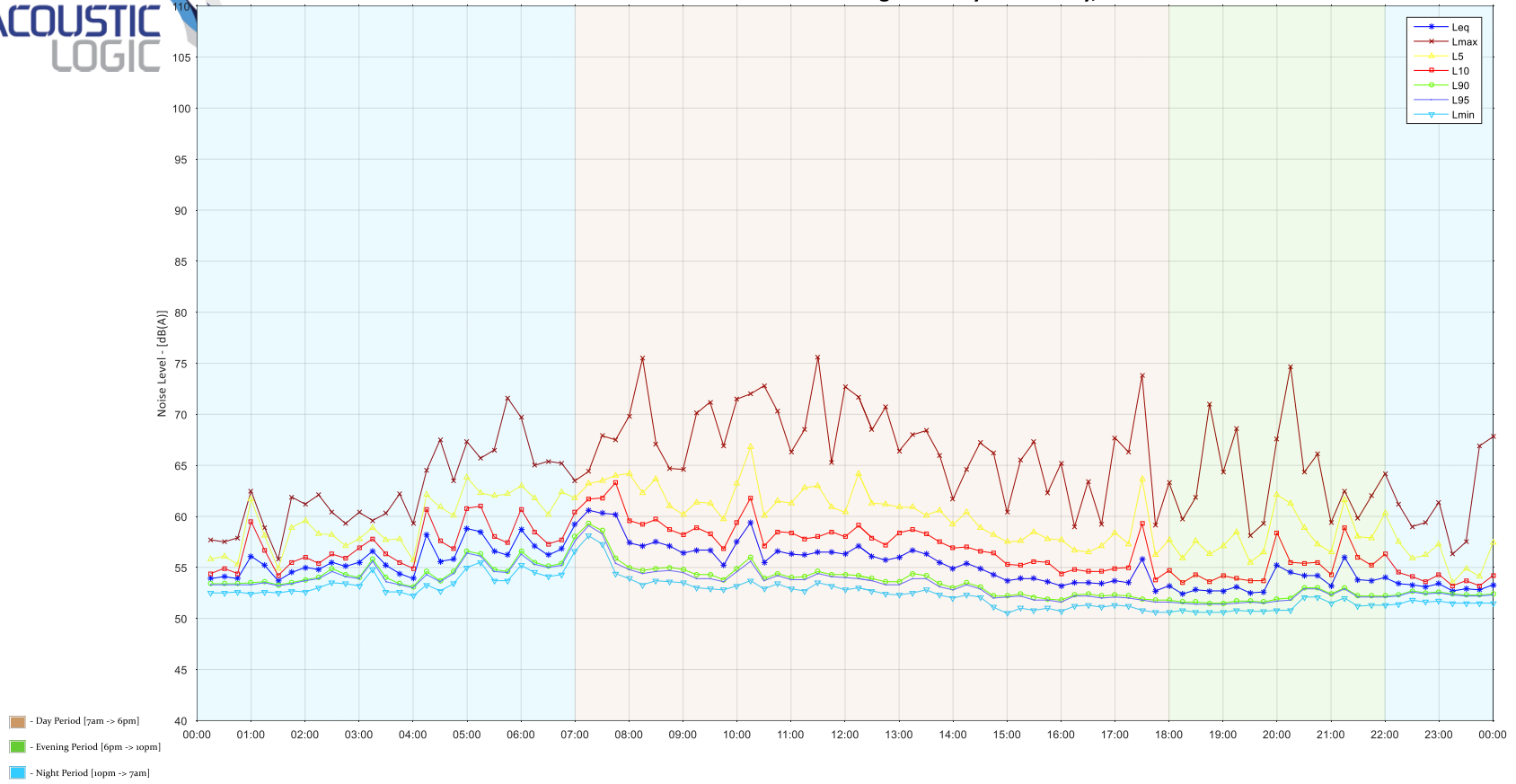


Outside Susan Wakil Health Building: Sunday 14 January, 2024

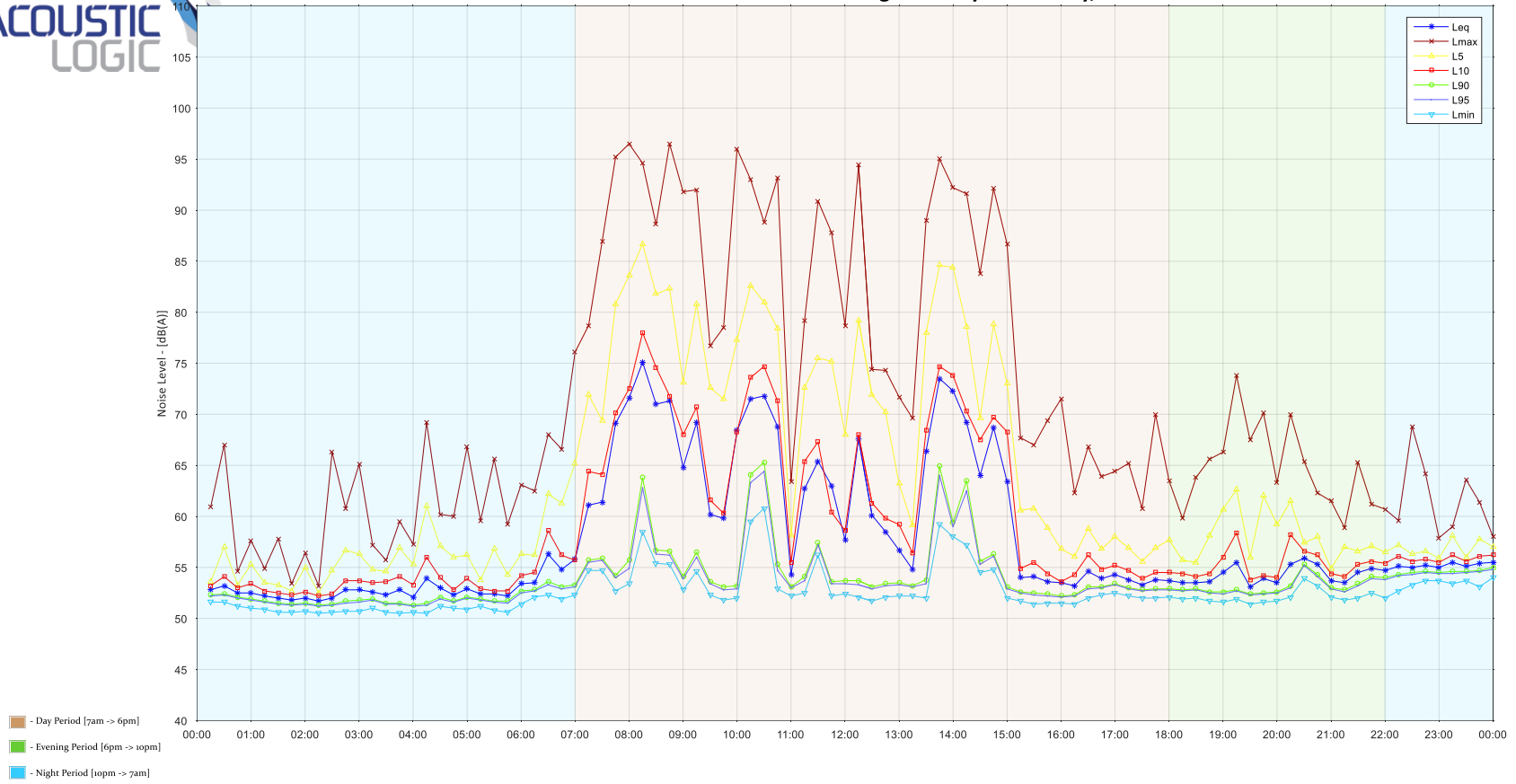




Outside Susan Wakil Health Building: Monday 15 January, 2024

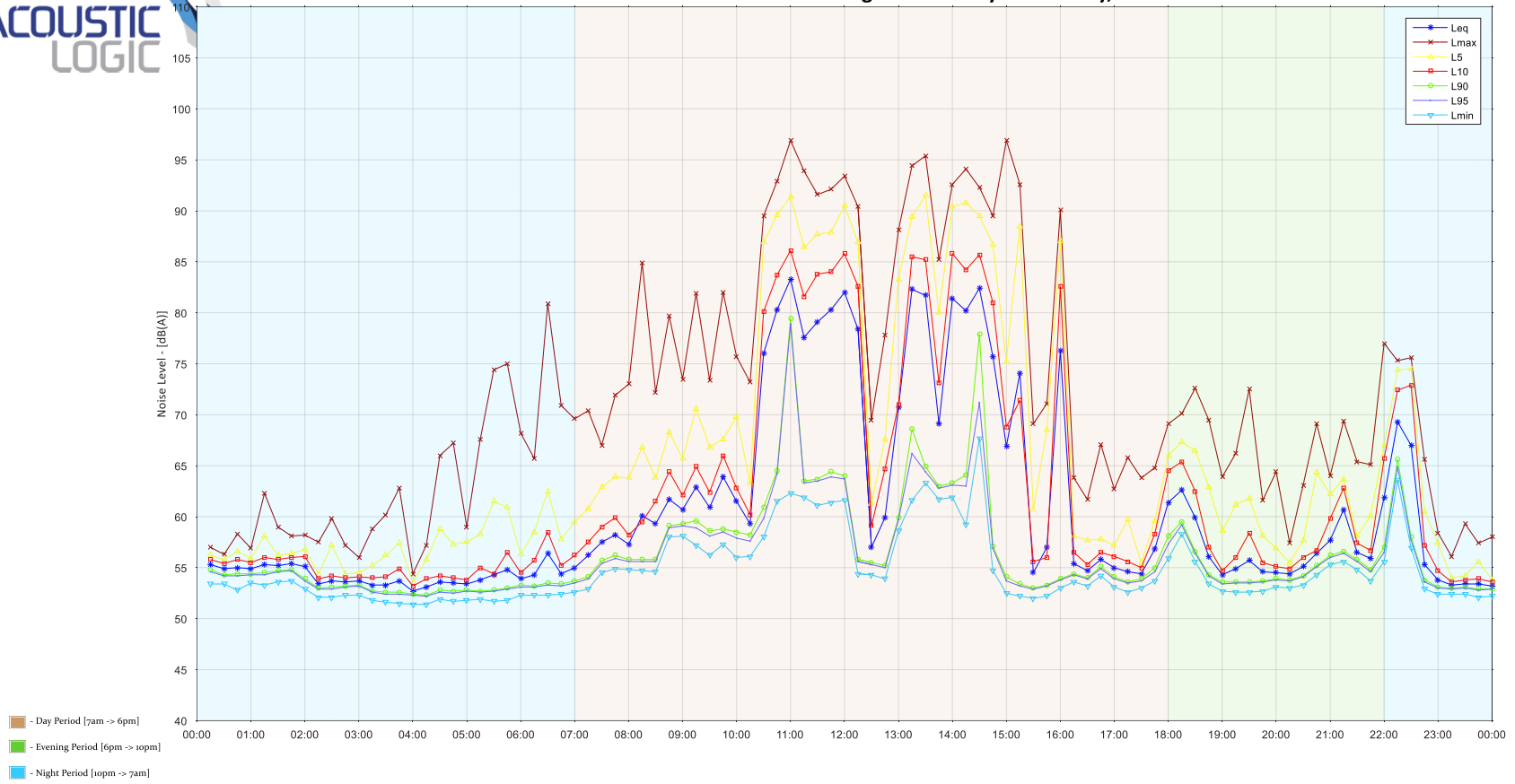


Outside Susan Wakil Health Building: Tuesday 16 January, 2024



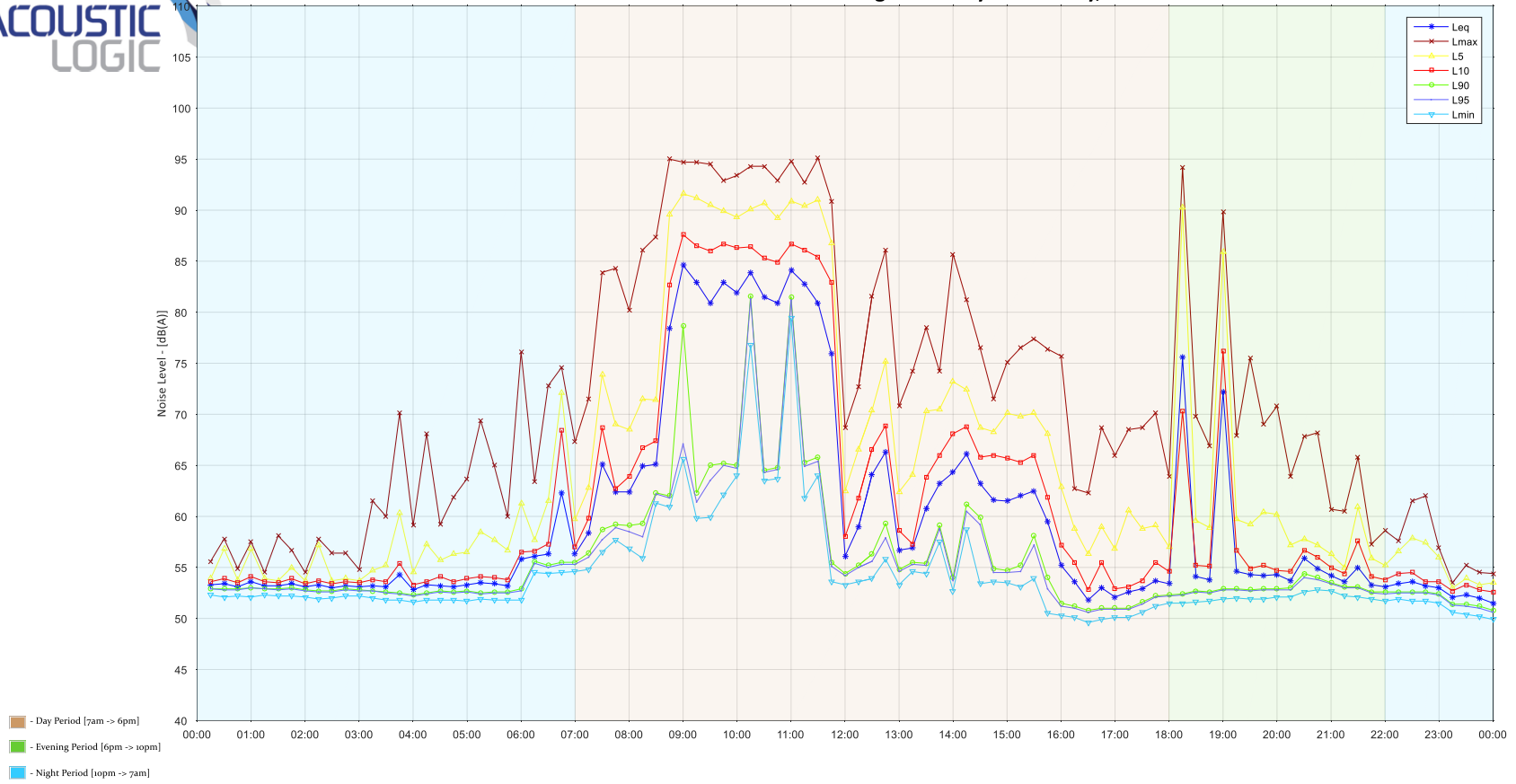


Outside Susan Wakil Health Building: Wednesday 17 January, 2024



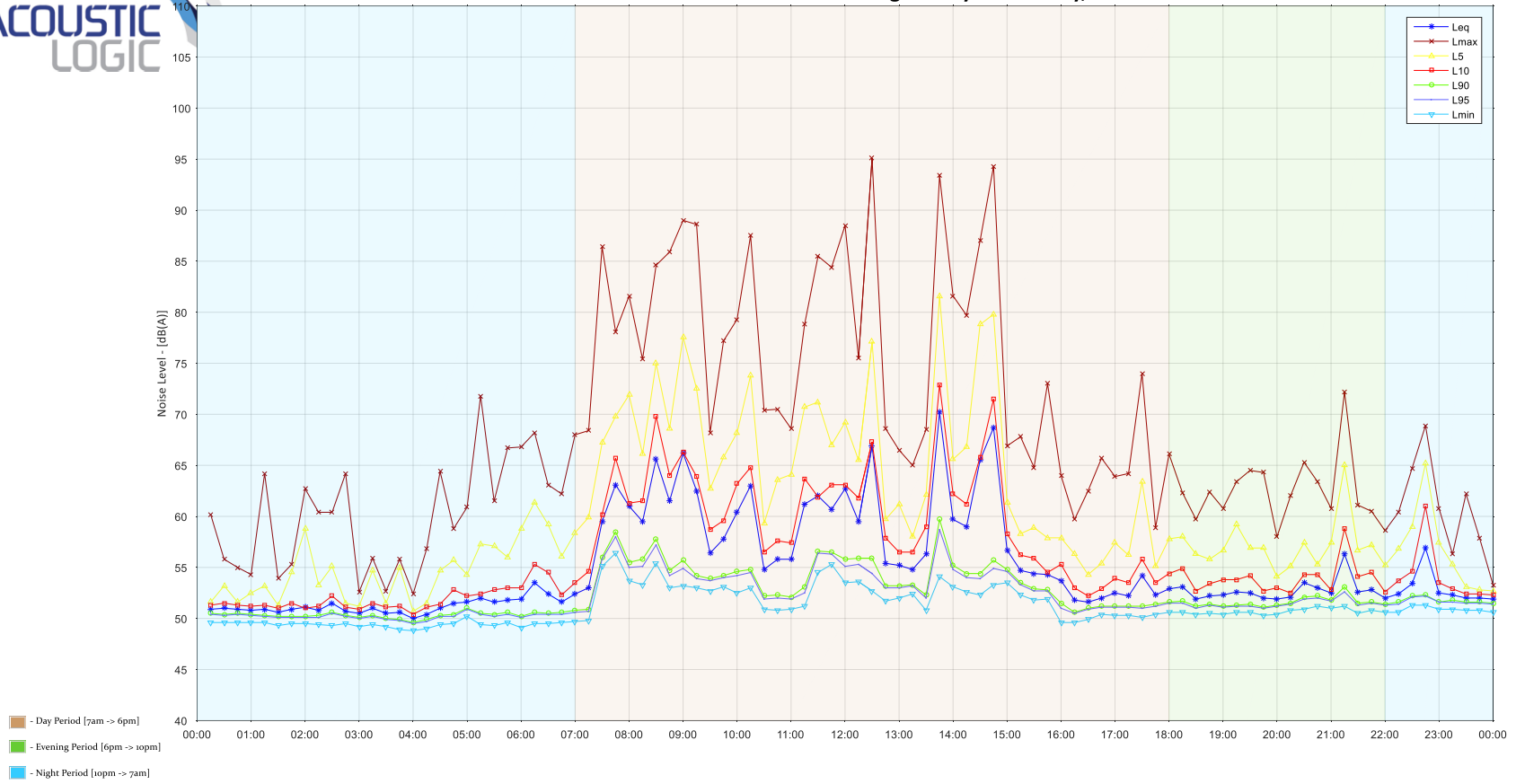


Outside Susan Wakil Health Building: Thursday 18 January, 2024



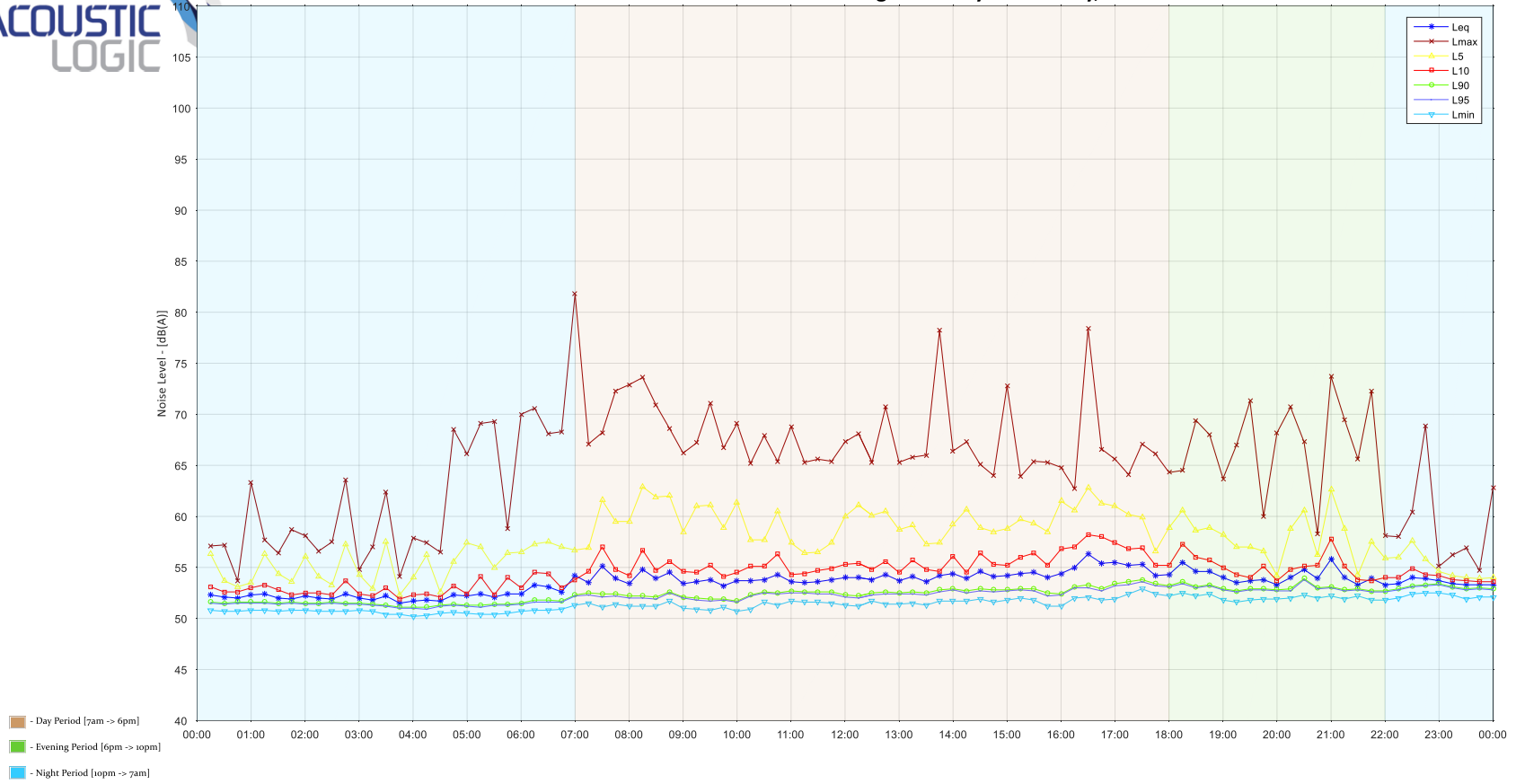


Outside Susan Wakil Health Building: Friday 19 January, 2024



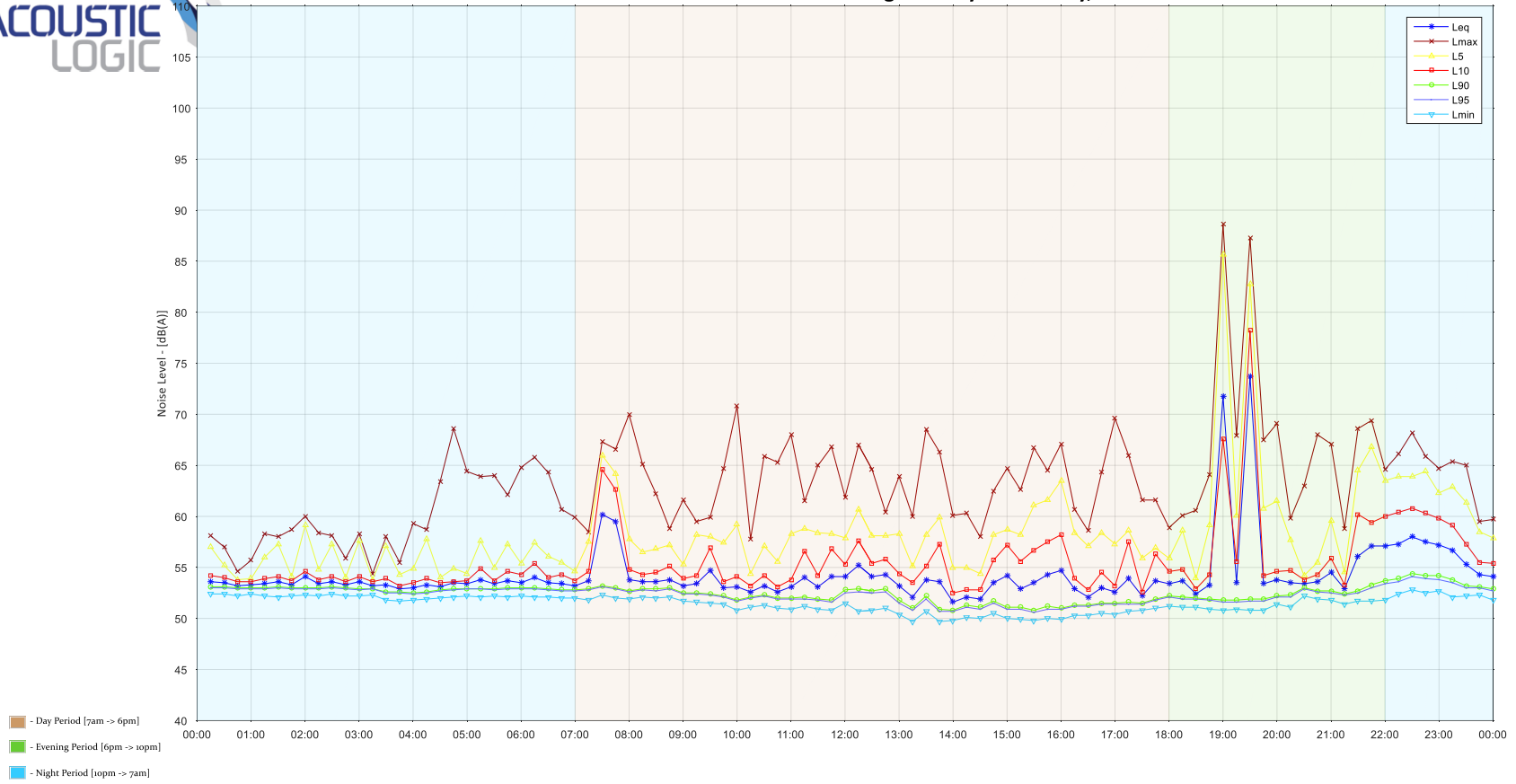


Outside Susan Wakil Health Building: Saturday 20 January, 2024





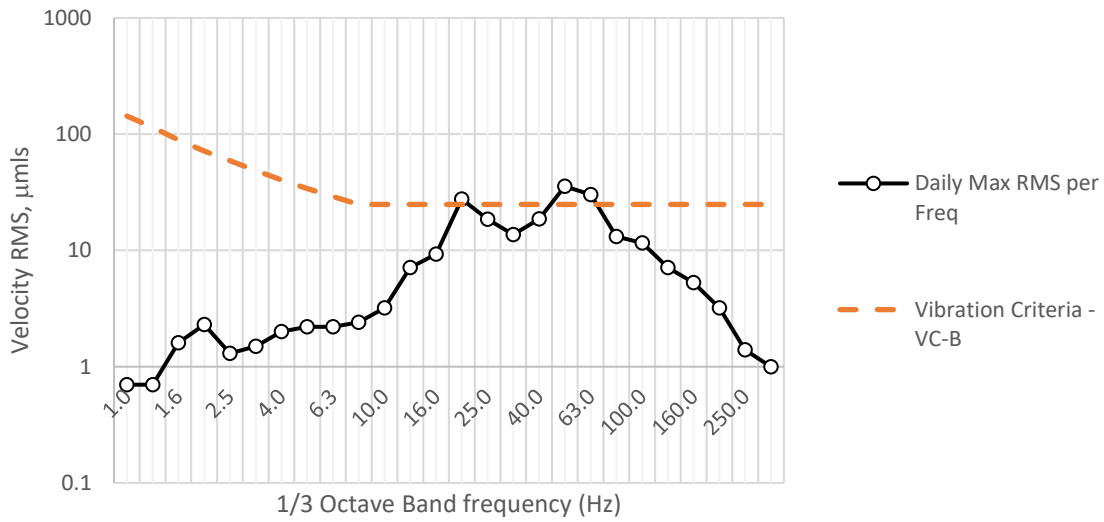
Outside Susan Wakil Health Building: Sunday 21 January, 2024



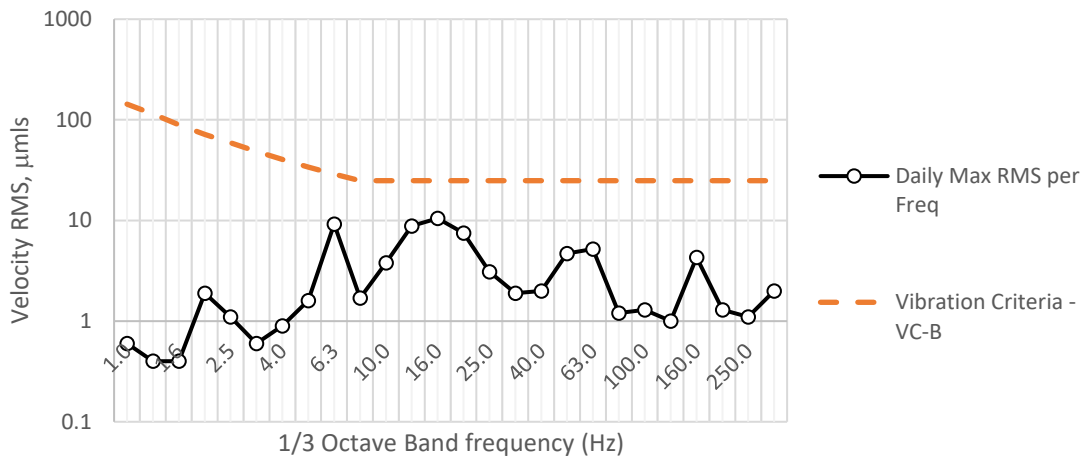
APPENDIX B – VIBRATION MONITORING RESULTS

CENTENARY INSTITUTE – LEVEL 1 LASER IMAGING ROOM

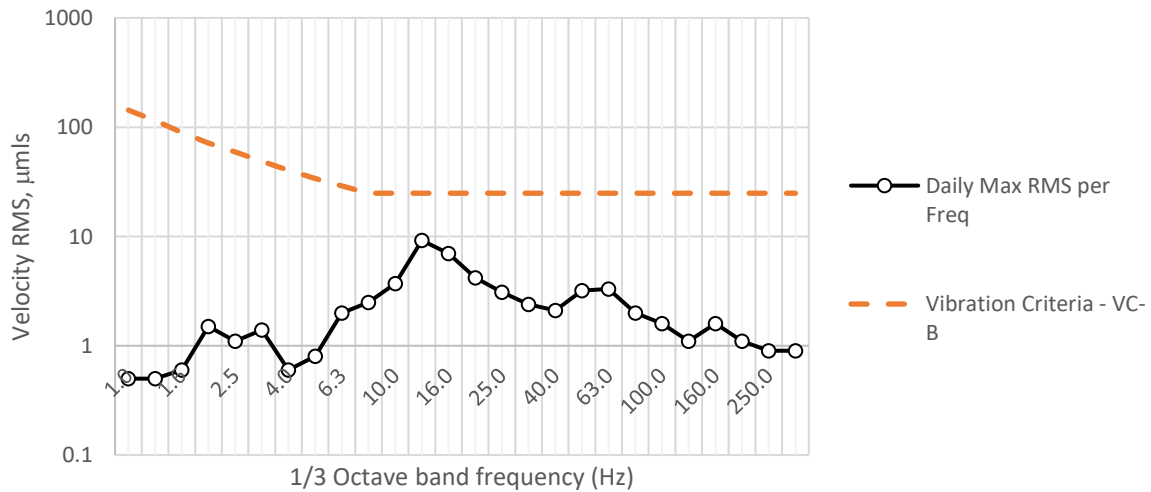
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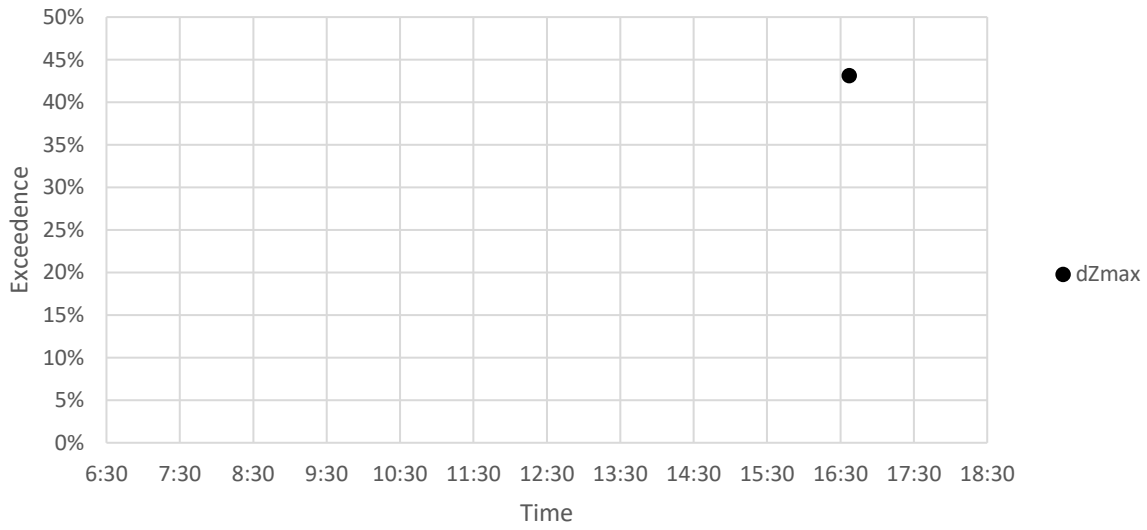
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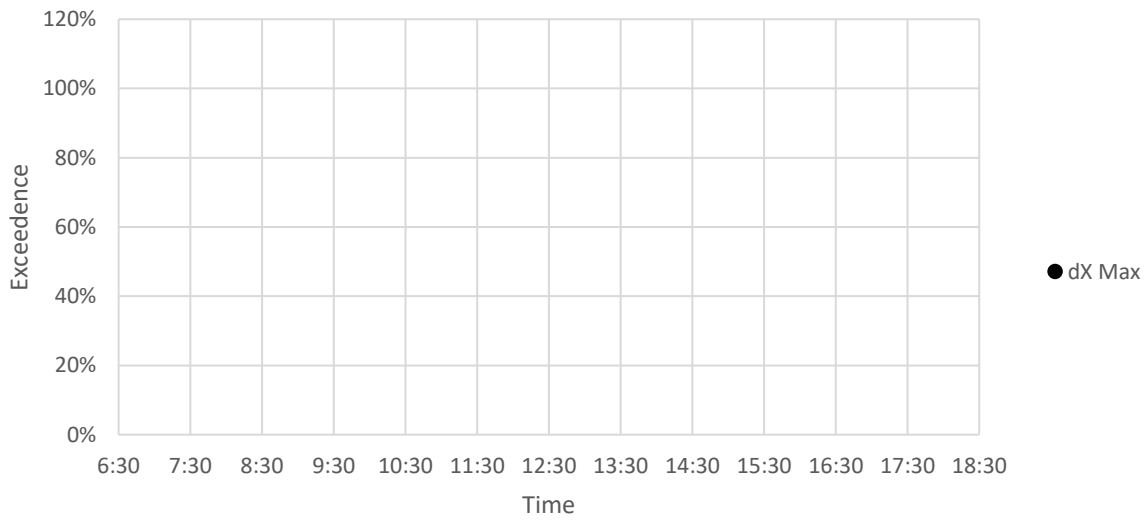
Sideways Vibration



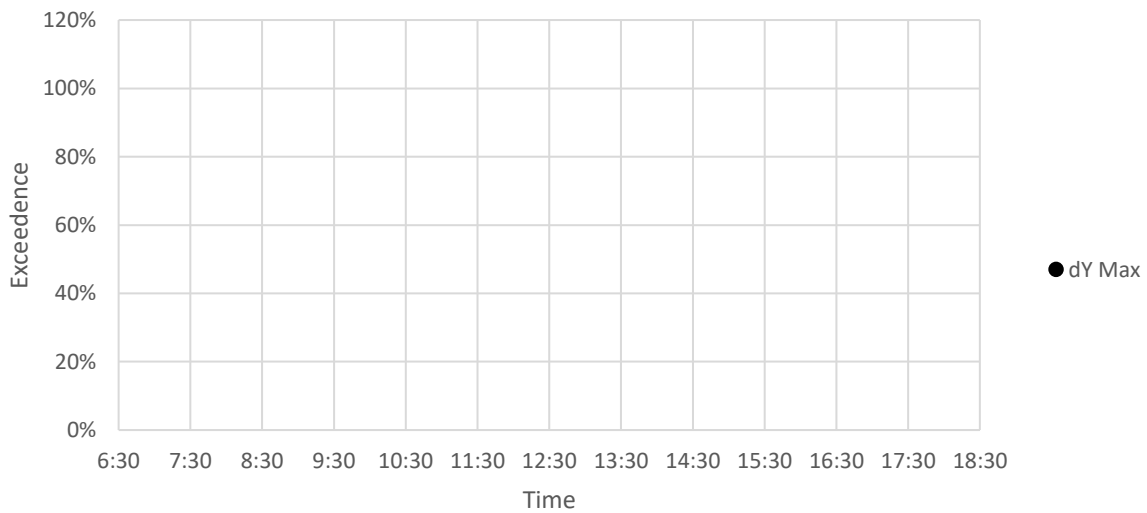
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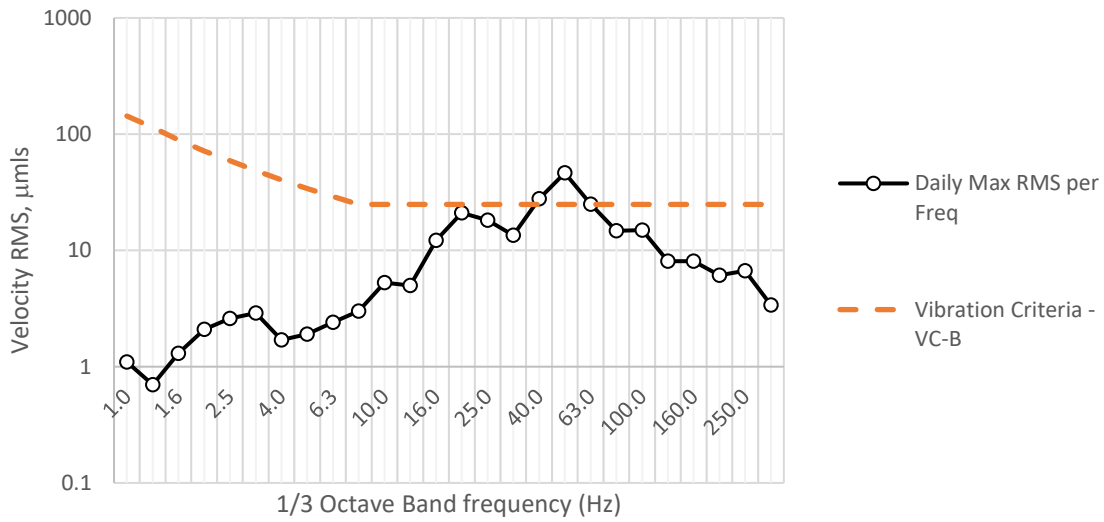
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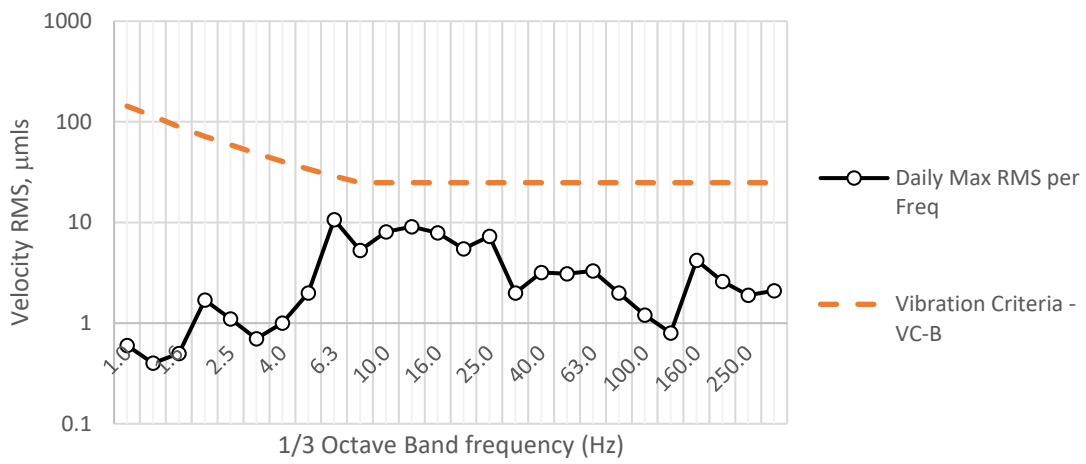
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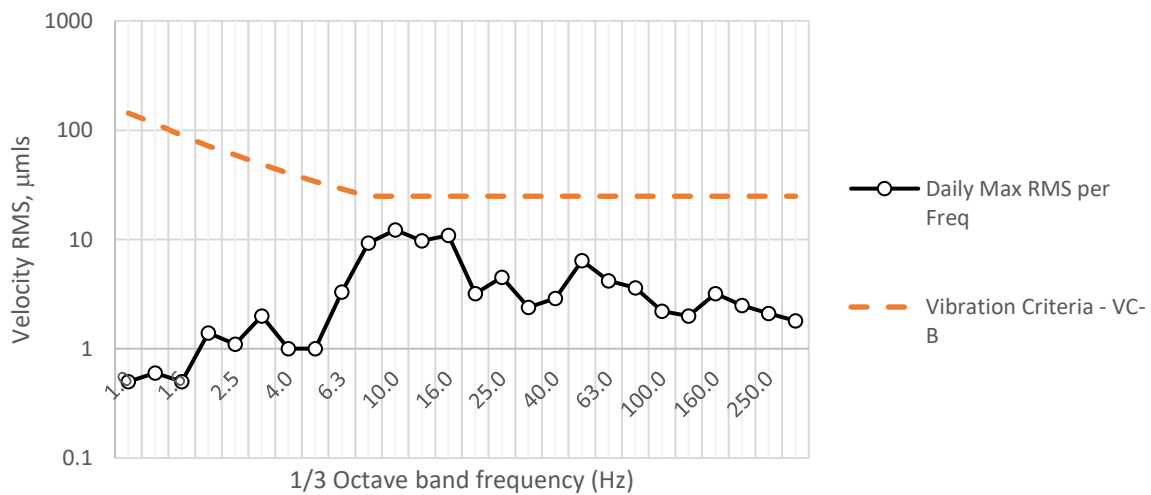
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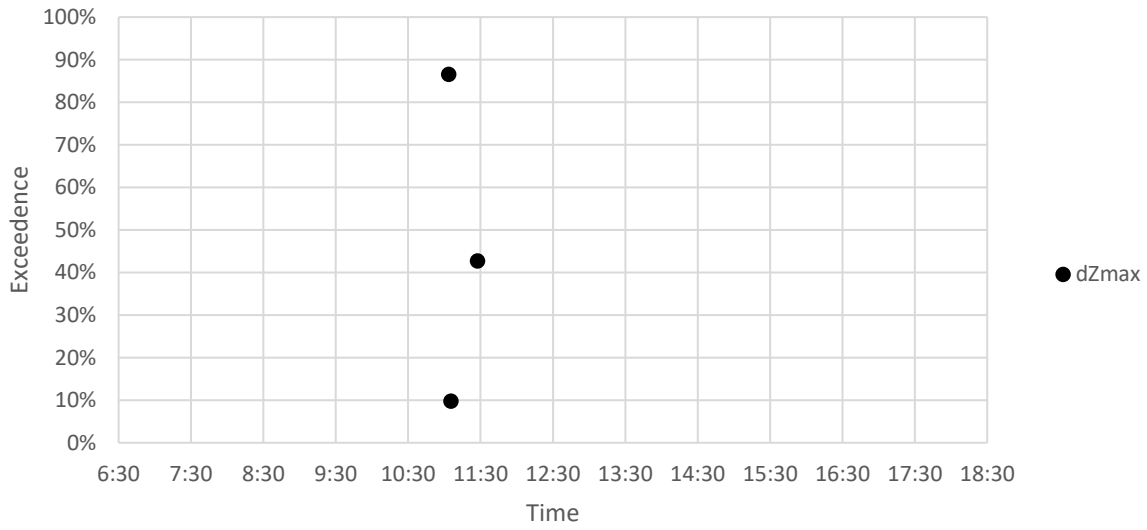
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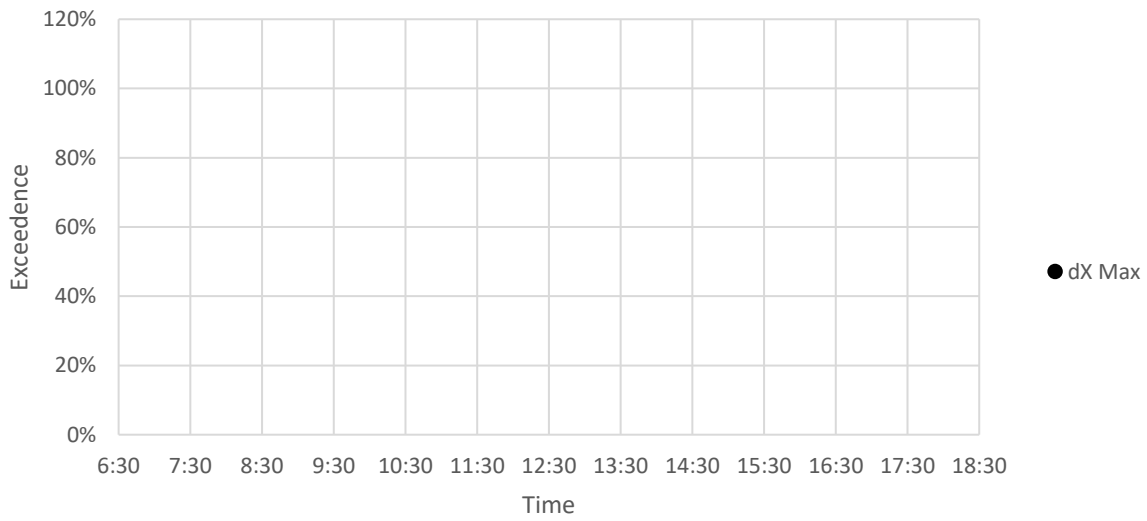
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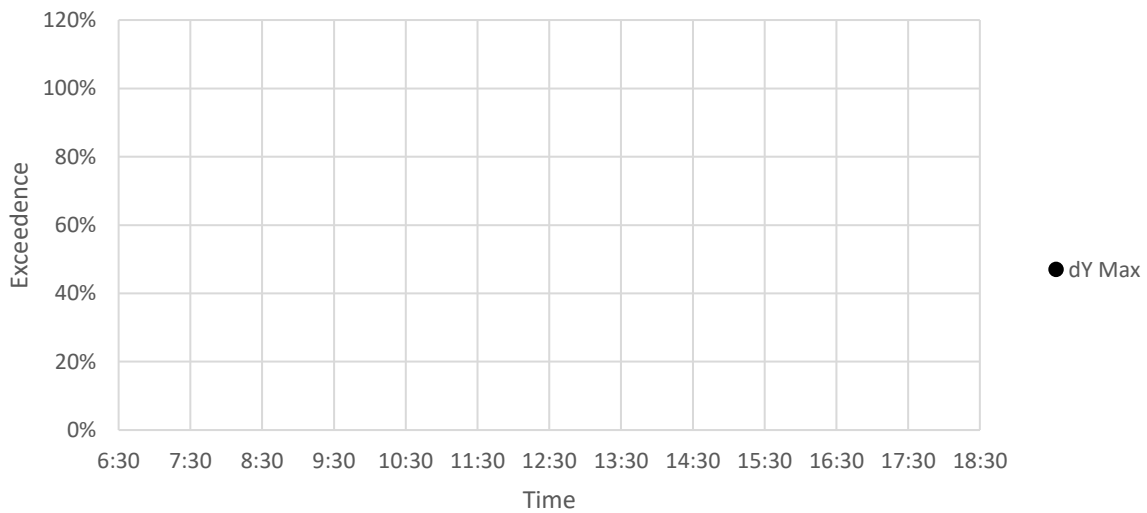
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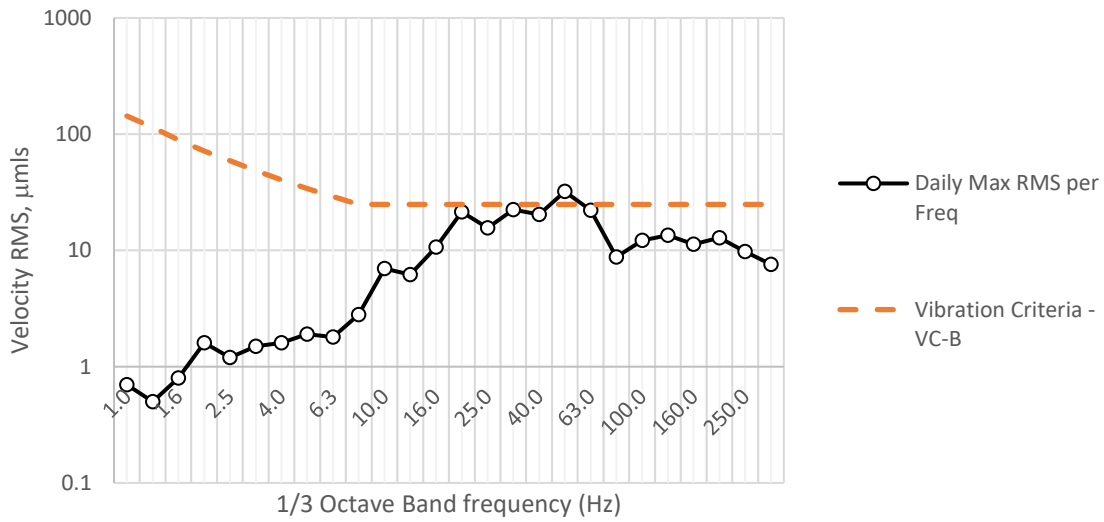
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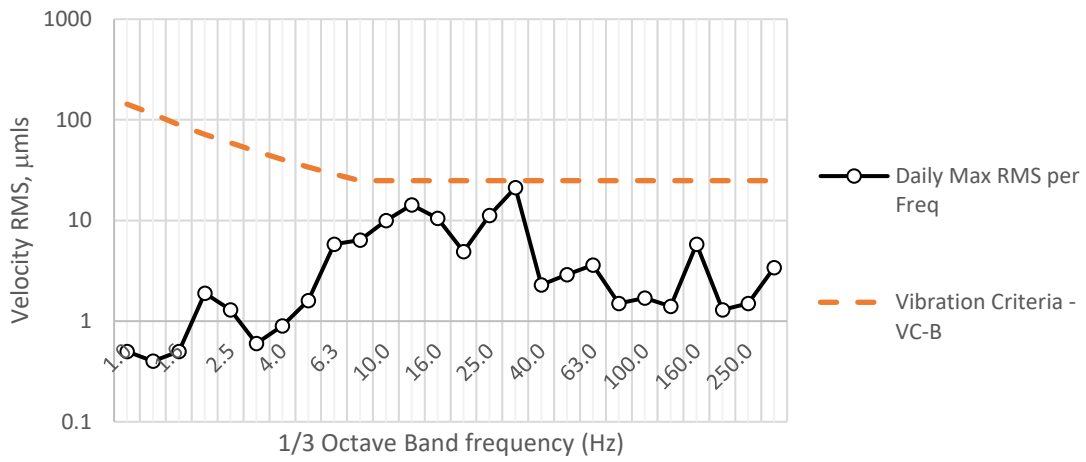
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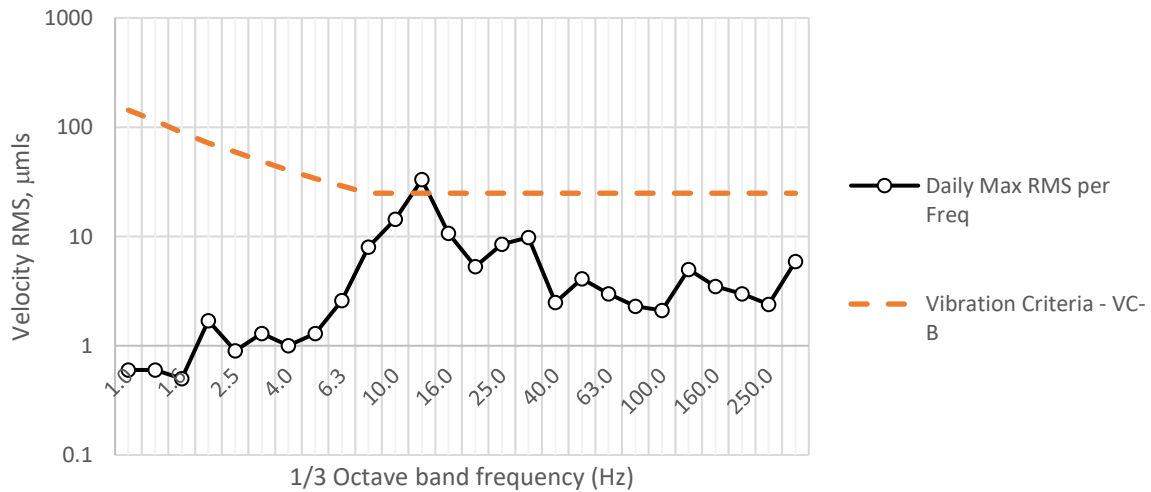
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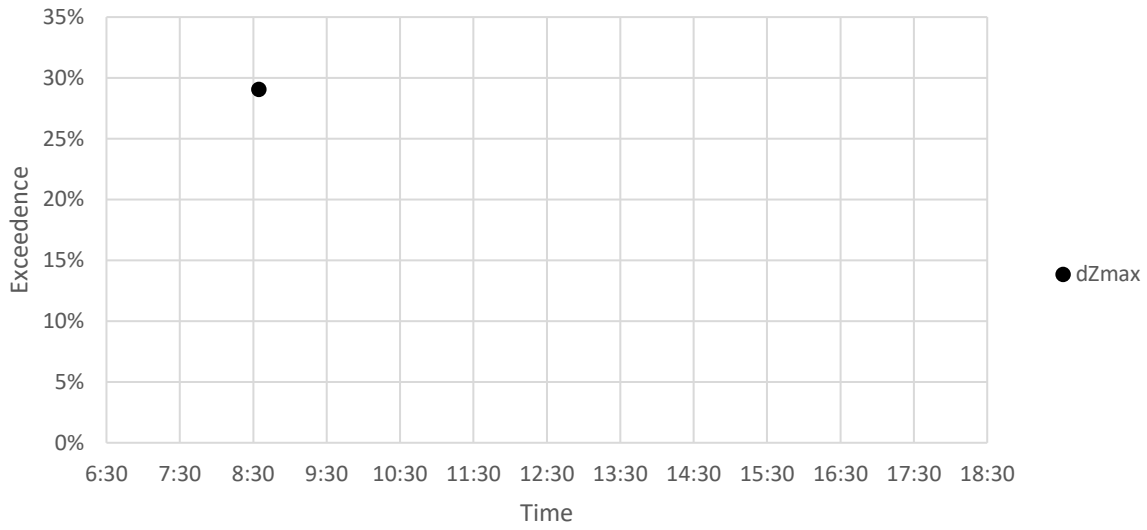
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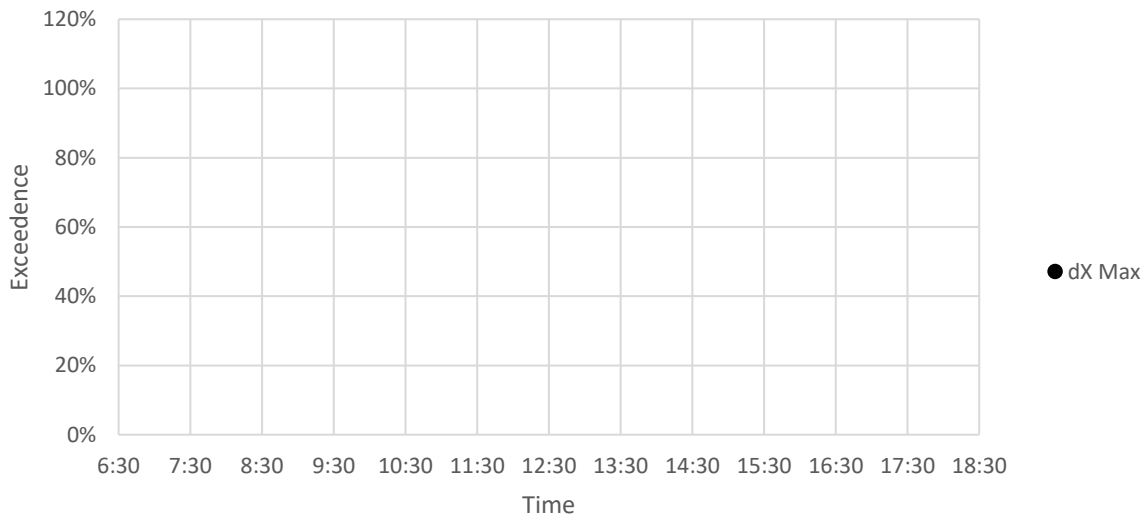
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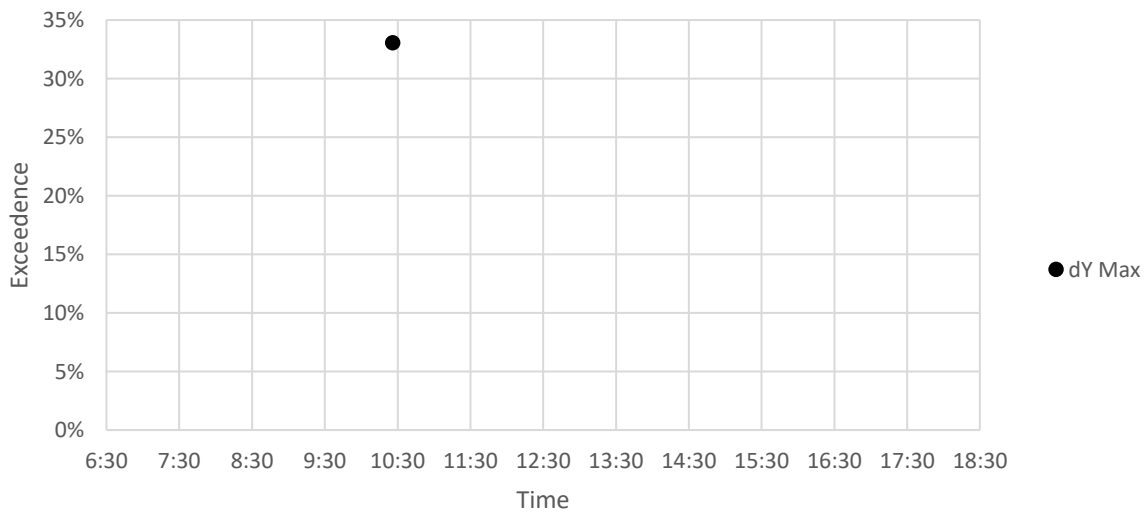
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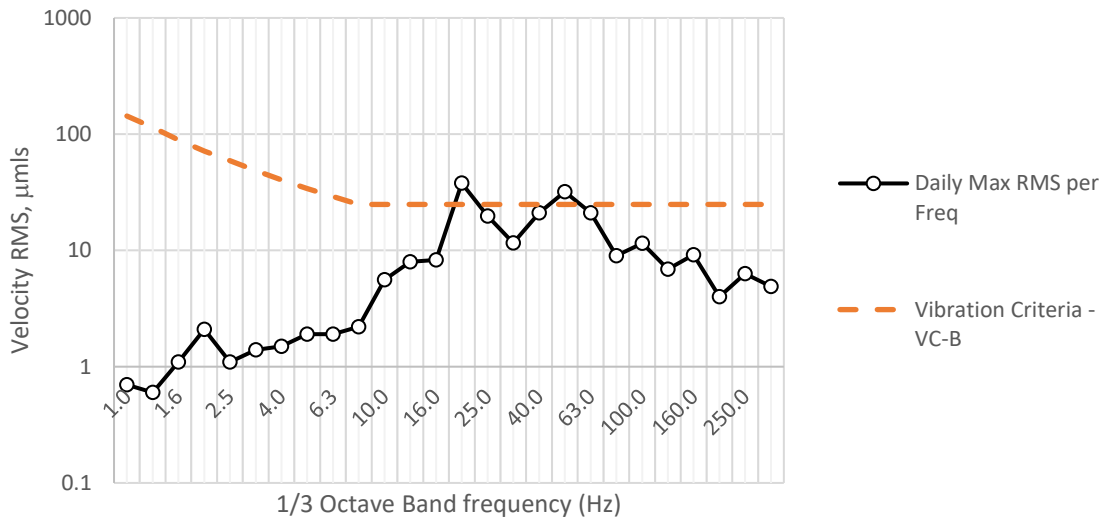
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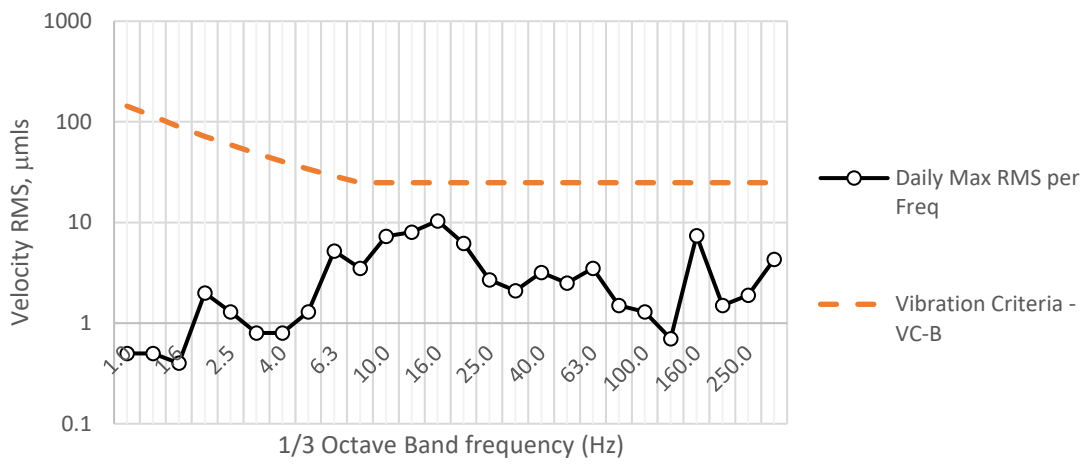
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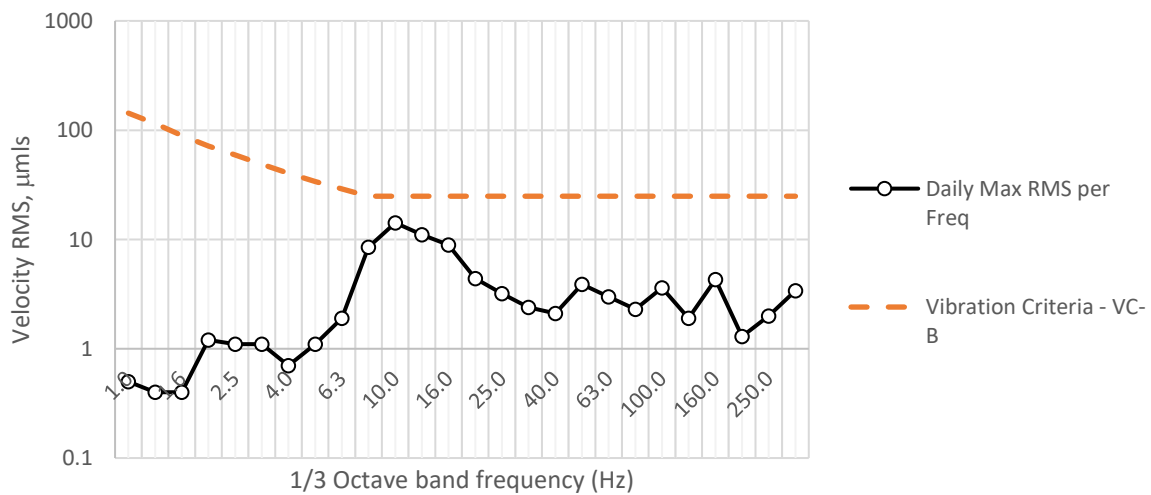
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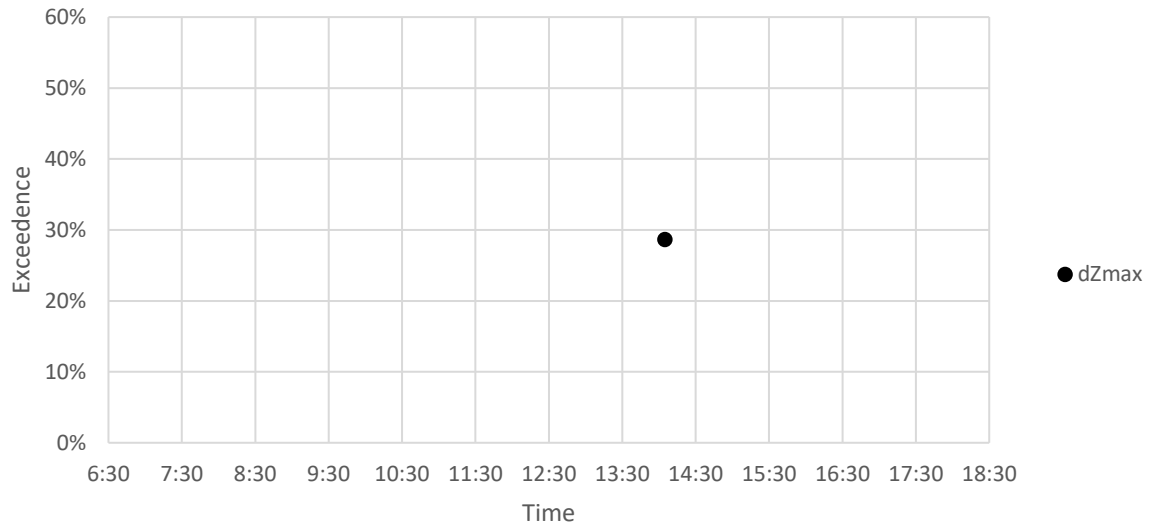
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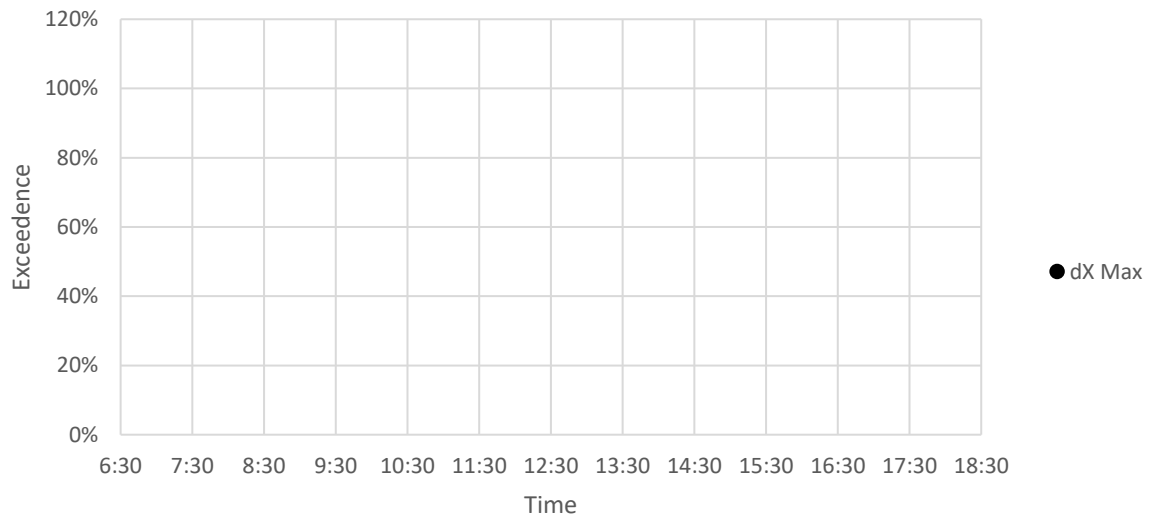
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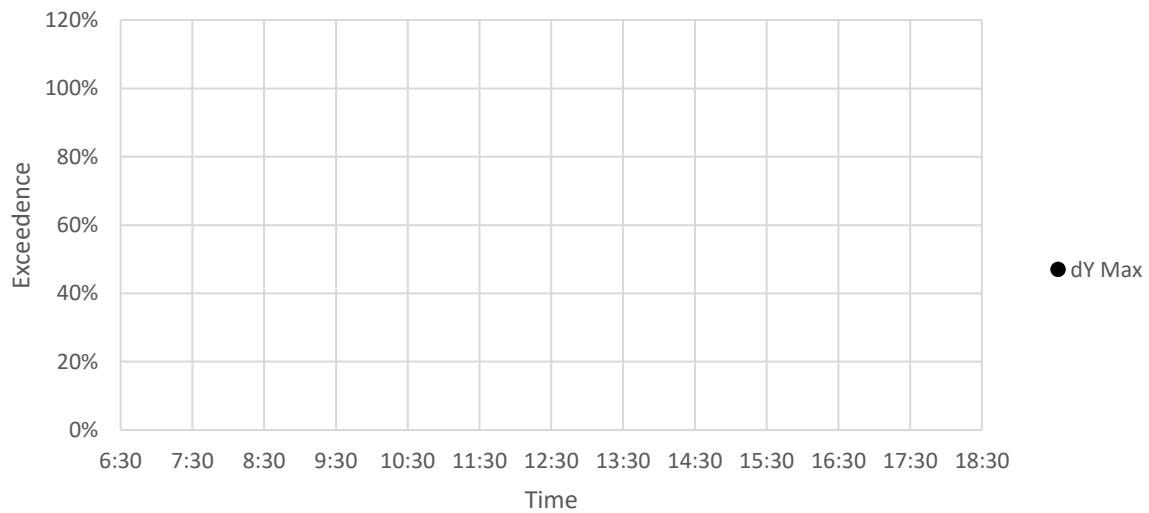
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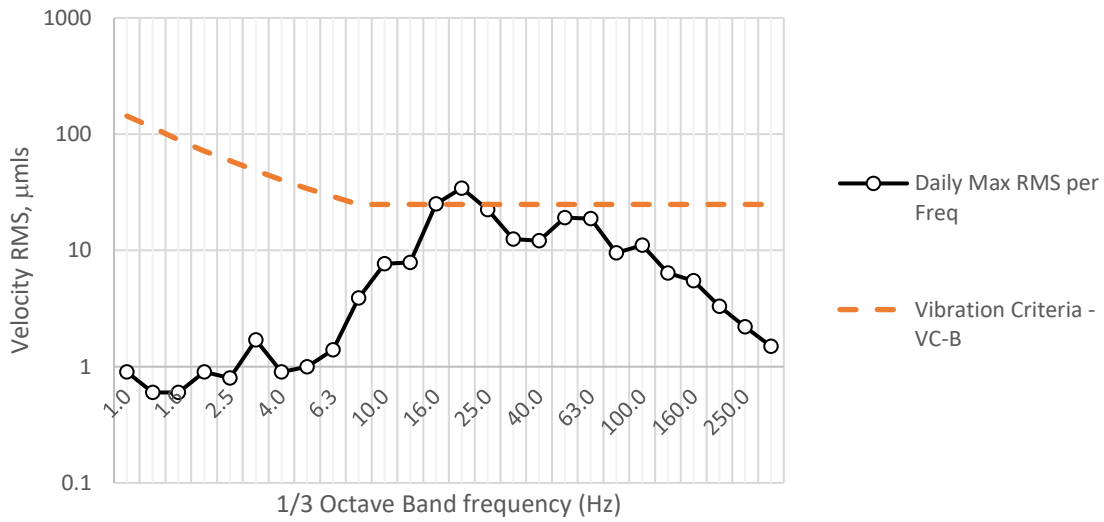
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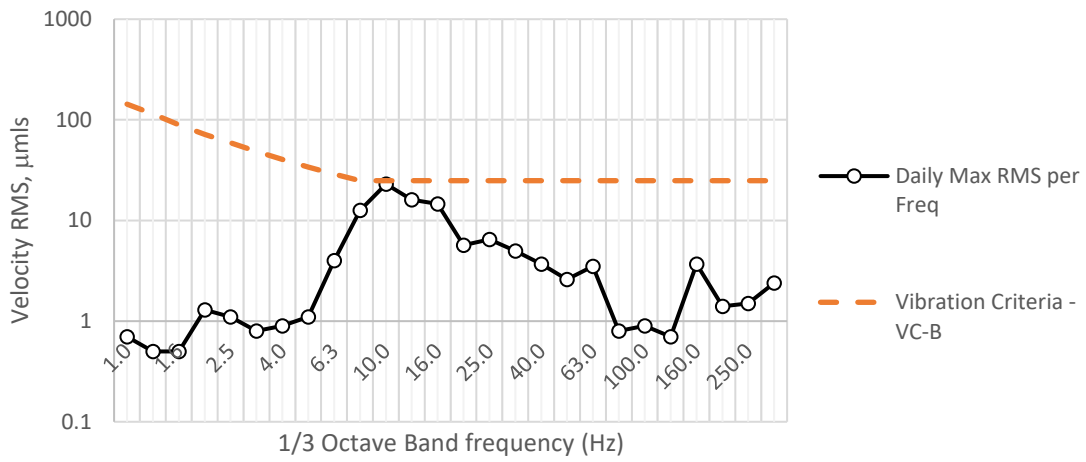
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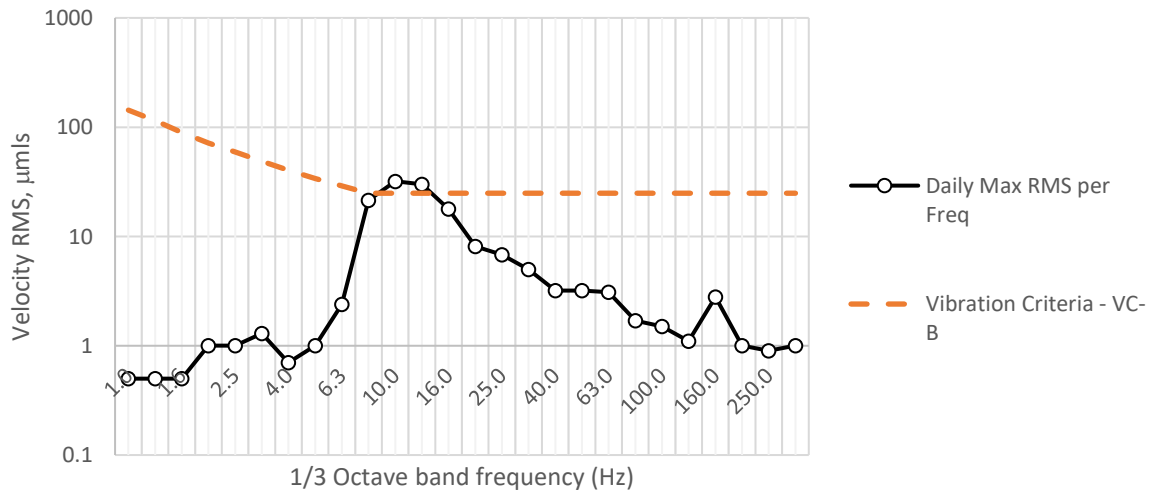
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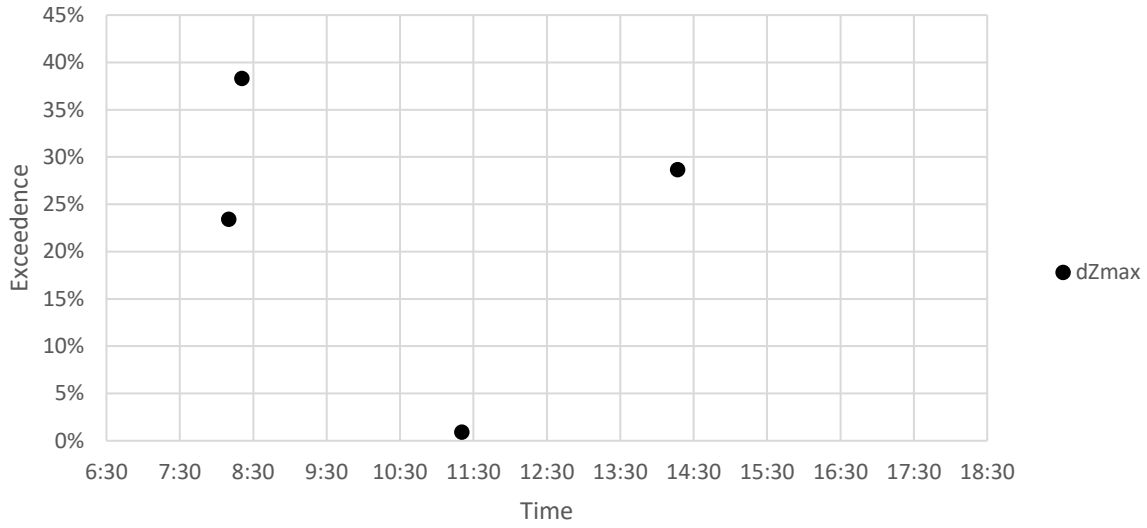
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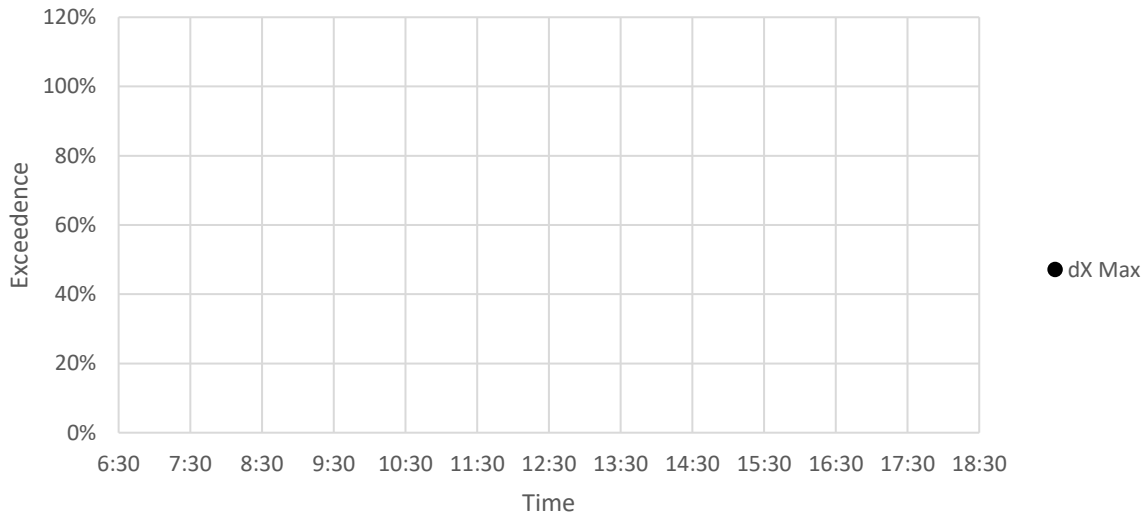
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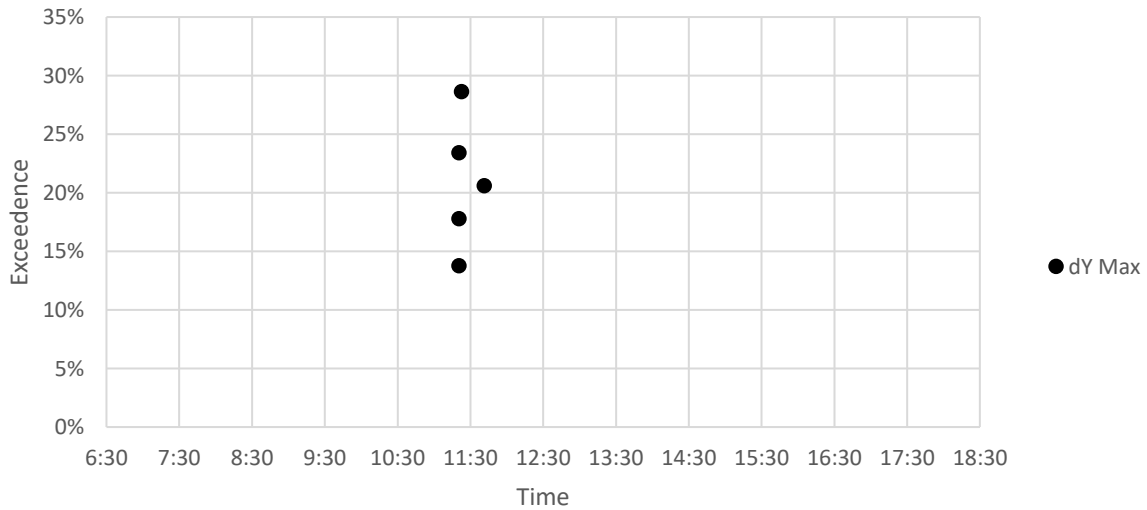
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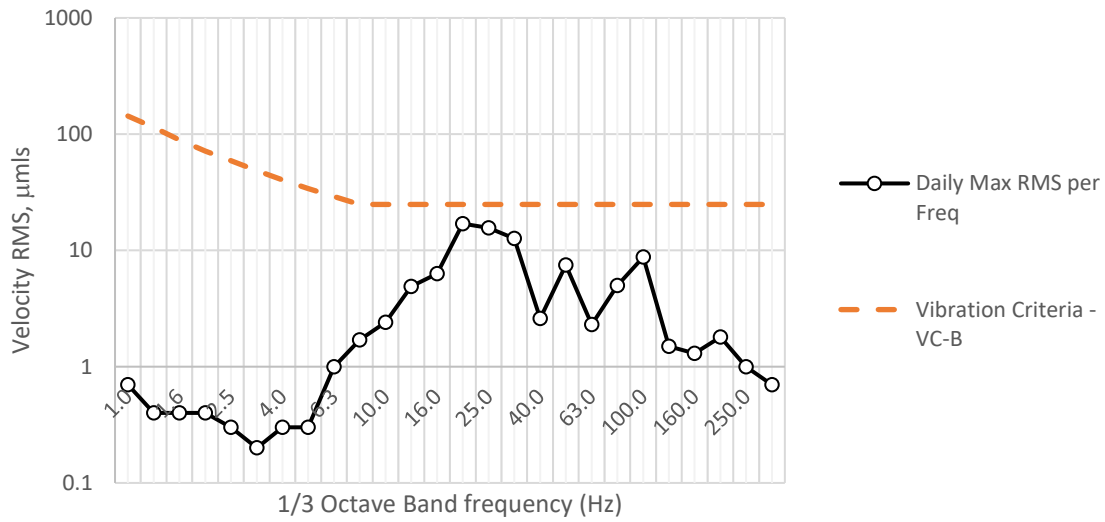
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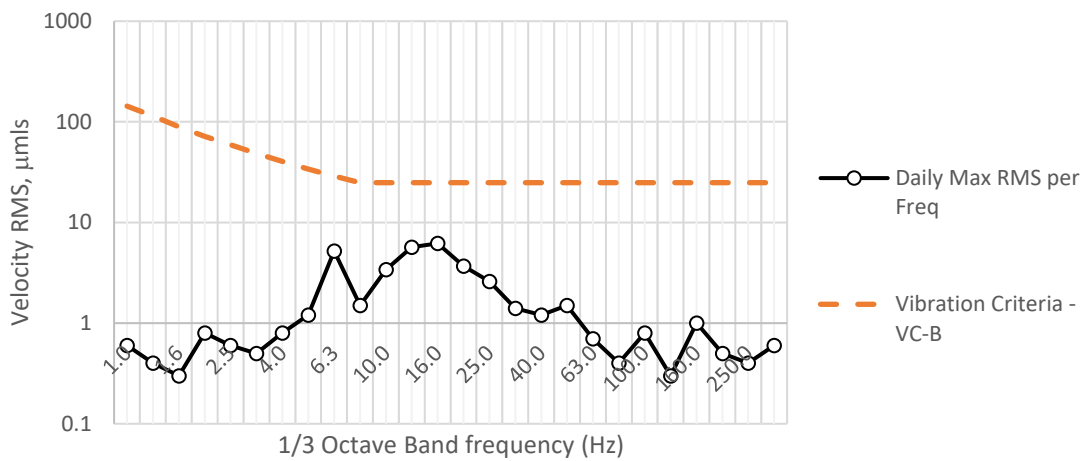
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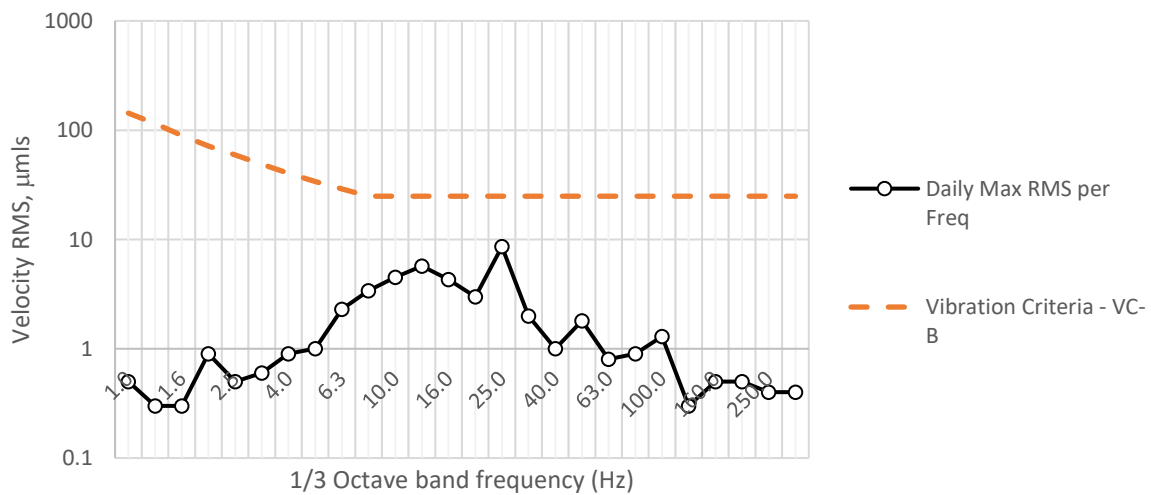
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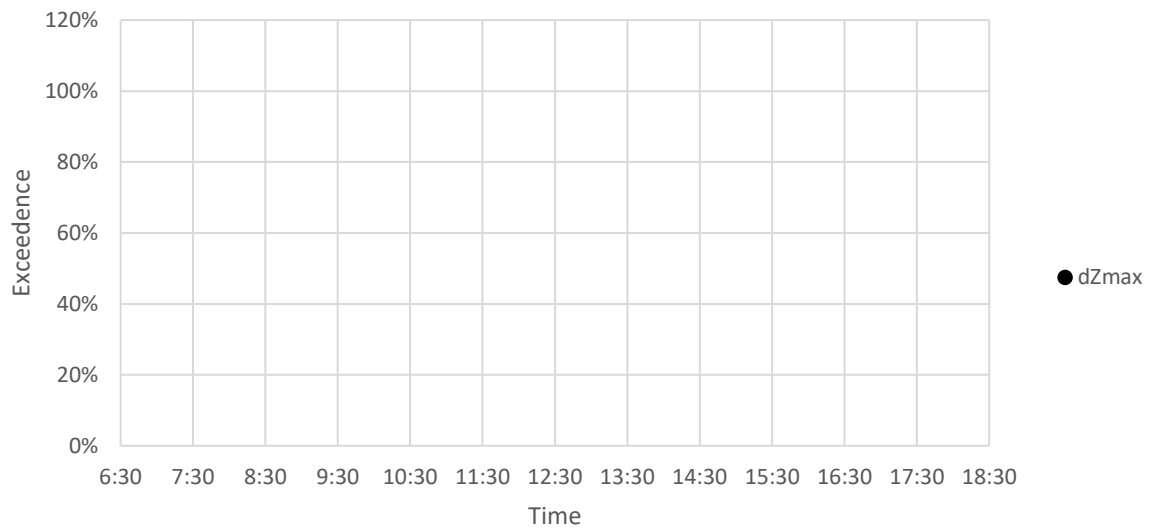
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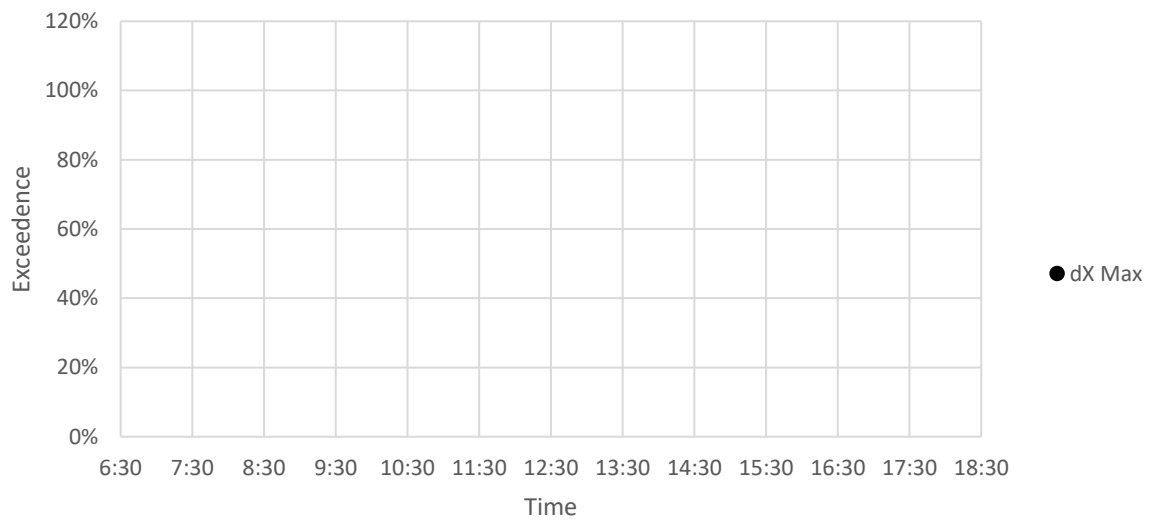
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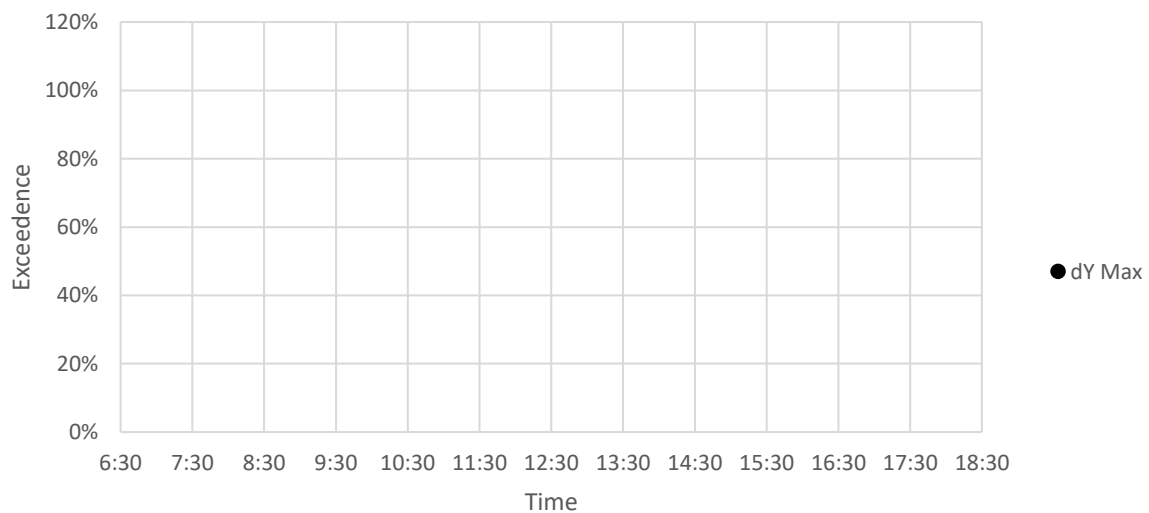
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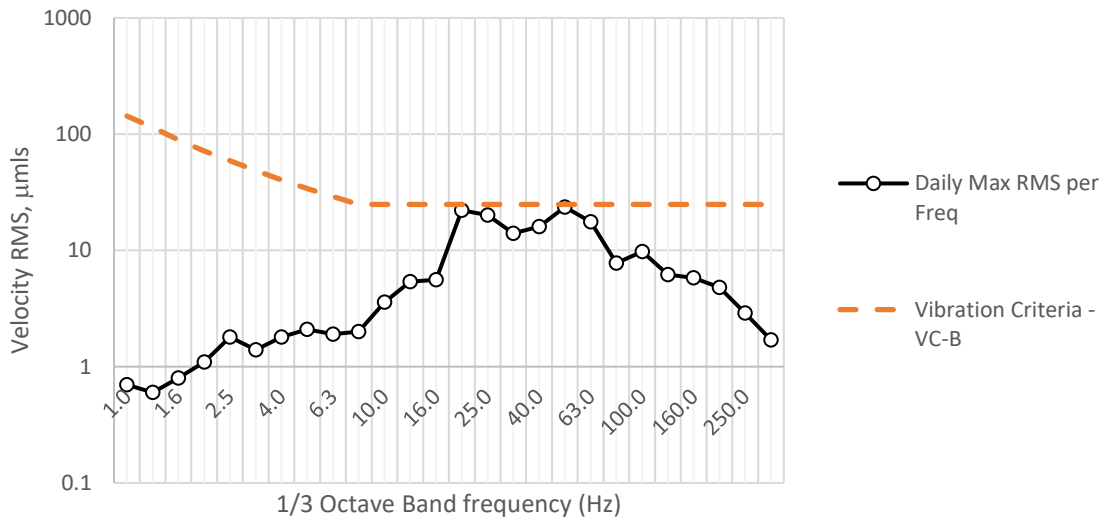
Fwd/Backwards



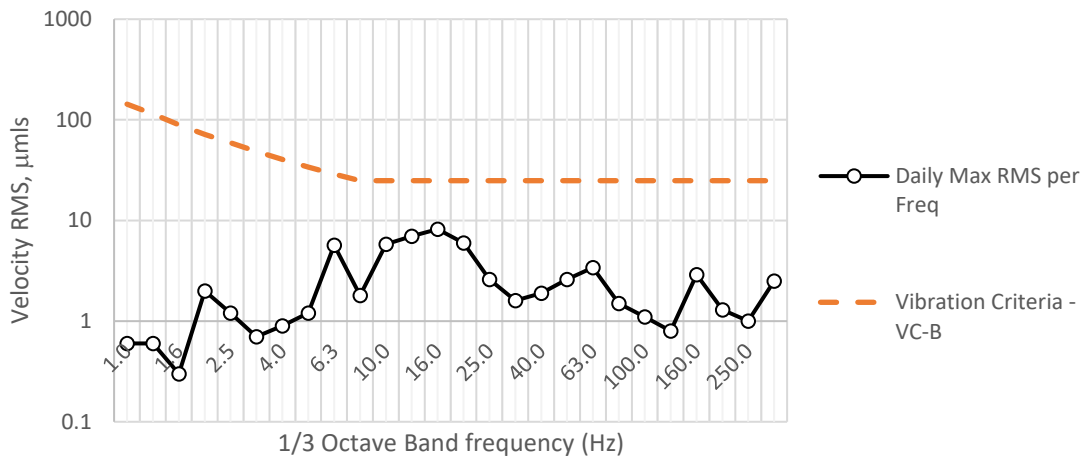
Sideways



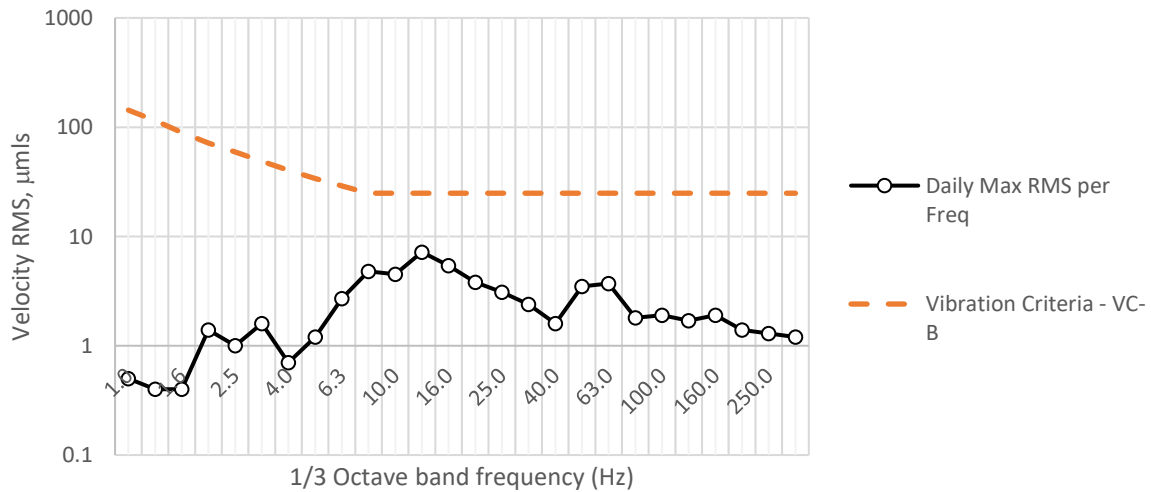
Vertical Vibration



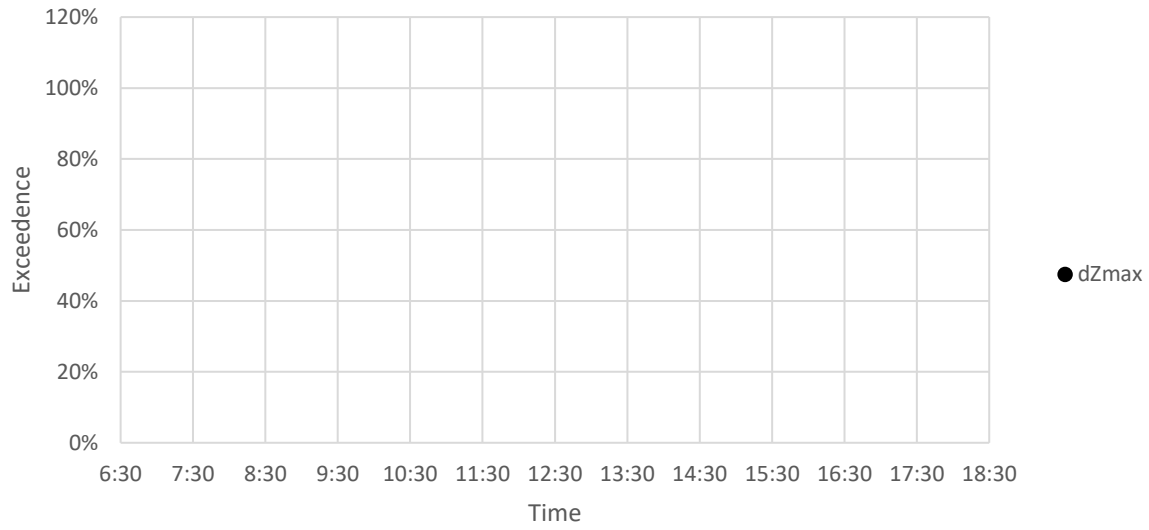
FwdBackwd Vibration



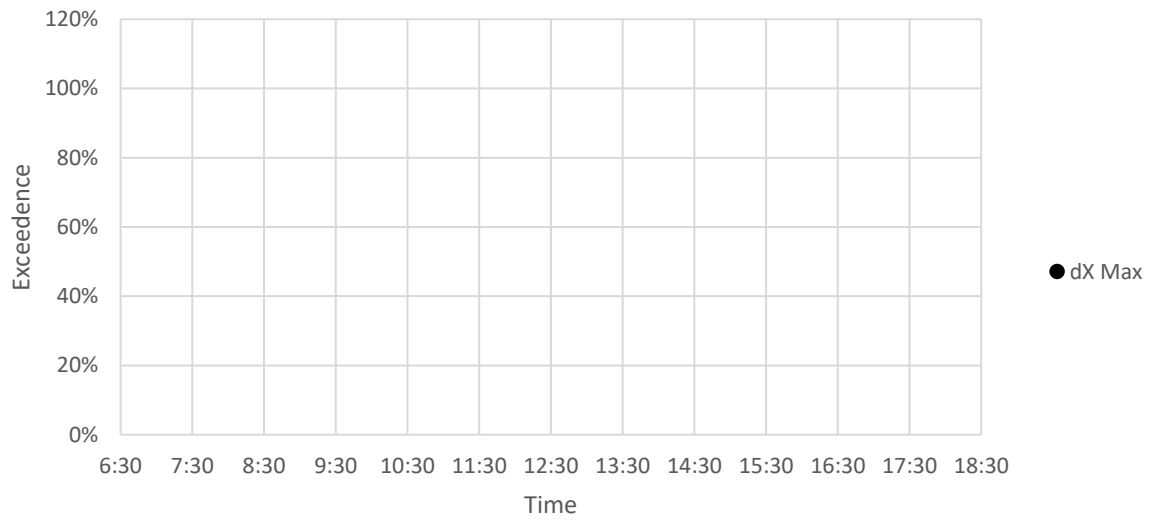
Sideways Vibration



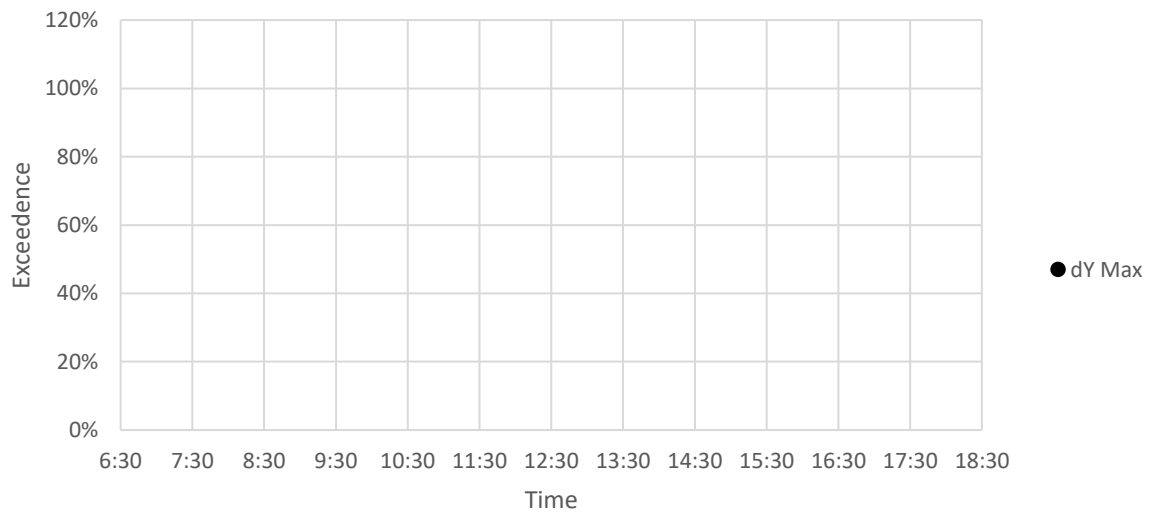
Vertical



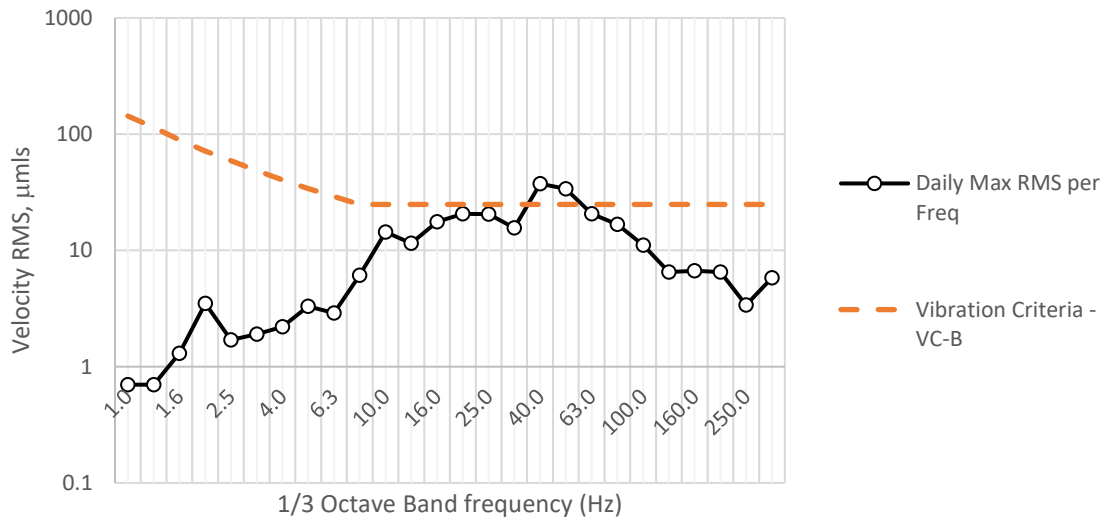
Fwd/Backwards



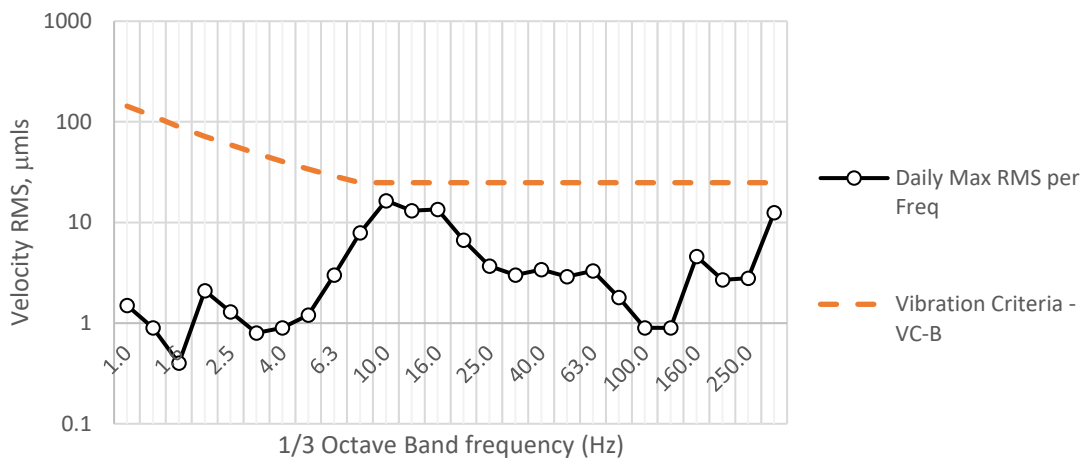
Sideways



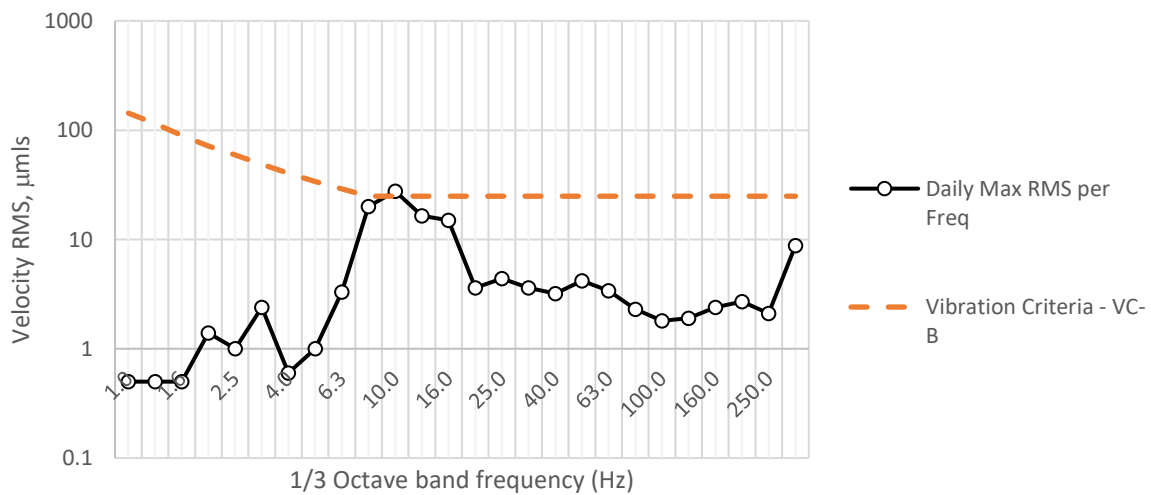
Vertical Vibration



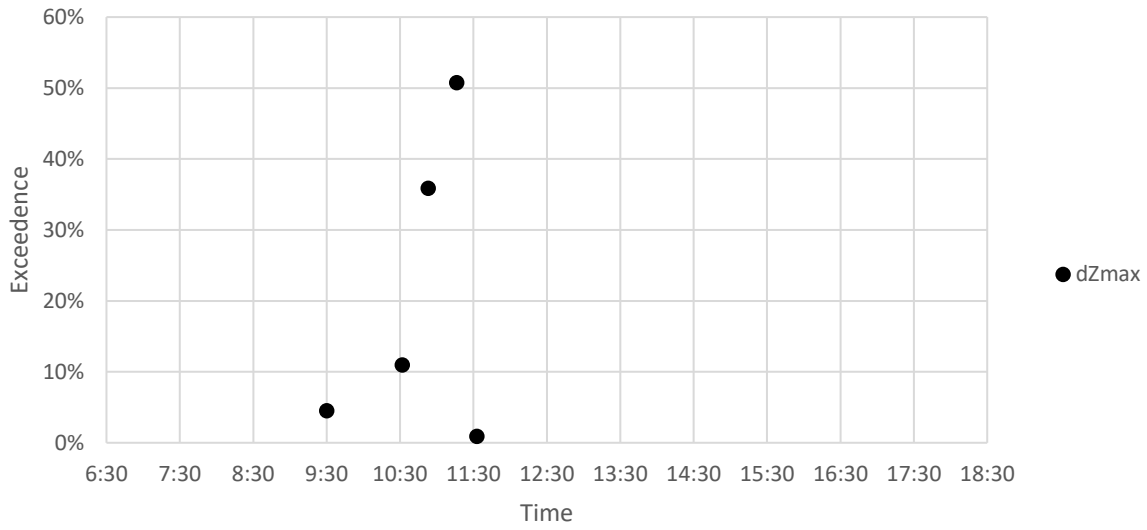
FwdBackwd Vibration



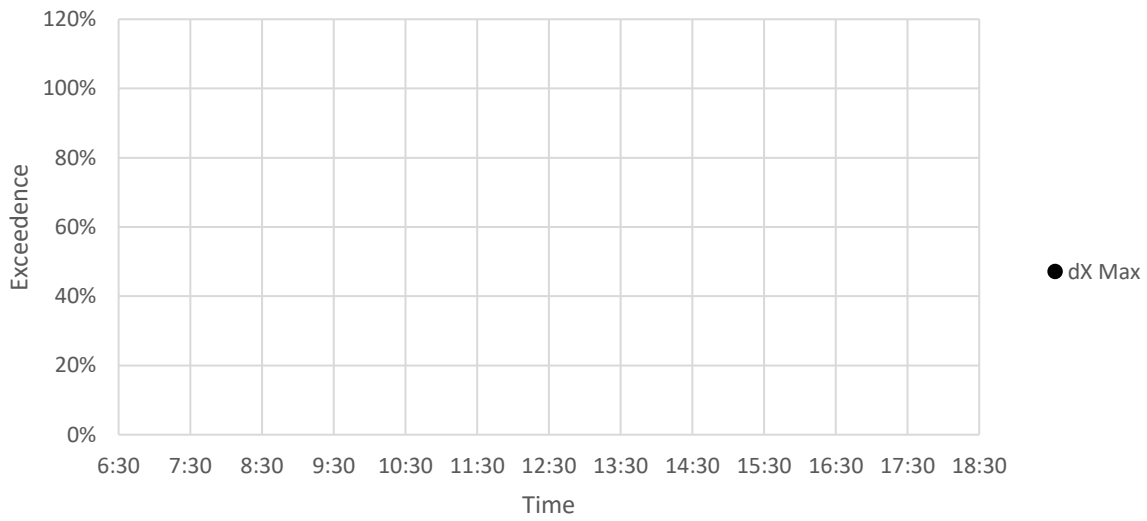
Sideways Vibration



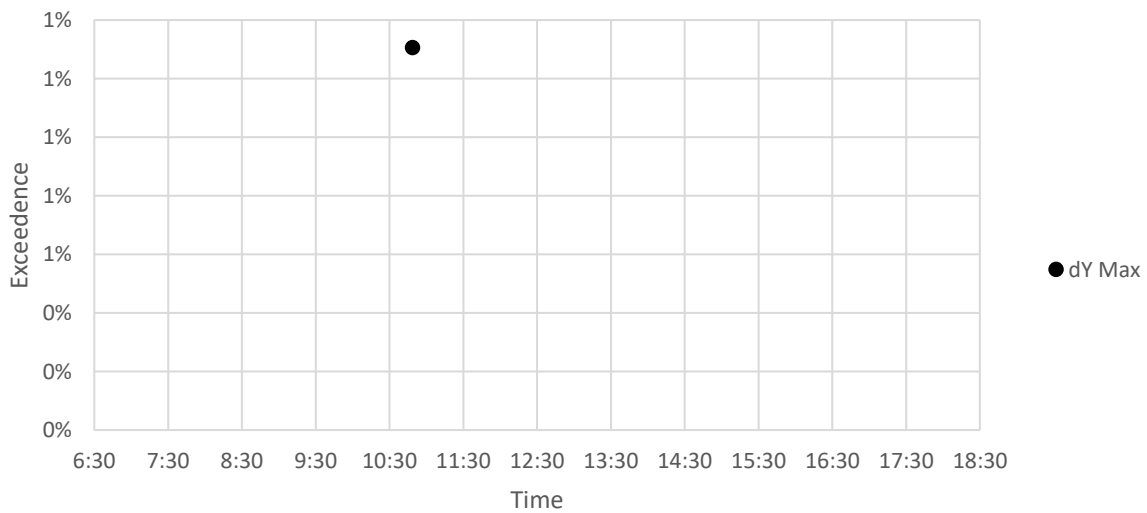
Vertical



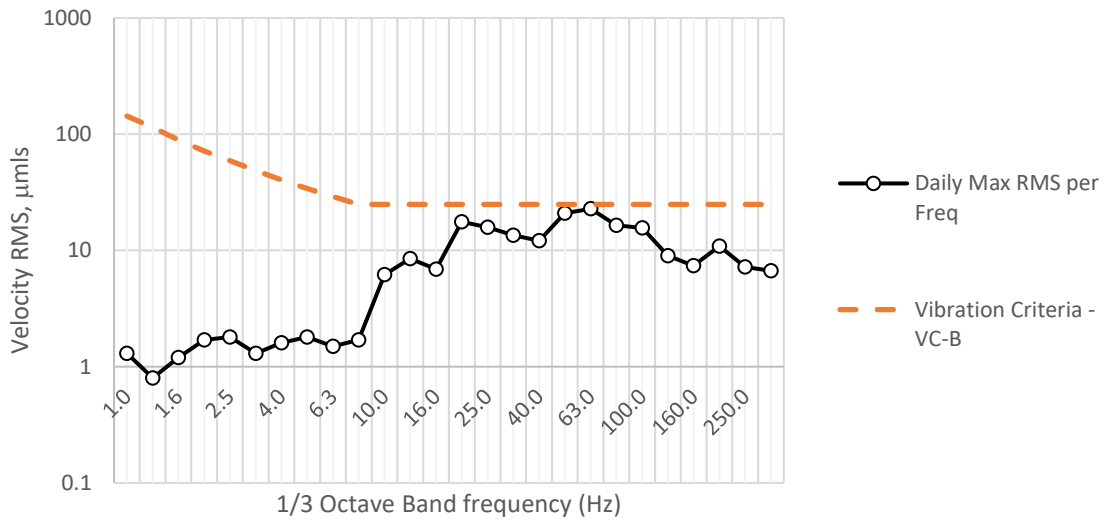
Fwd/Backwards



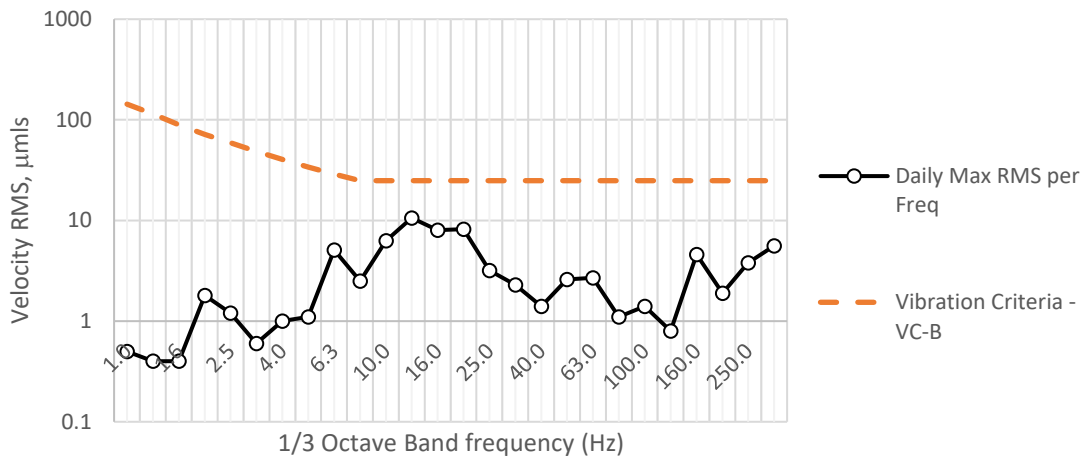
Sideways



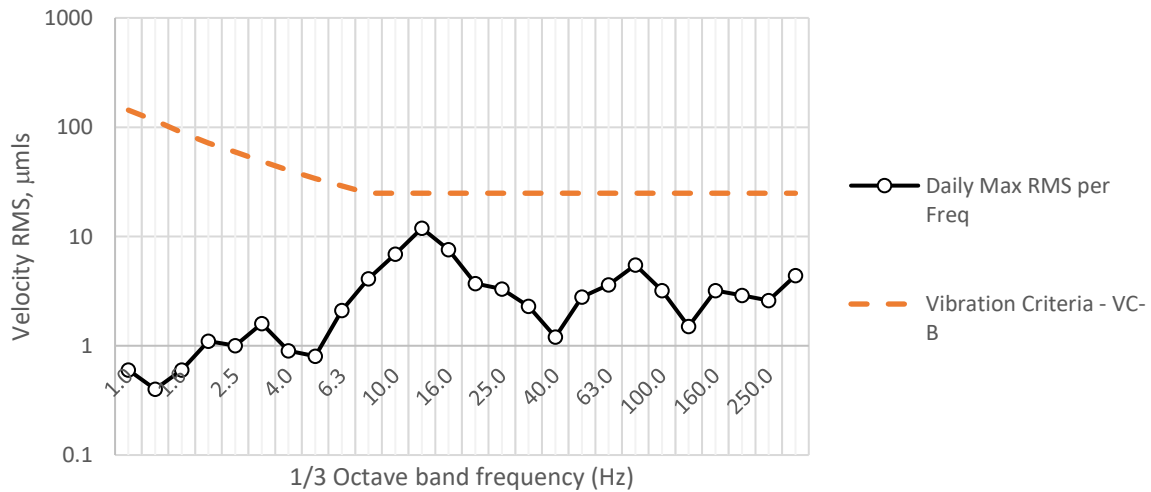
Vertical Vibration



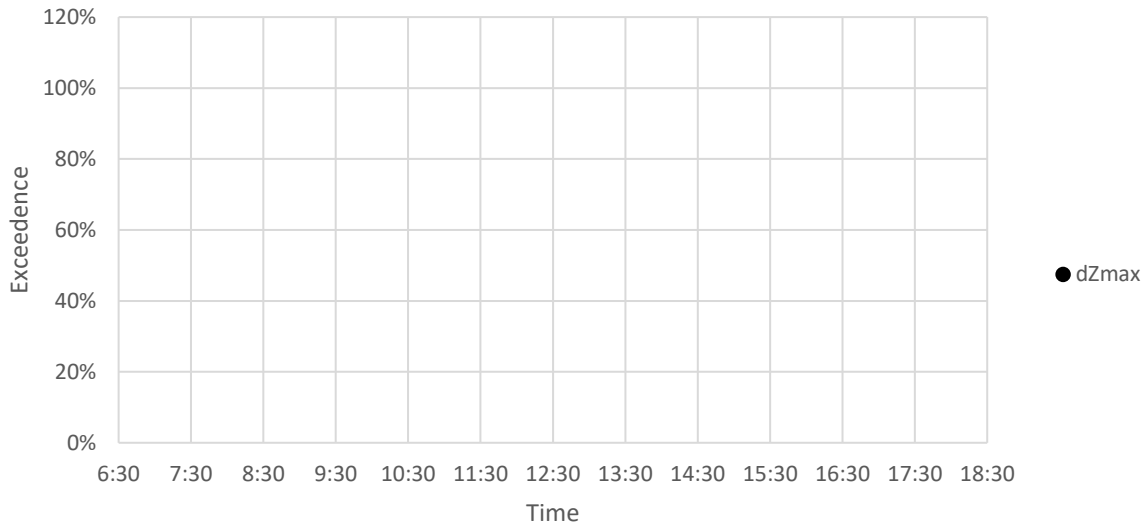
FwdBackwd Vibration



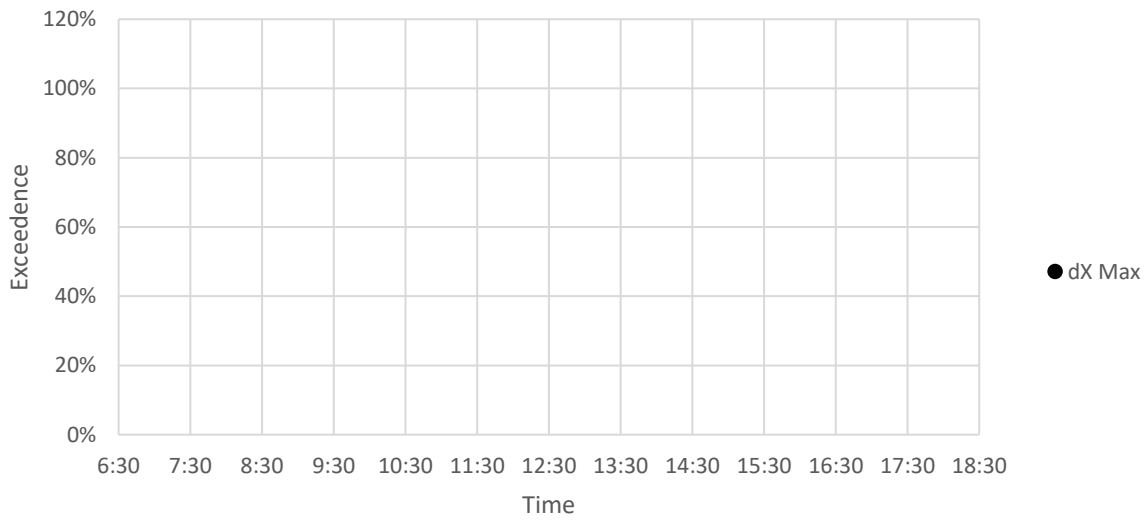
Sideways Vibration



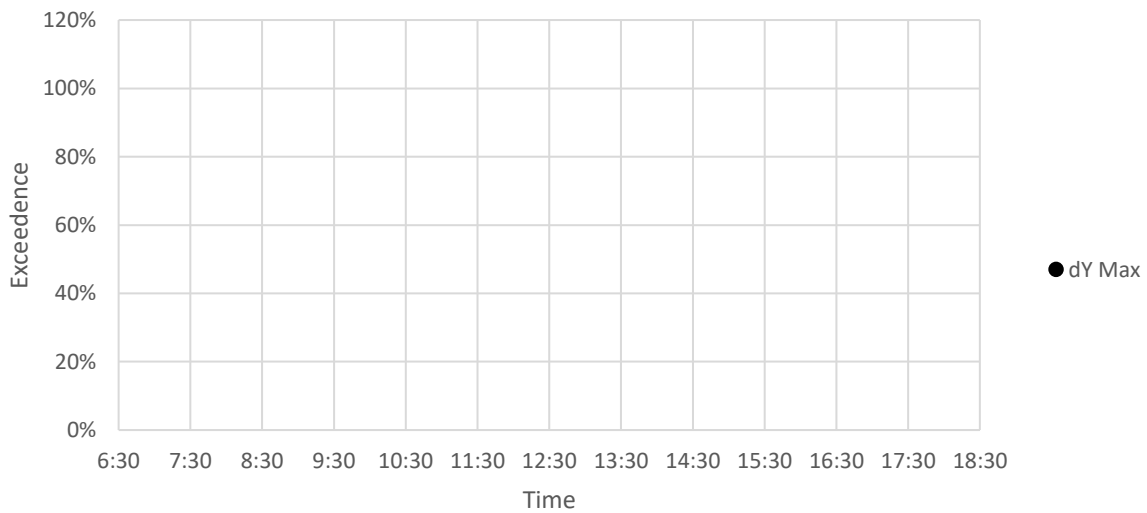
Vertical



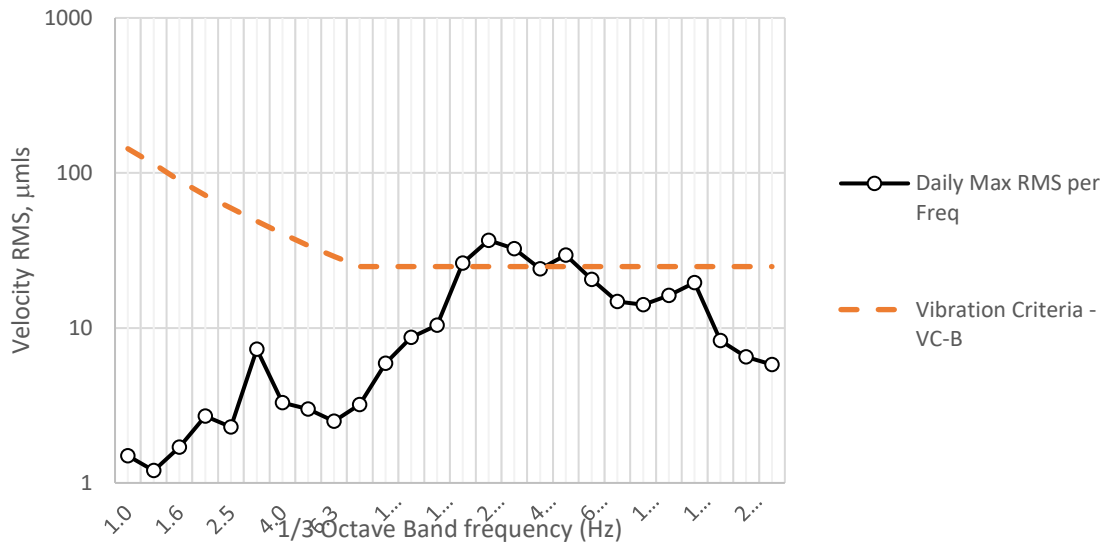
Fwd/Backwards



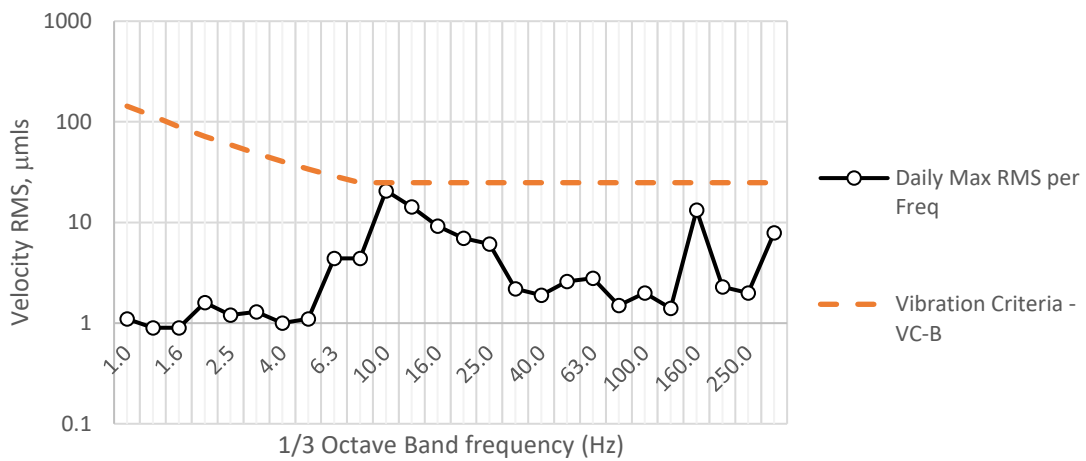
Sideways



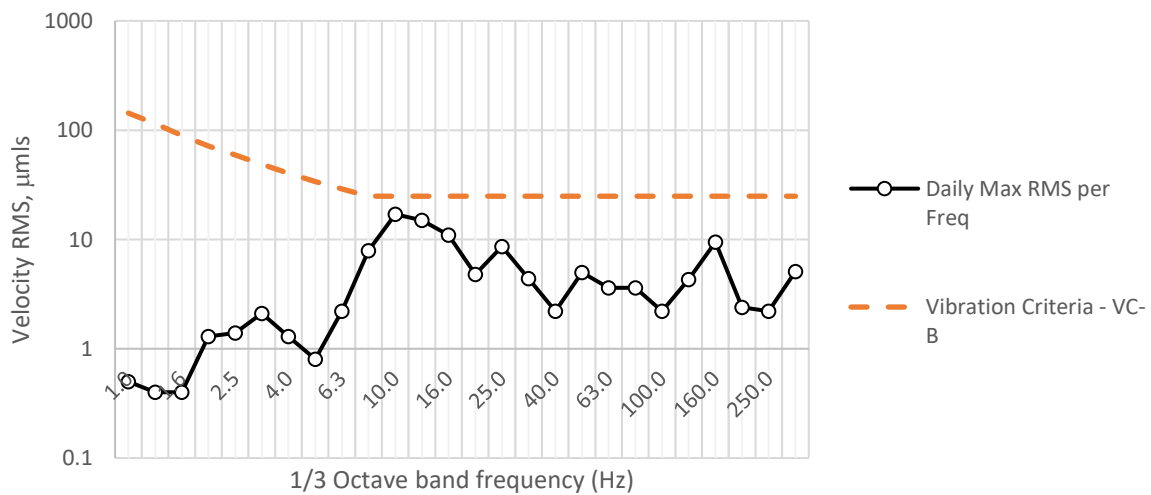
Vertical Vibration

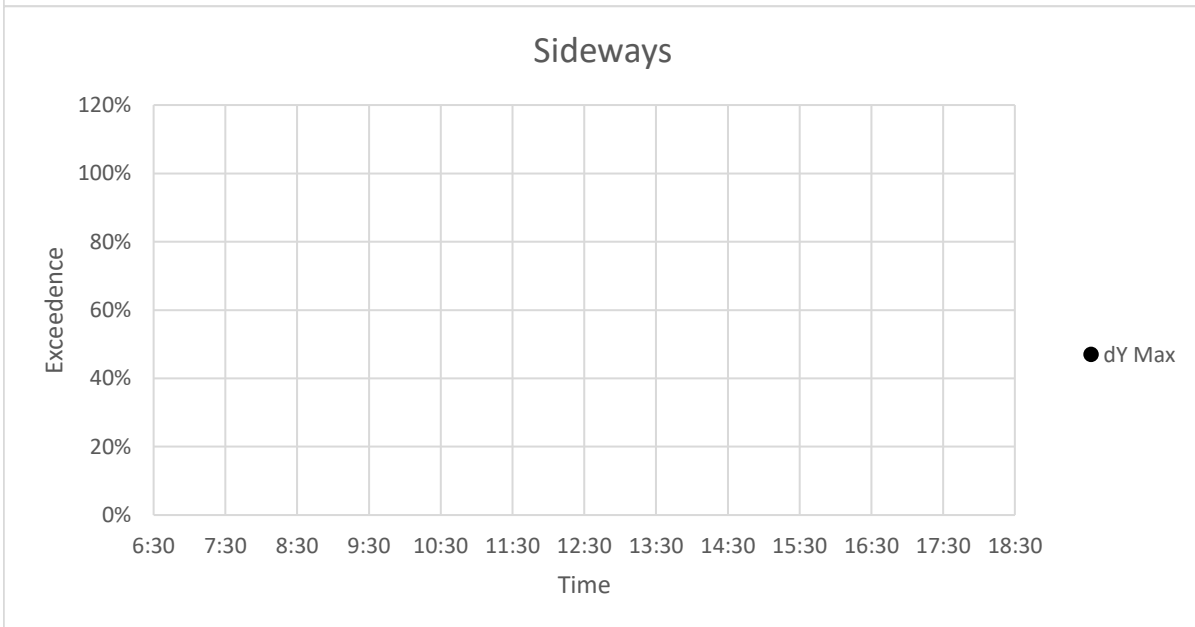
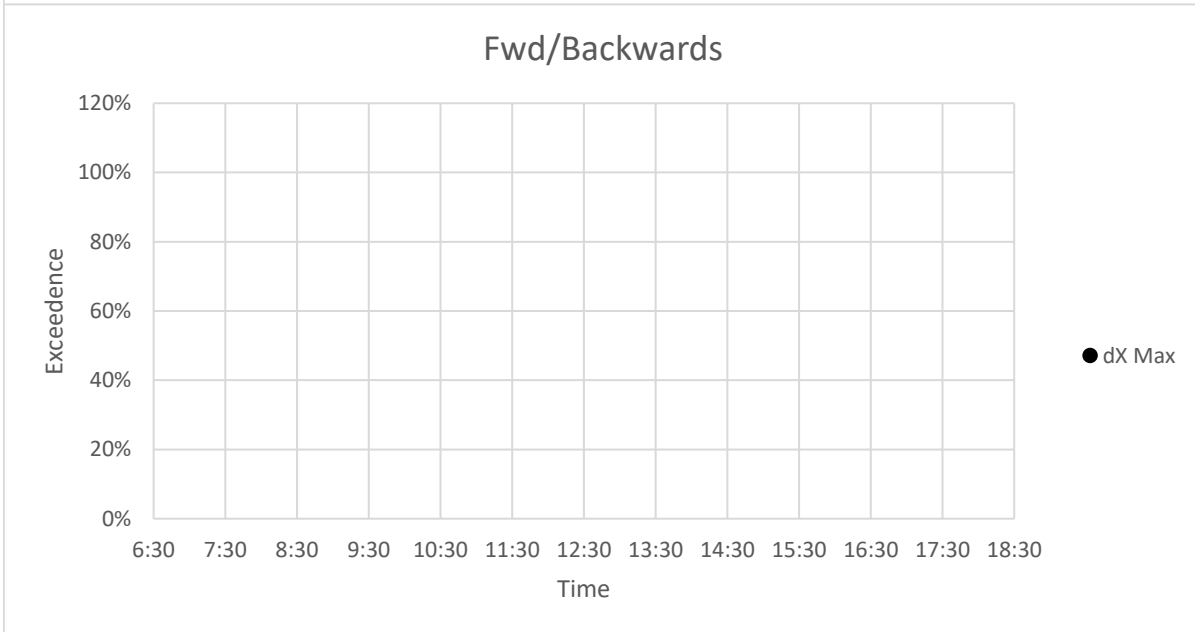
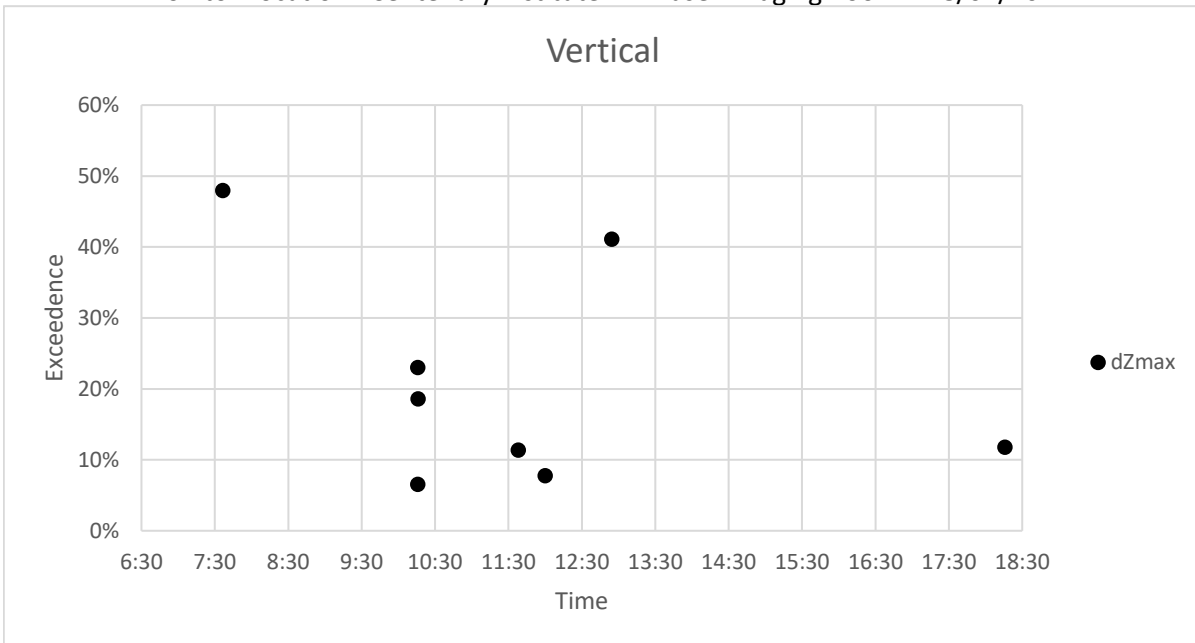


FwdBackwd Vibration

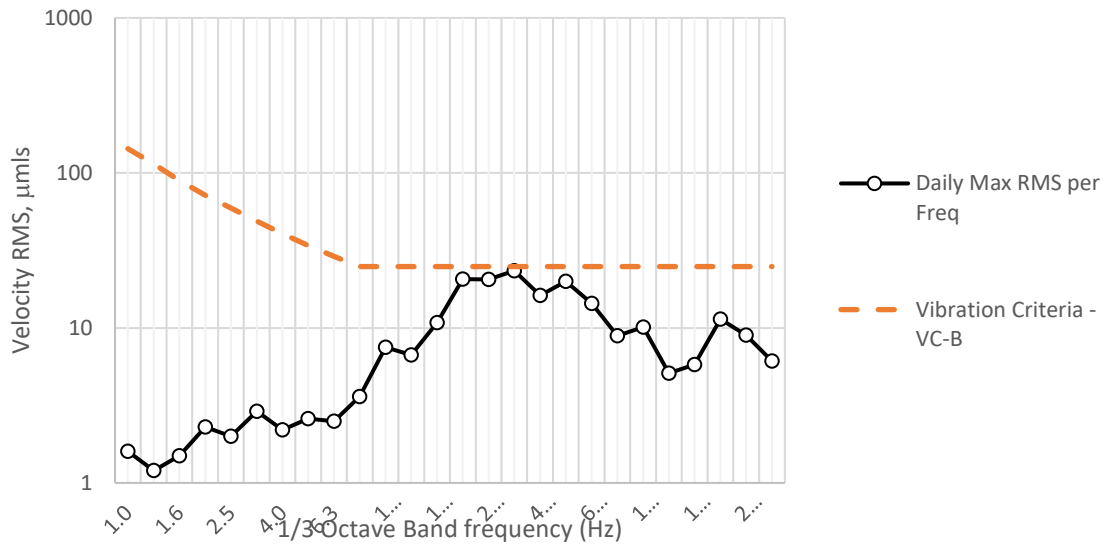


Sideways Vibration

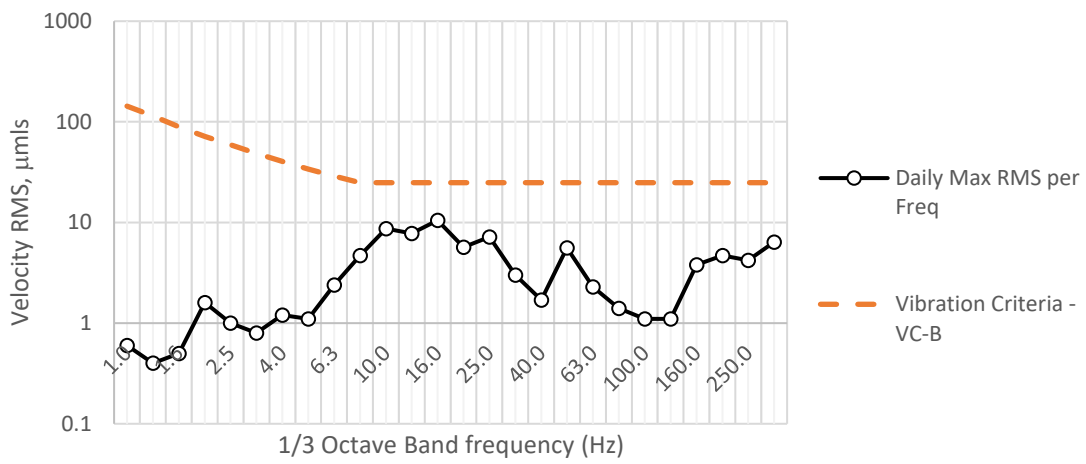




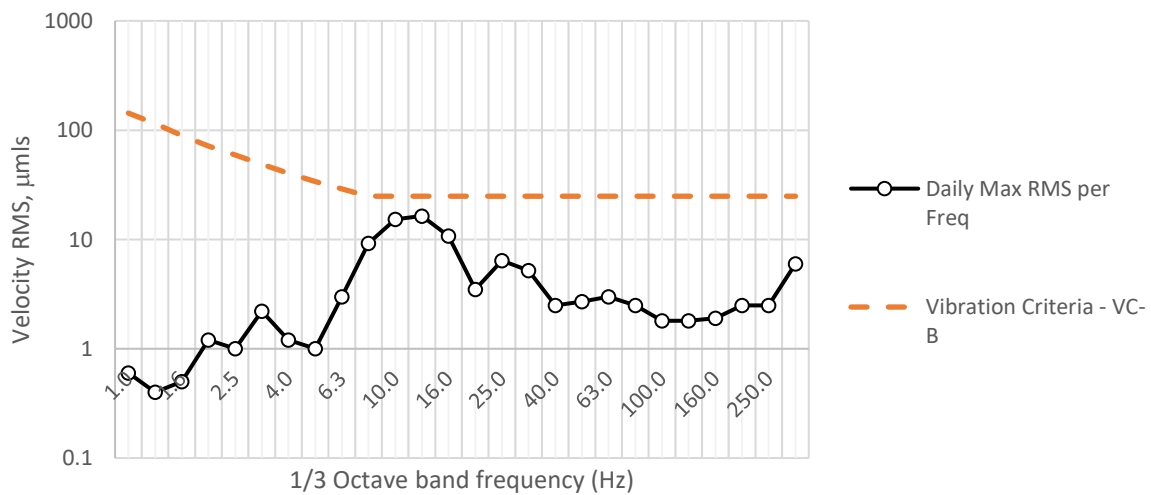
Vertical Vibration



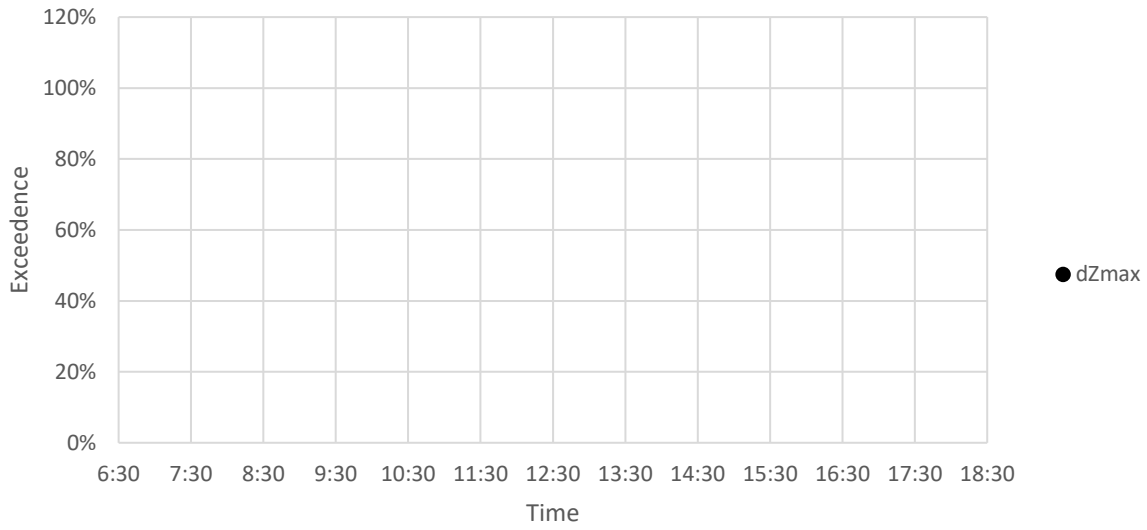
FwdBackwd Vibration



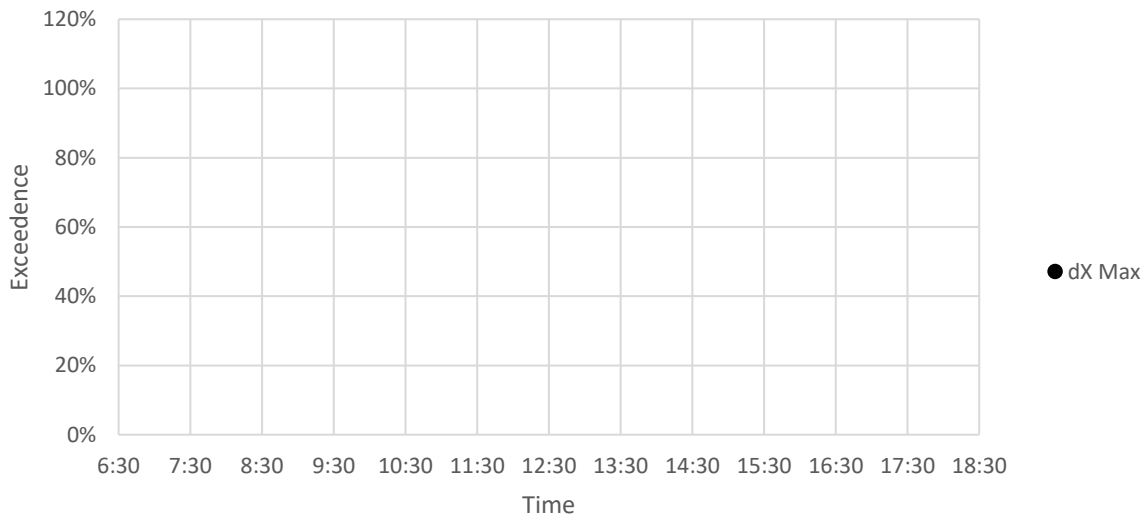
Sideways Vibration



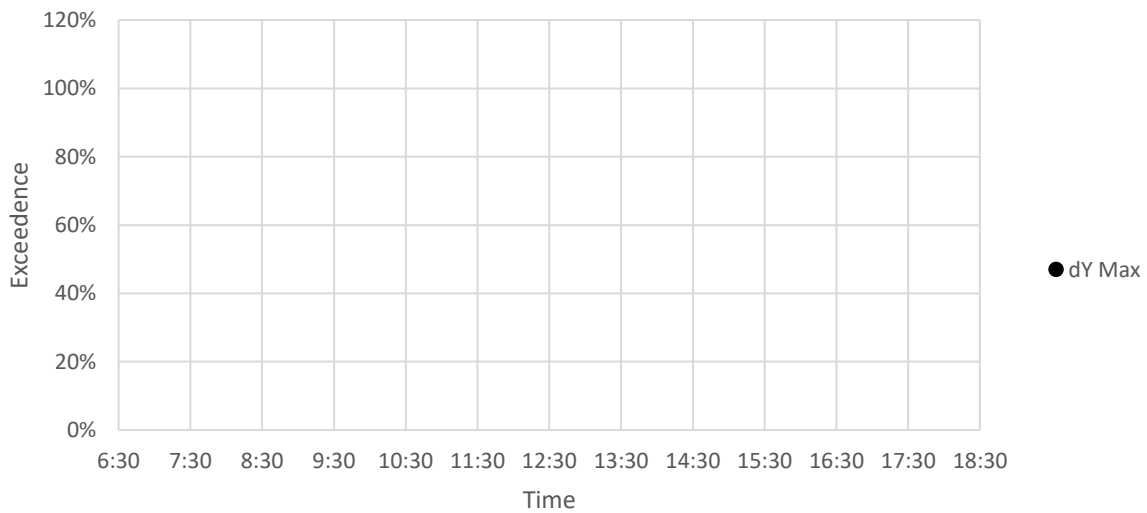
Vertical



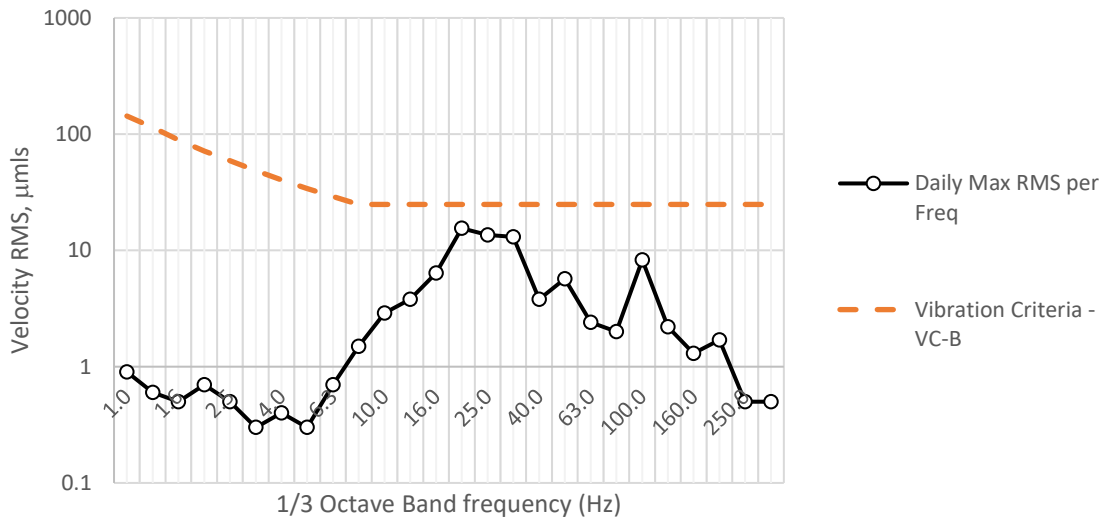
Fwd/Backwards



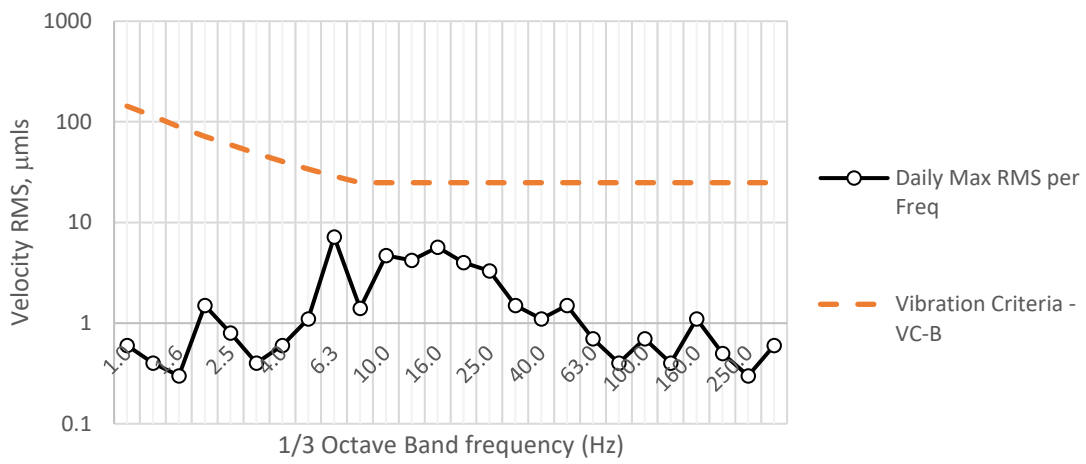
Sideways



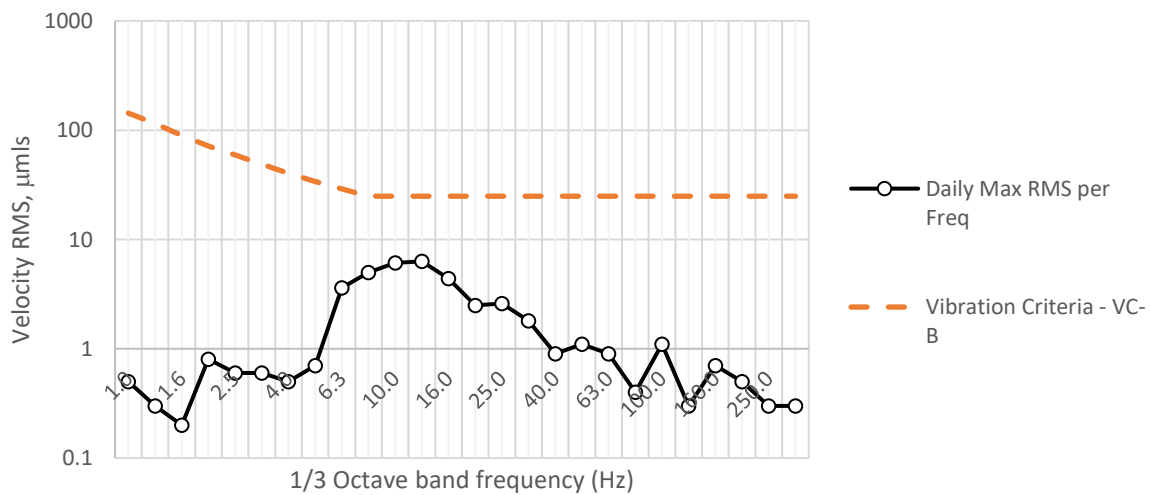
Vertical Vibration



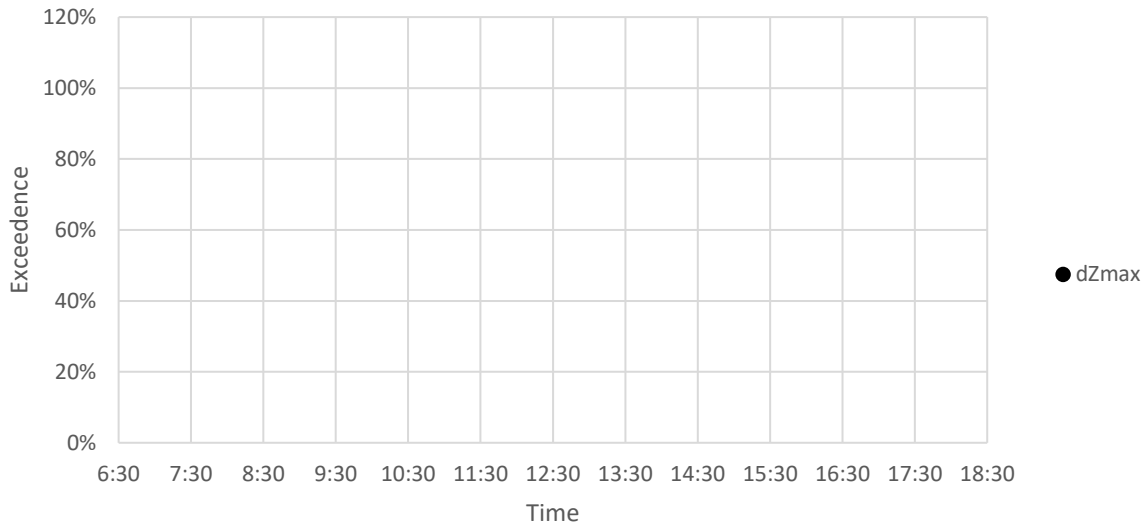
FwdBackwd Vibration



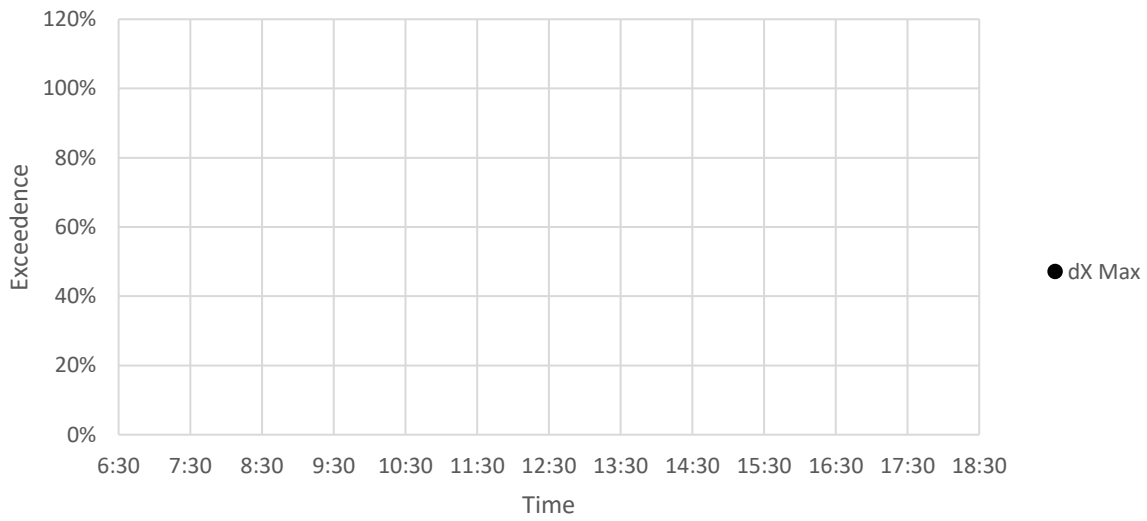
Sideways Vibration



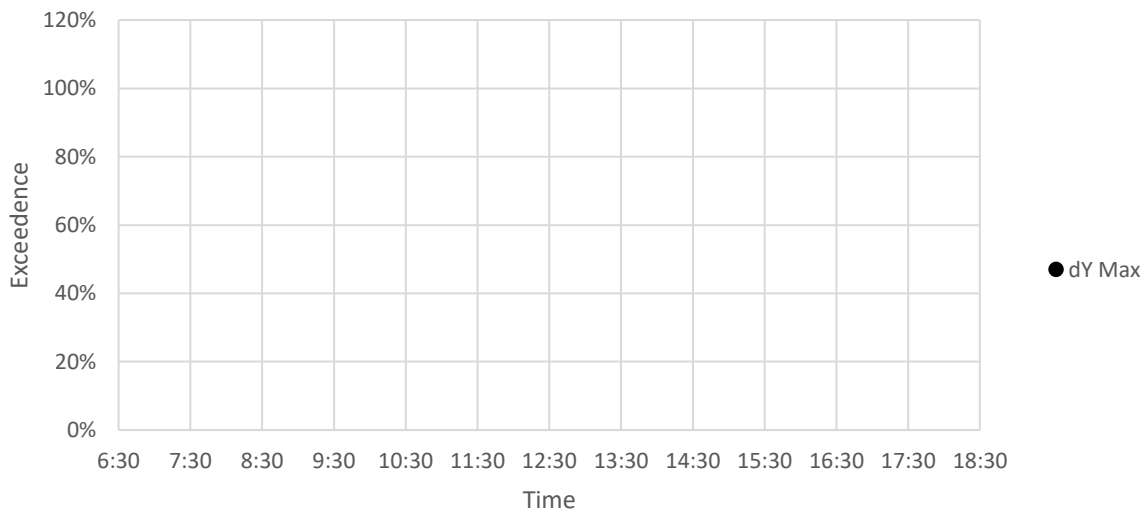
Vertical



Fwd/Backwards

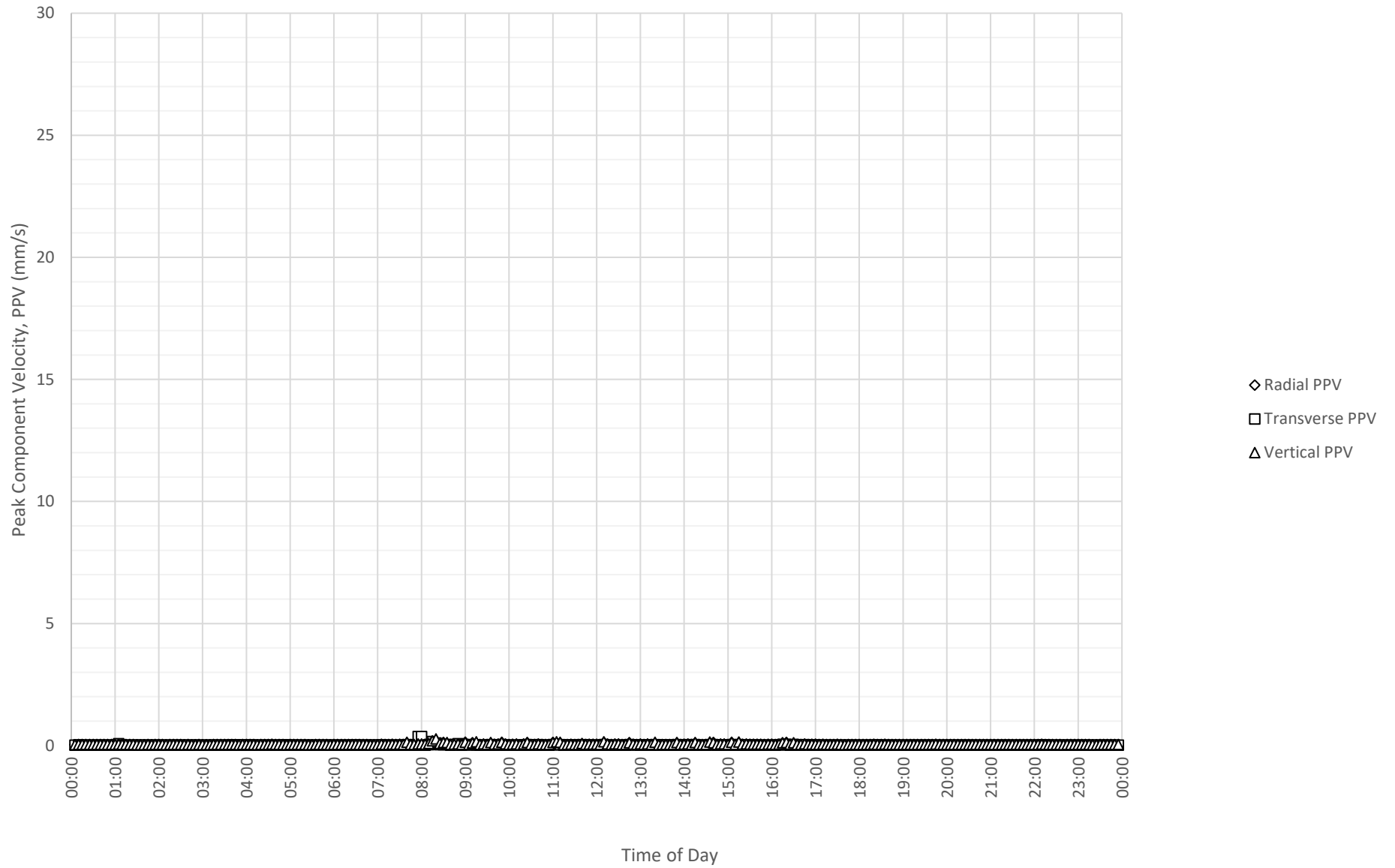


Sideways

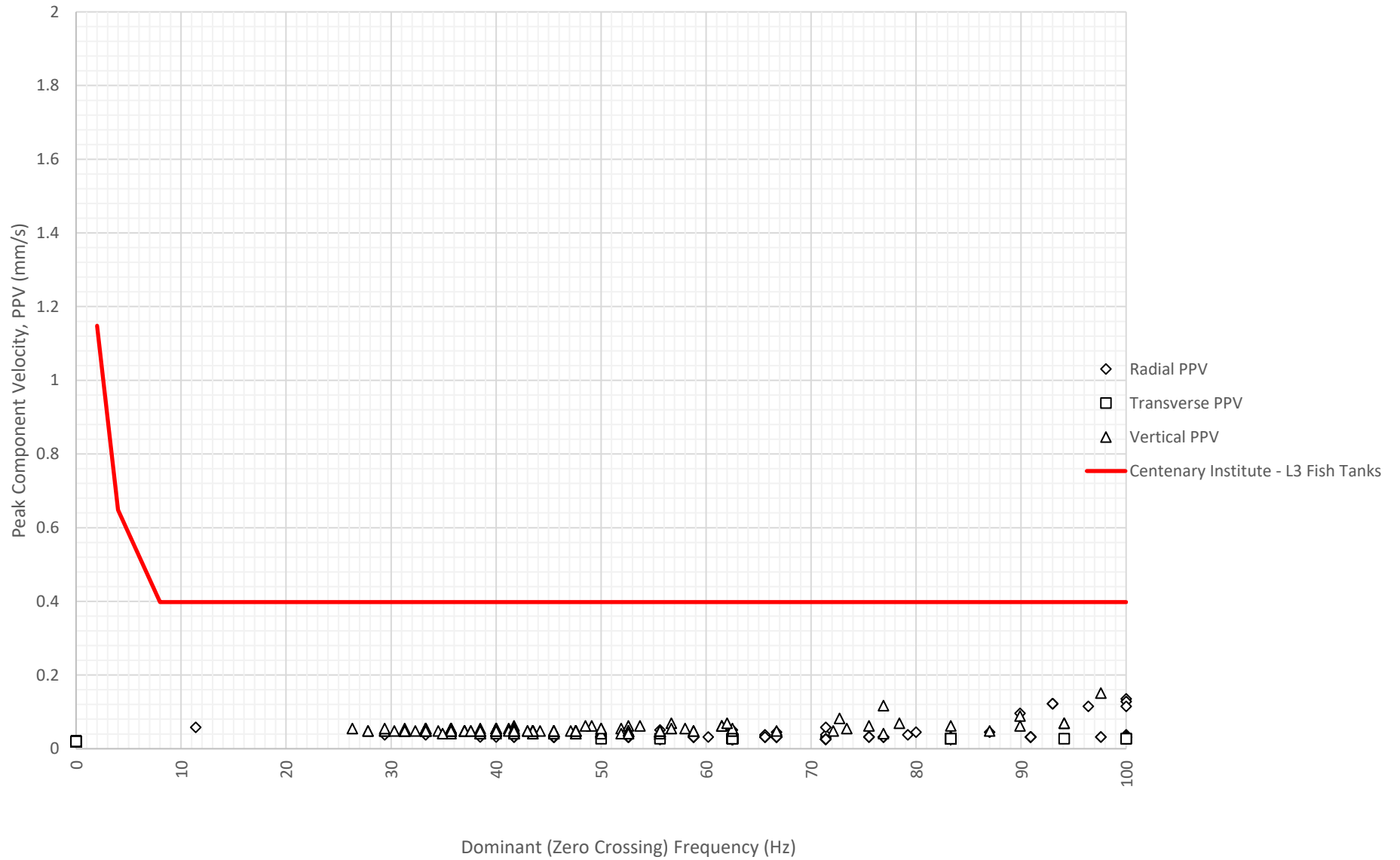


CENTENARY INSTITUTE – LEVEL 3 FISH TANKS

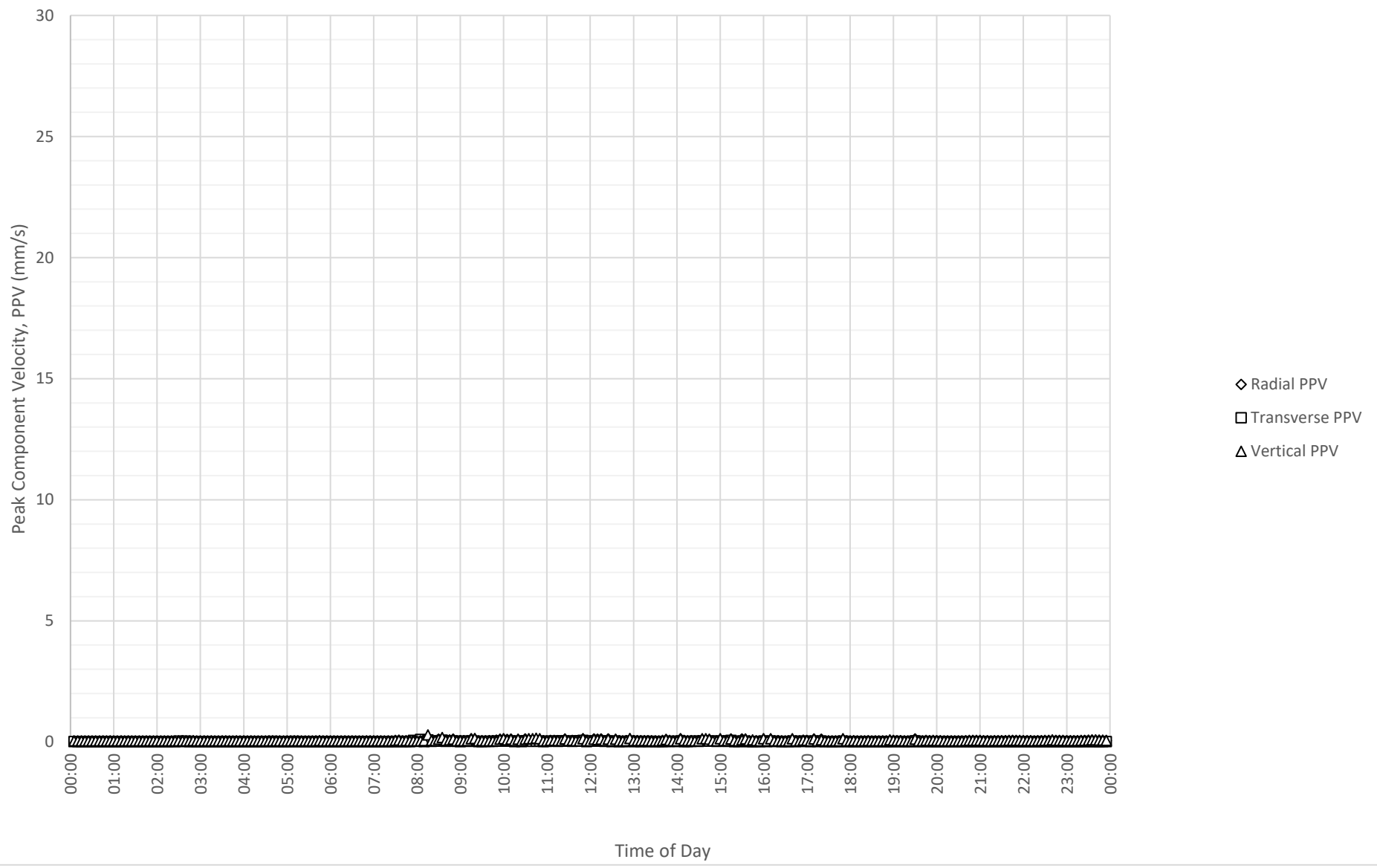
Daily Monitored Vibration Levels at Centenary Institute L3 Fish Tanks on 8-01-2024



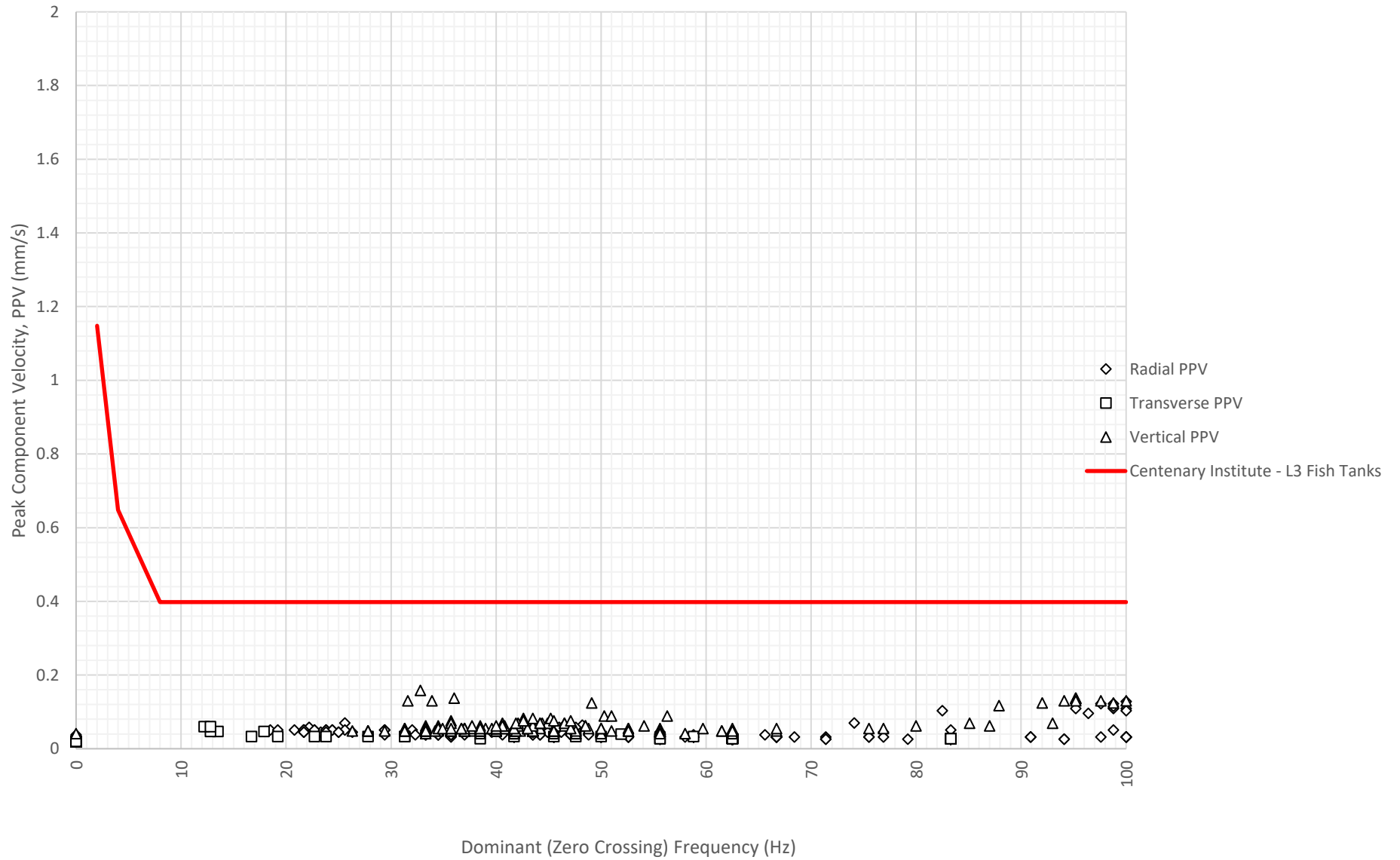
Frequency Content of Vibration Levels at Centenary Institute L3 Fish Tanks on 8-01-2024



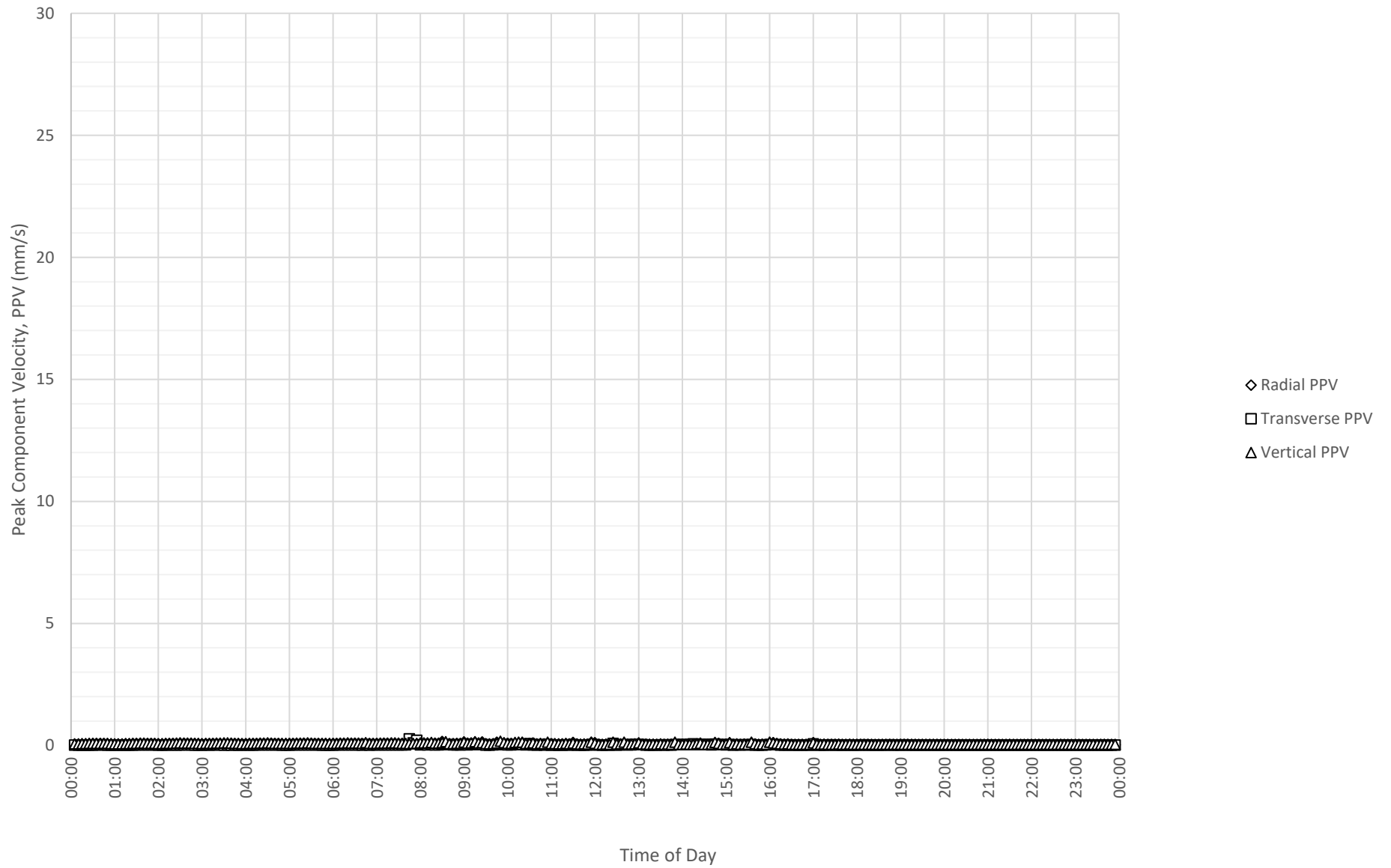
Daily Monitored Vibration Levels at Centenary Institute L3 Fish Tanks on 9-01-2024



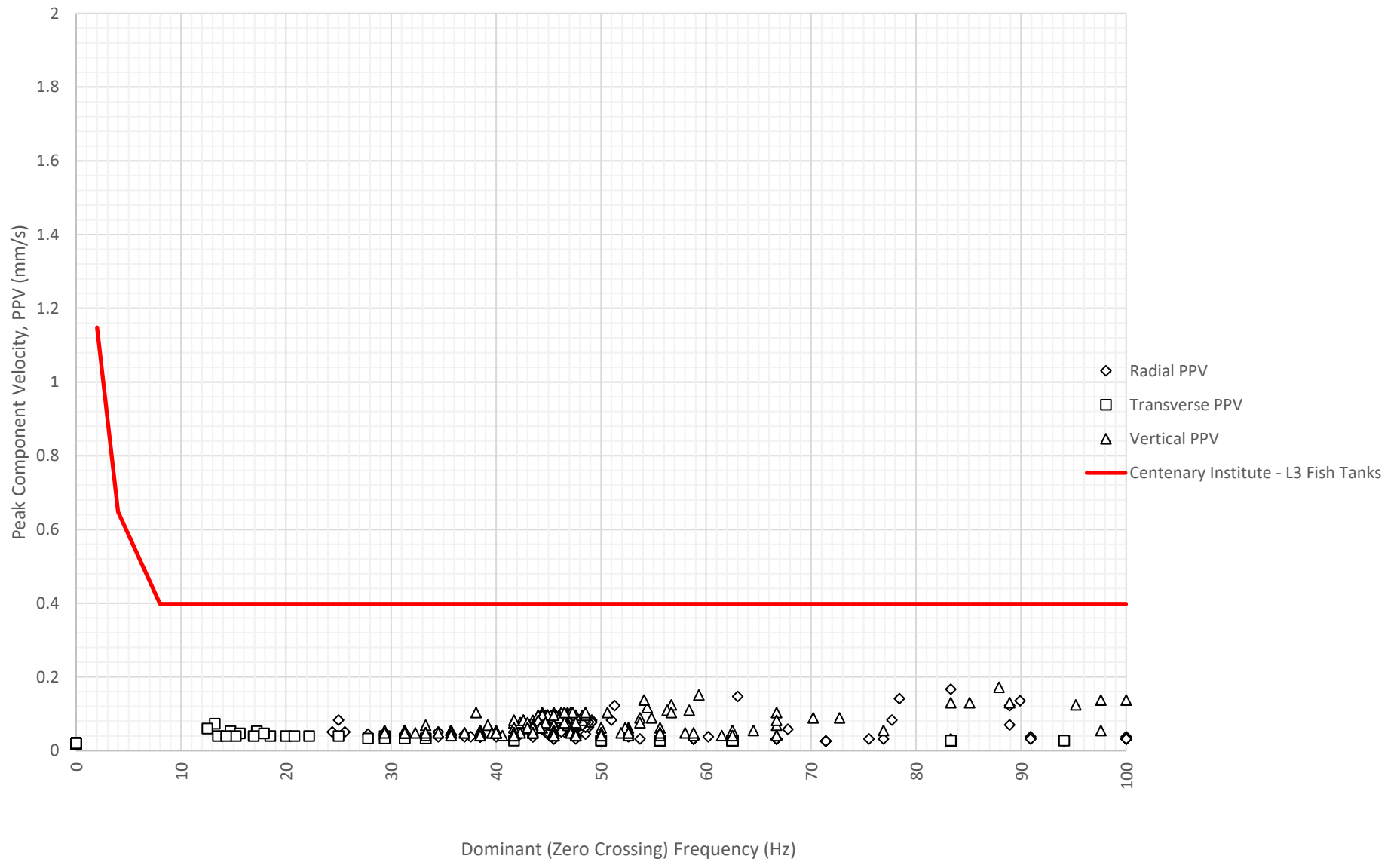
Frequency Content of Vibration Levels at Centenary Institute L3 Fish Tanks on 9-01-2024



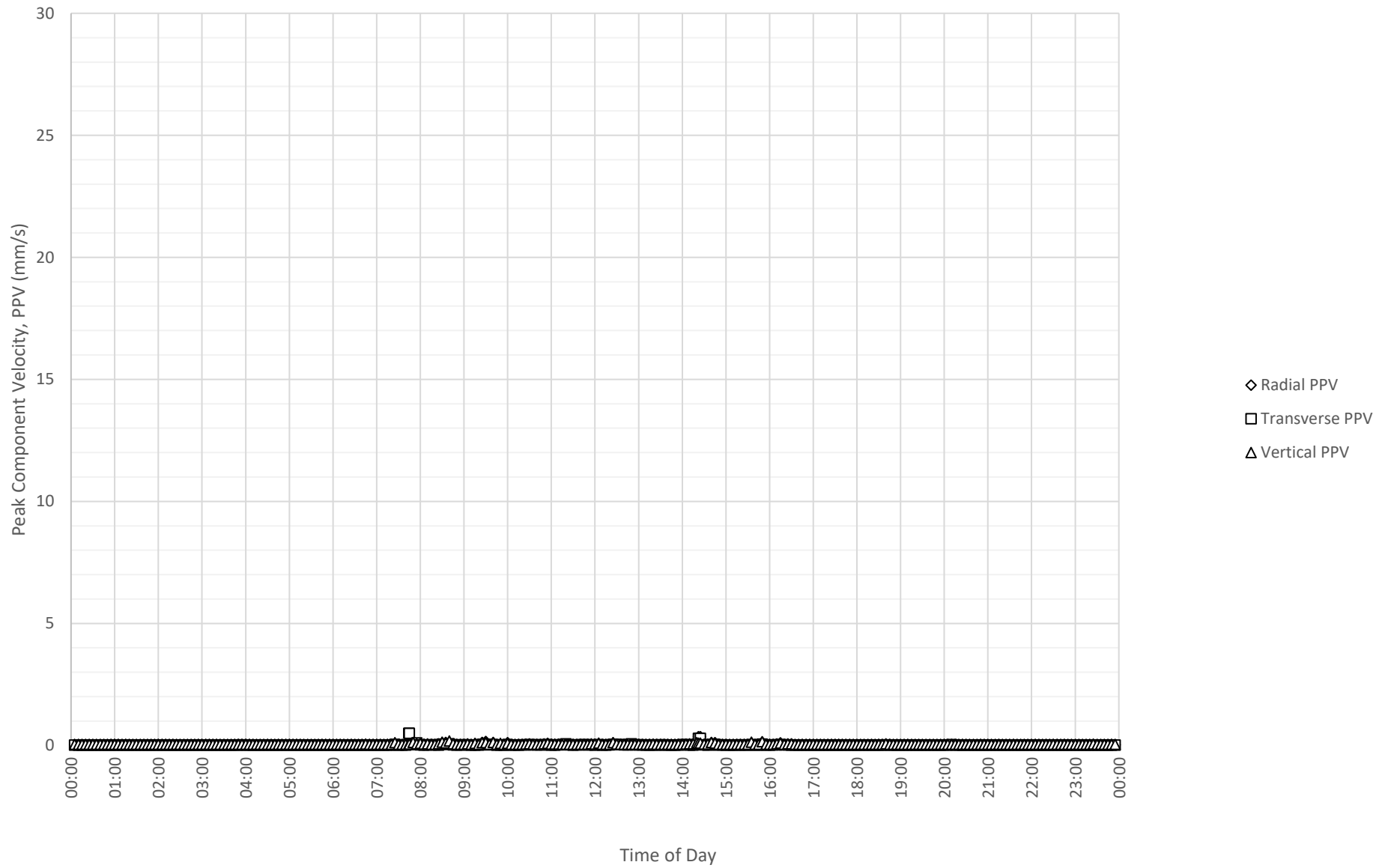
Daily Monitored Vibration Levels at Centenary Institute L3 Fish Tanks on 10-01-2024



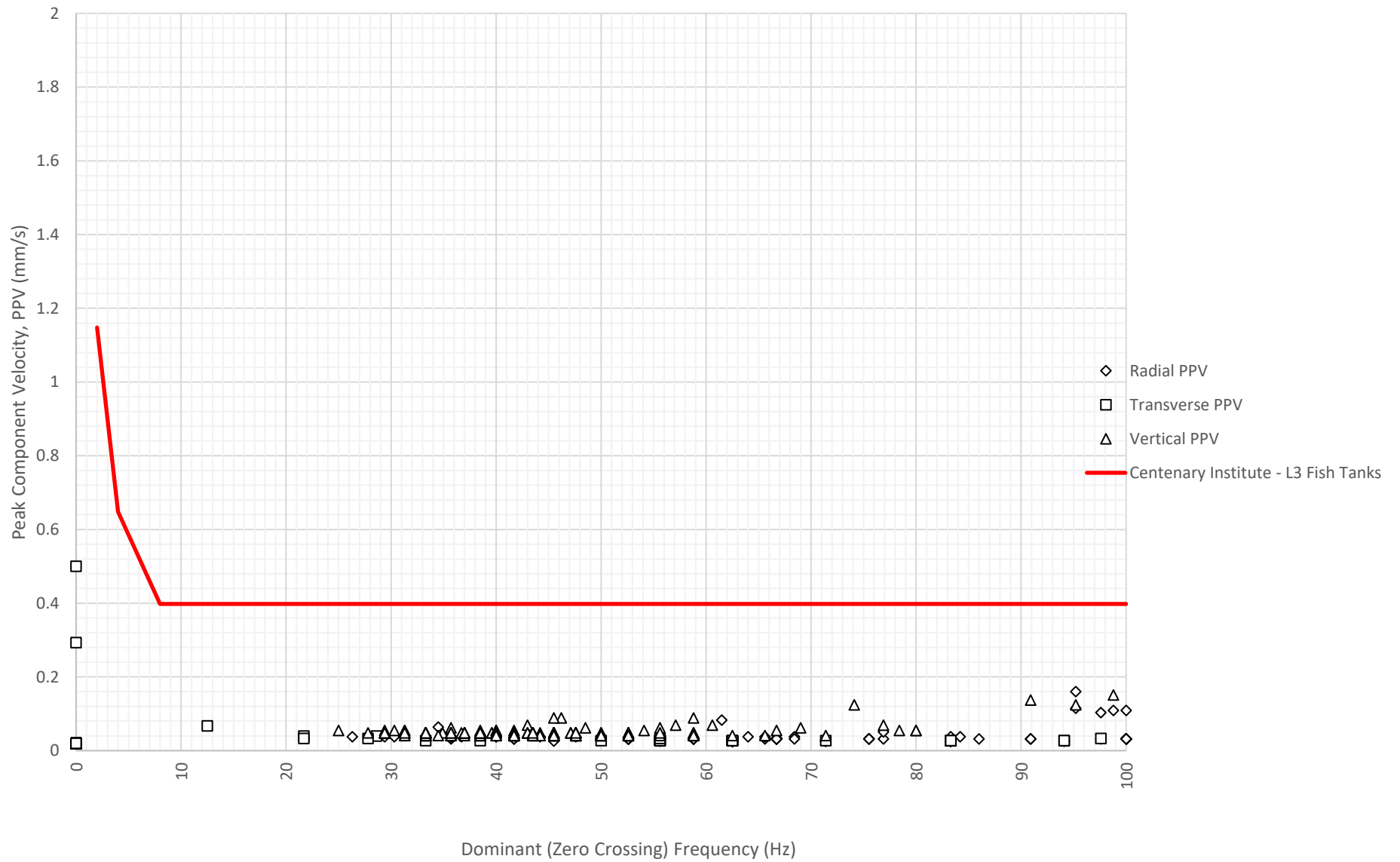
Frequency Content of Vibration Levels at Centenary Institute L3 Fish Tanks on 10-01-2024



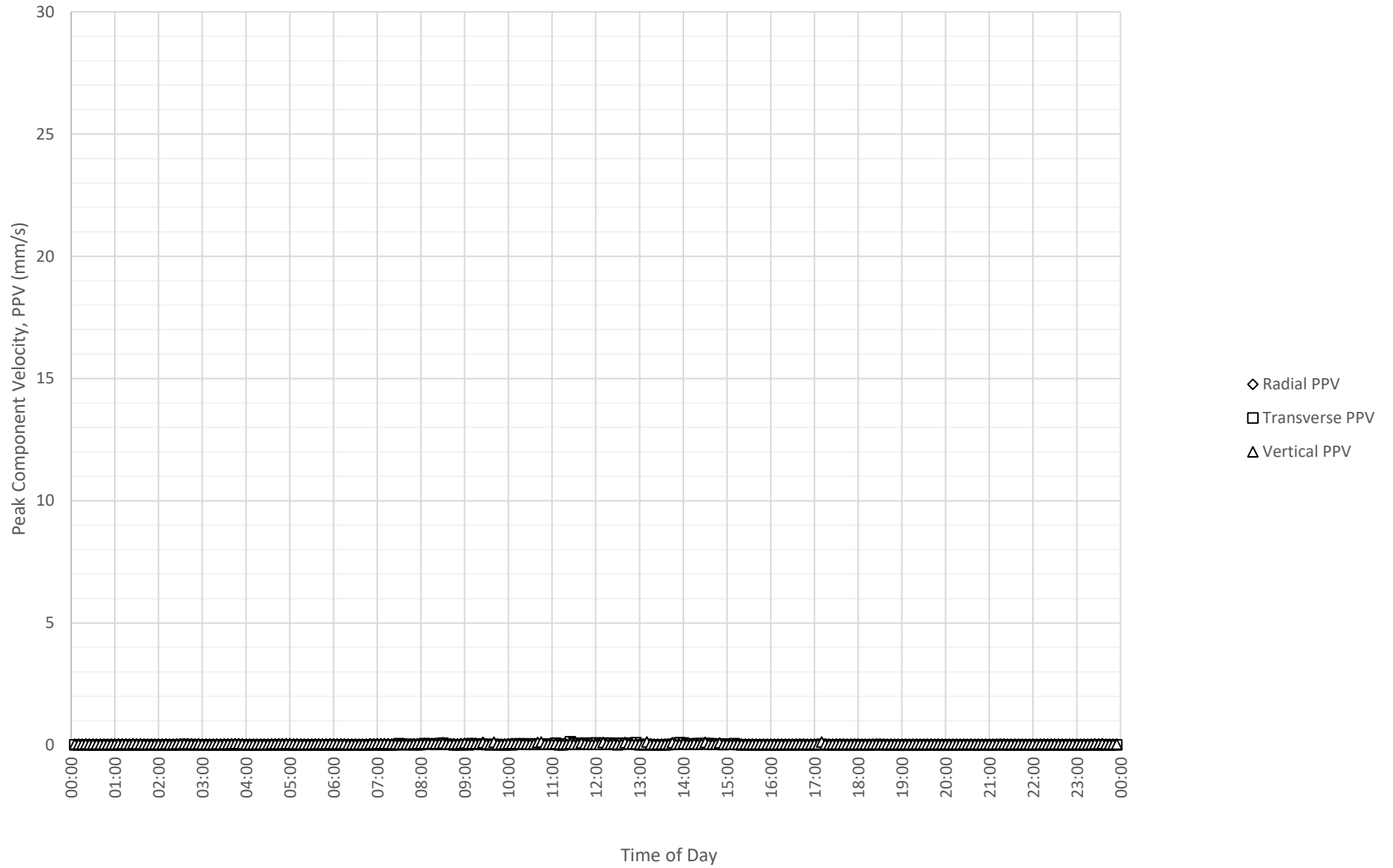
Daily Monitored Vibration Levels at Centenary Institute L3 Fish Tanks on 11-01-2024



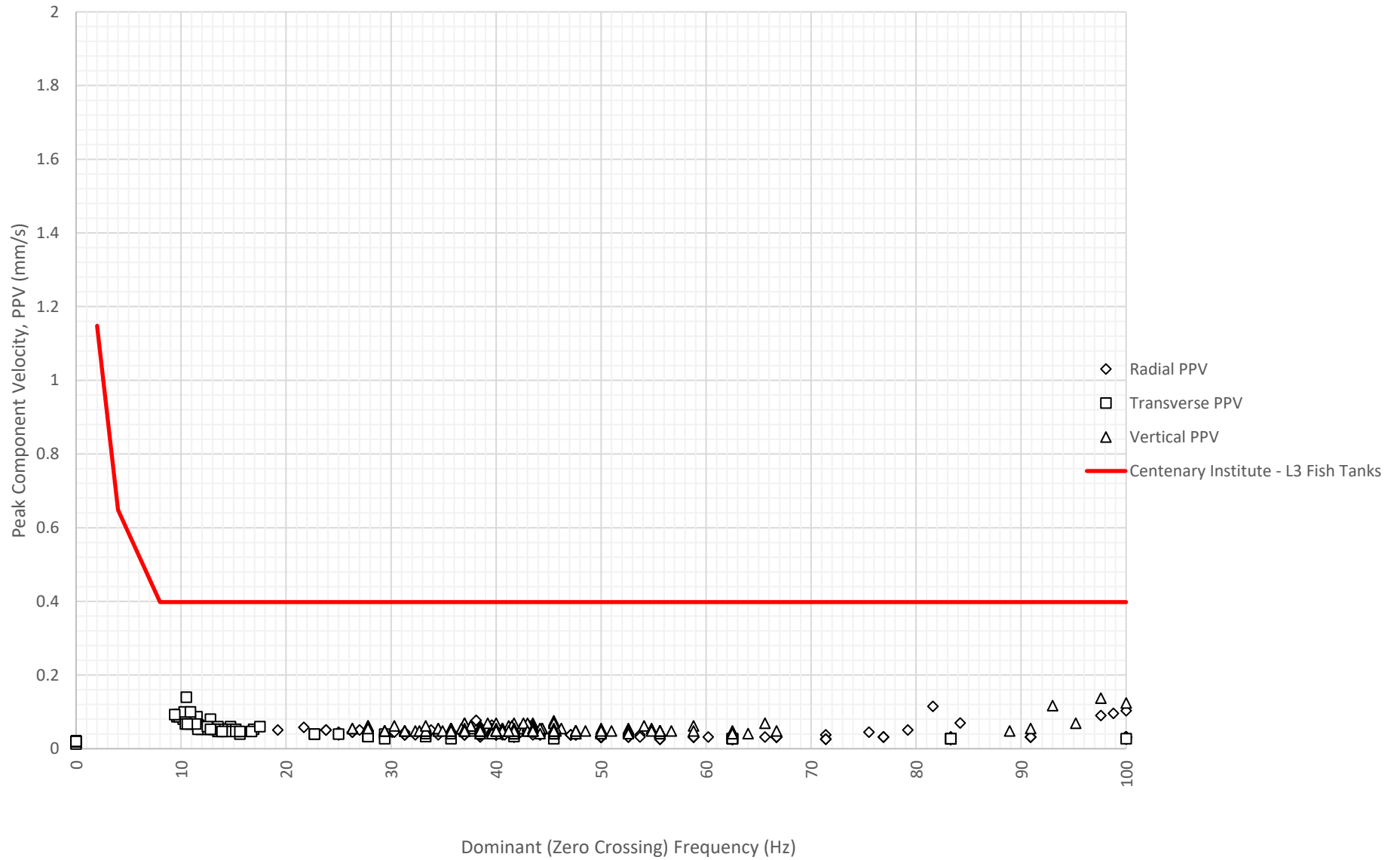
Frequency Content of Vibration Levels at Centenary Institute L3 Fish Tanks on 11-01-2024



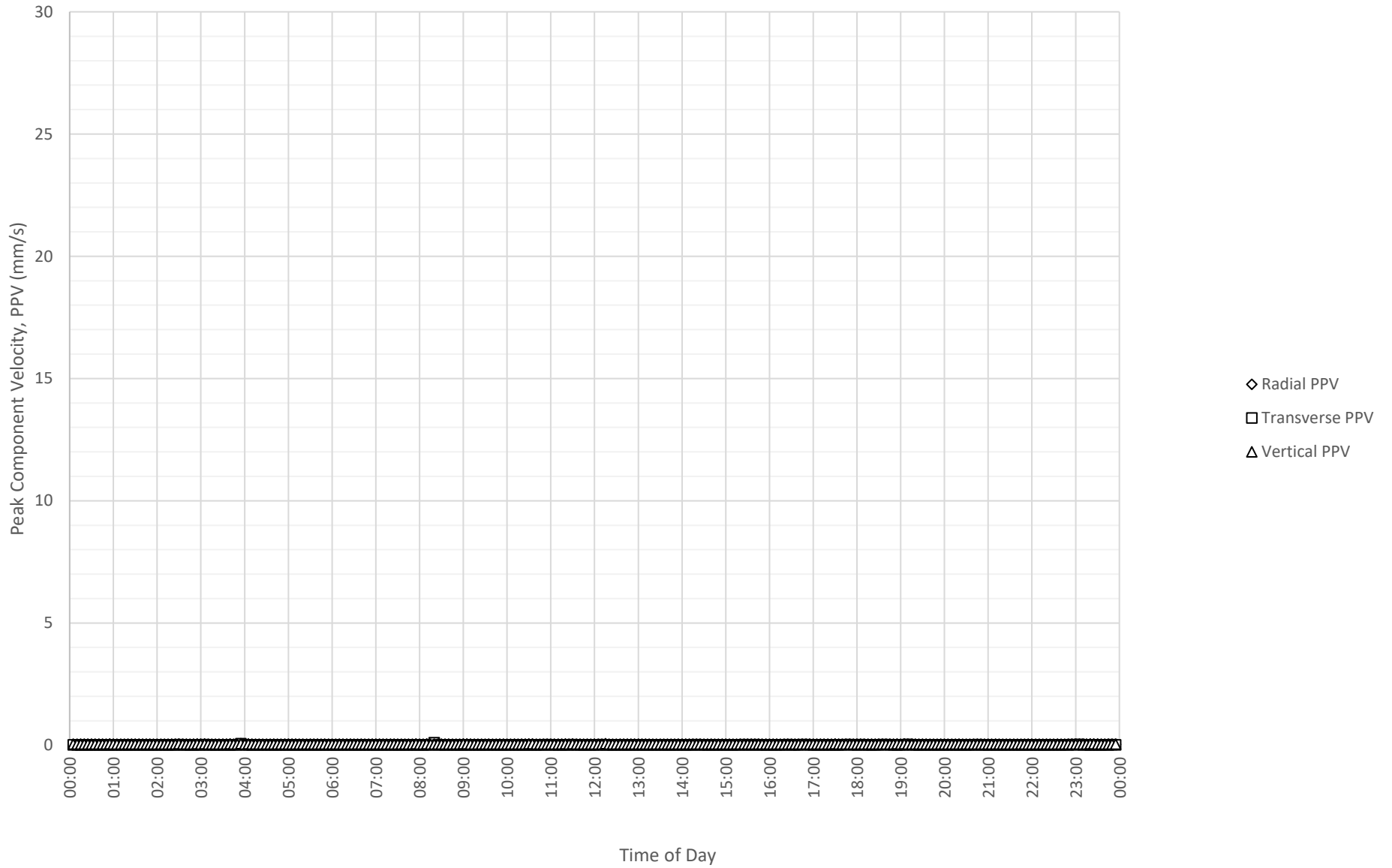
Daily Monitored Vibration Levels at Centenary Institute L3 Fish Tanks on 12-01-2024



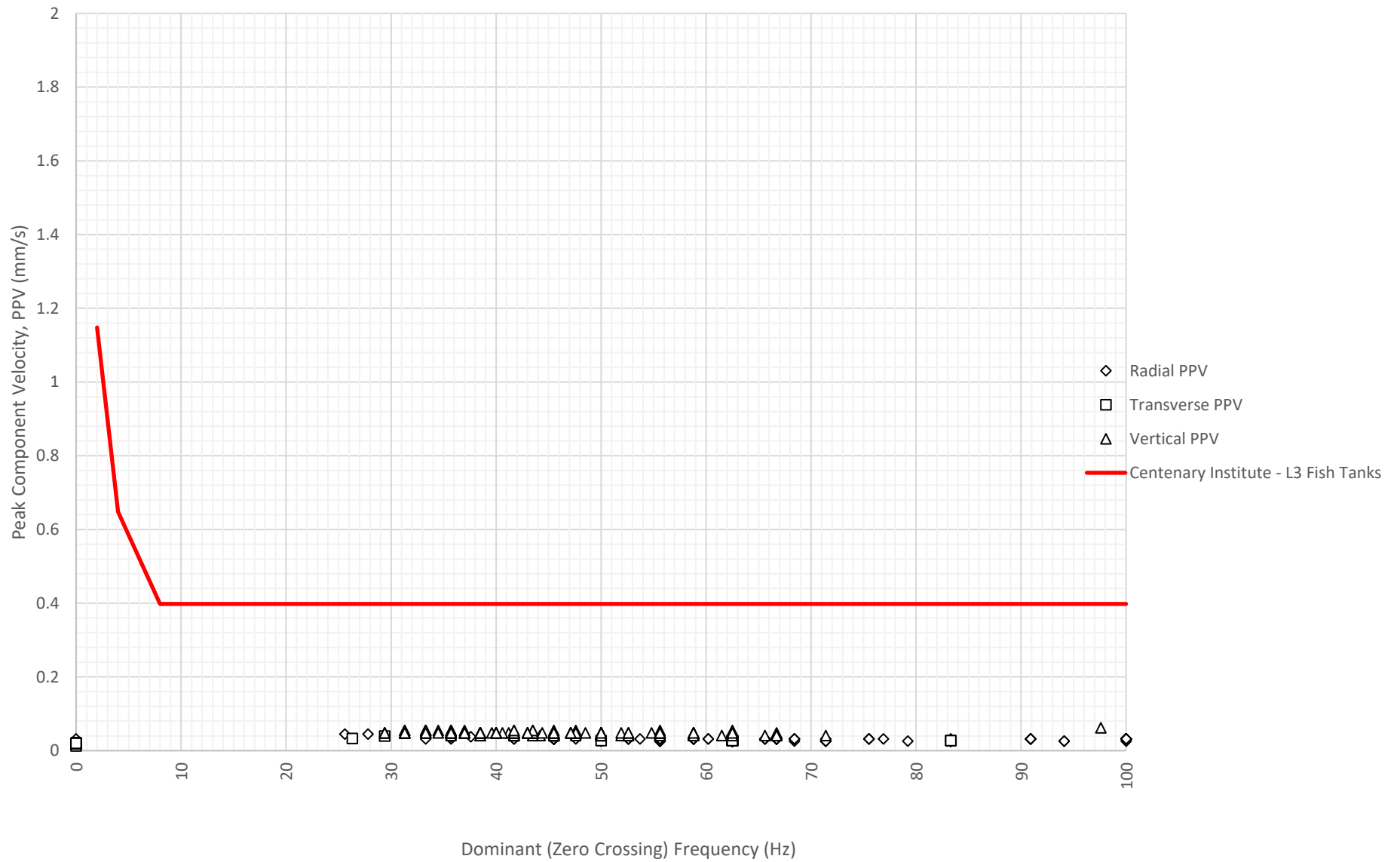
Frequency Content of Vibration Levels at Centenary Institute L3 Fish Tanks on 12-01-2024



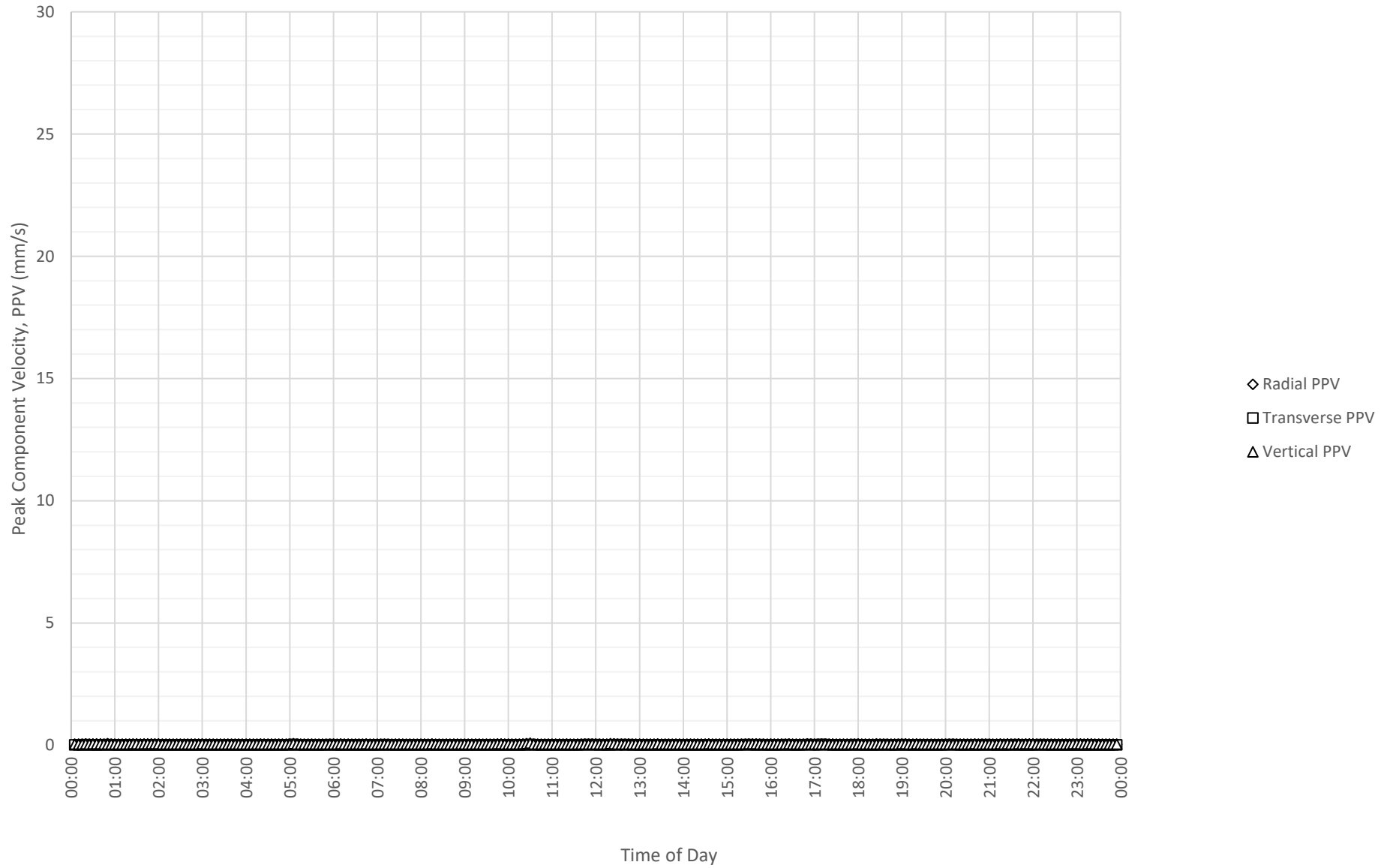
Daily Monitored Vibration Levels at Centenary Institute L3 Fish Tanks on 13-01-2024



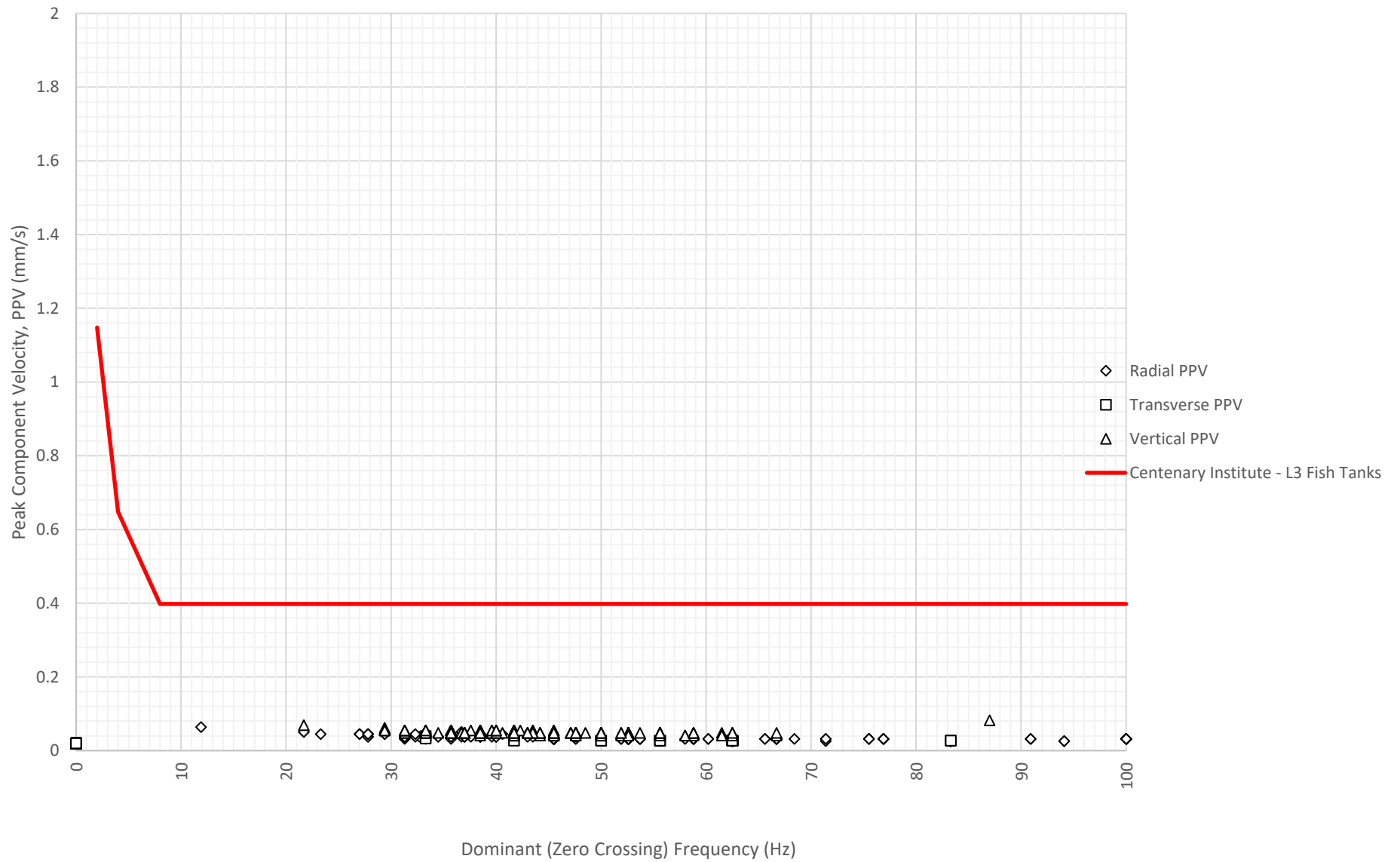
Frequency Content of Vibration Levels at Centenary Institute L3 Fish Tanks on 13-01-2024



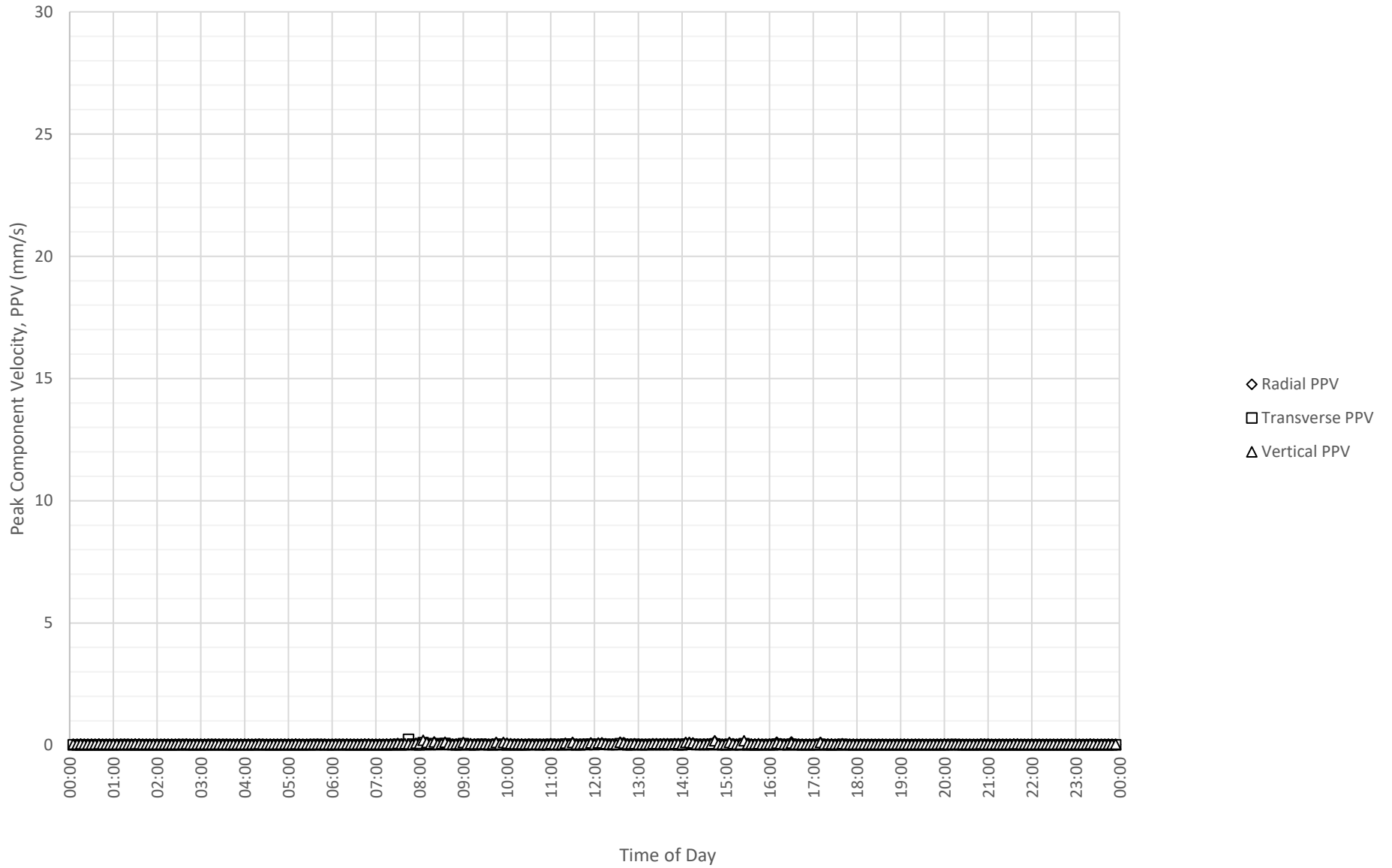
Daily Monitored Vibration Levels at Centenary Institute L3 Fish Tanks on 14-01-2024



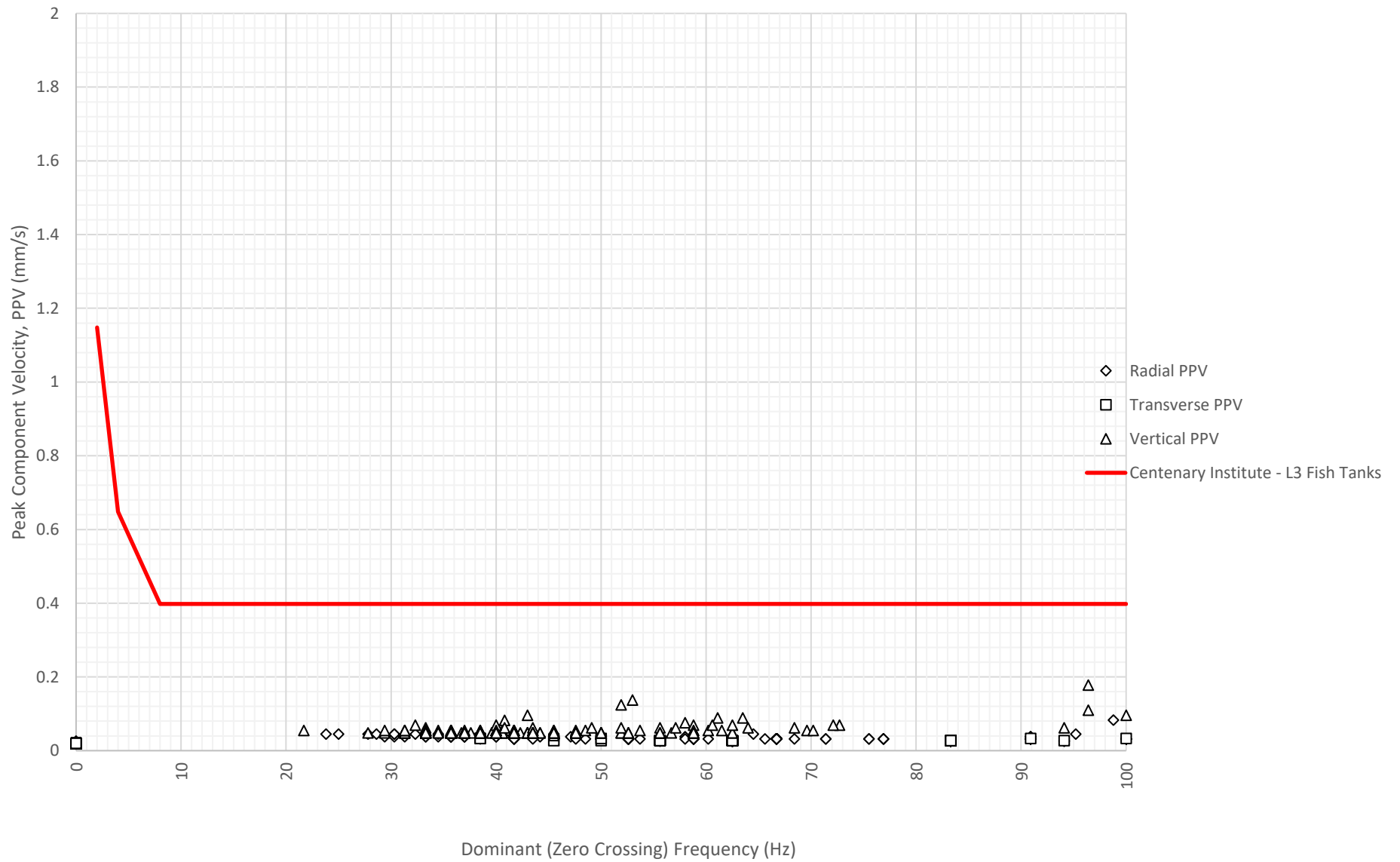
Frequency Content of Vibration Levels at Centenary Institute L3 Fish Tanks on 14-01-2024



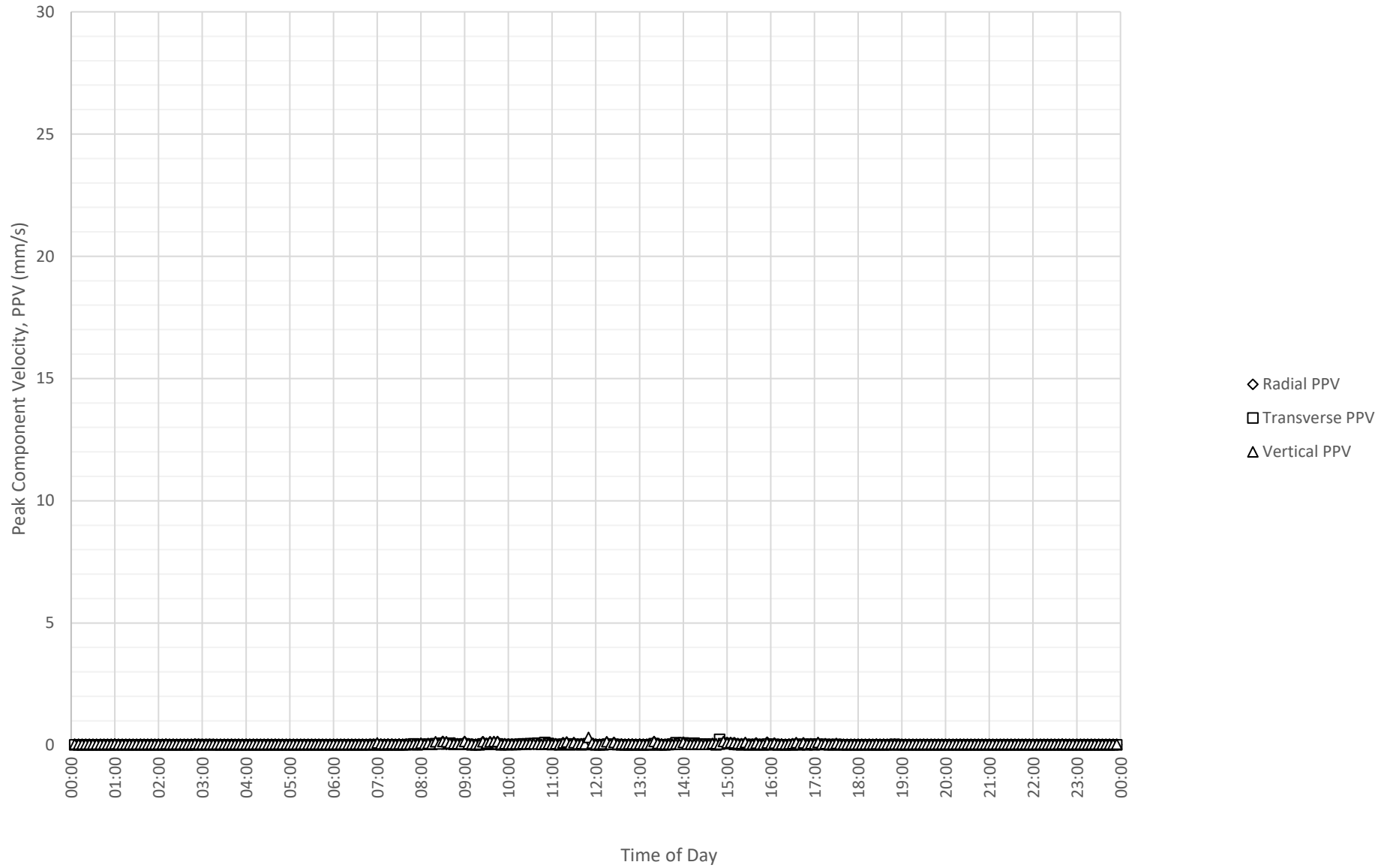
Daily Monitored Vibration Levels at Centenary Institute L3 Fish Tanks on 15-01-2024



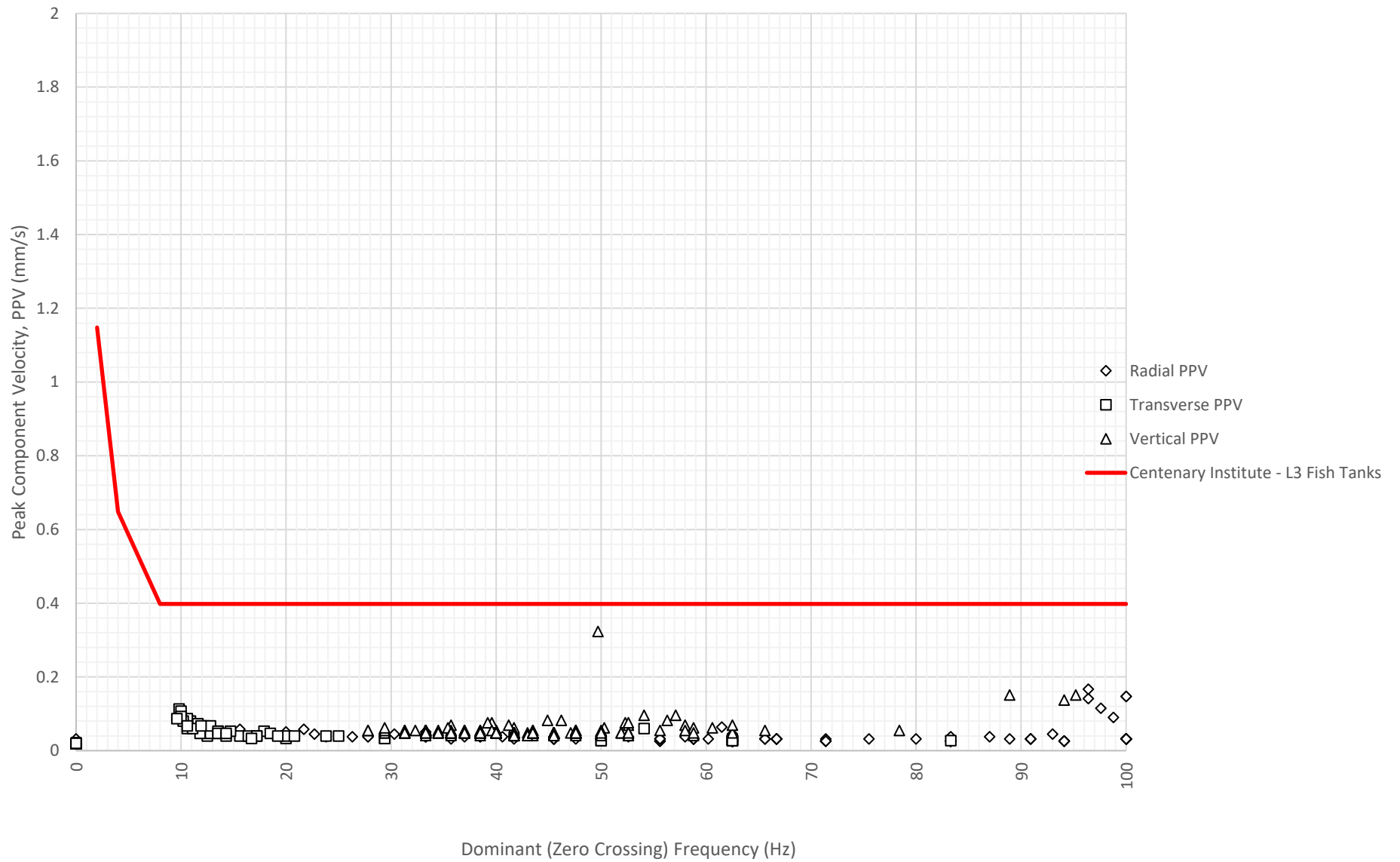
Frequency Content of Vibration Levels at Centenary Institute L3 Fish Tanks on 15-01-2024



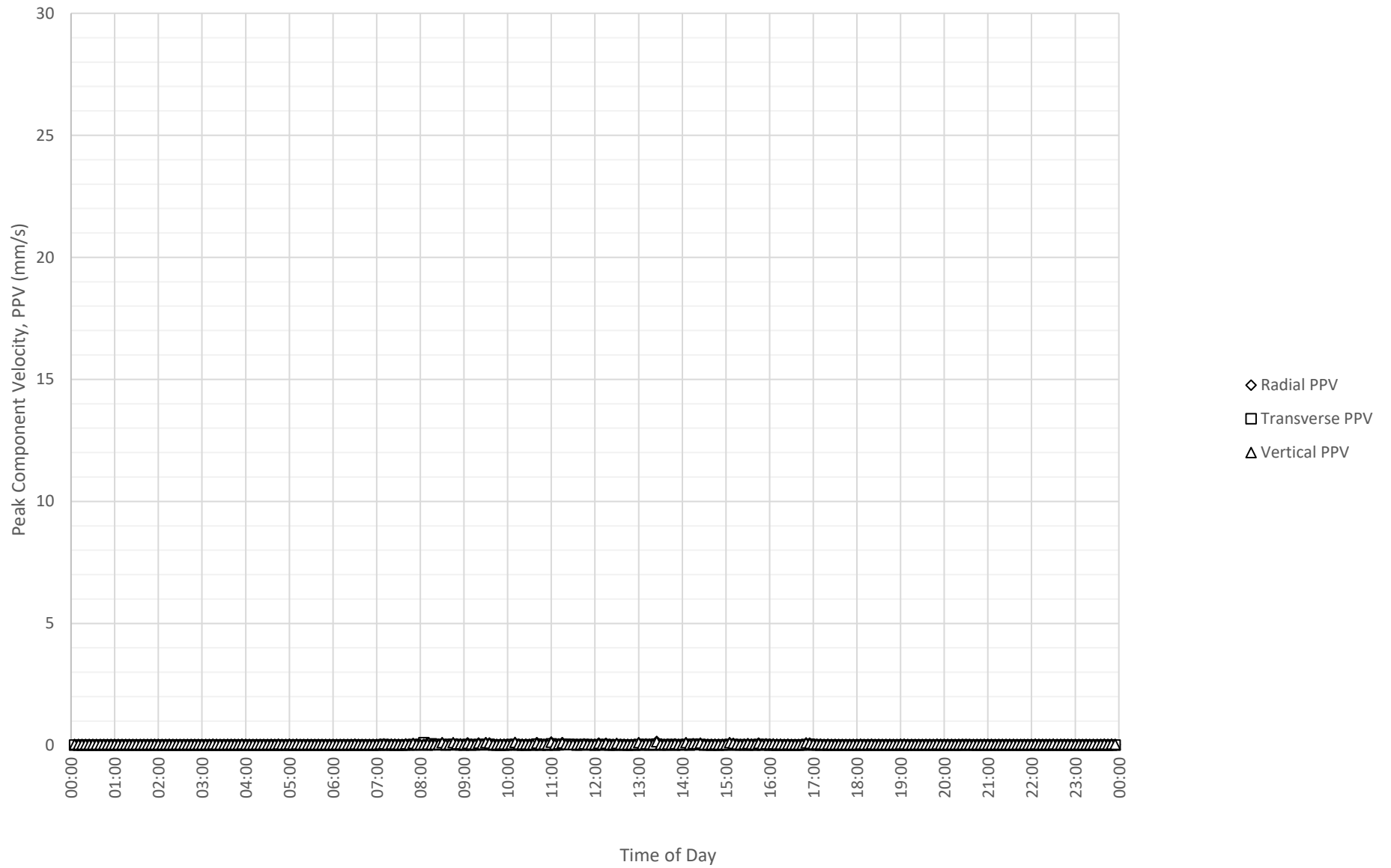
Daily Monitored Vibration Levels at Centenary Institute L3 Fish Tanks on 16-01-2024



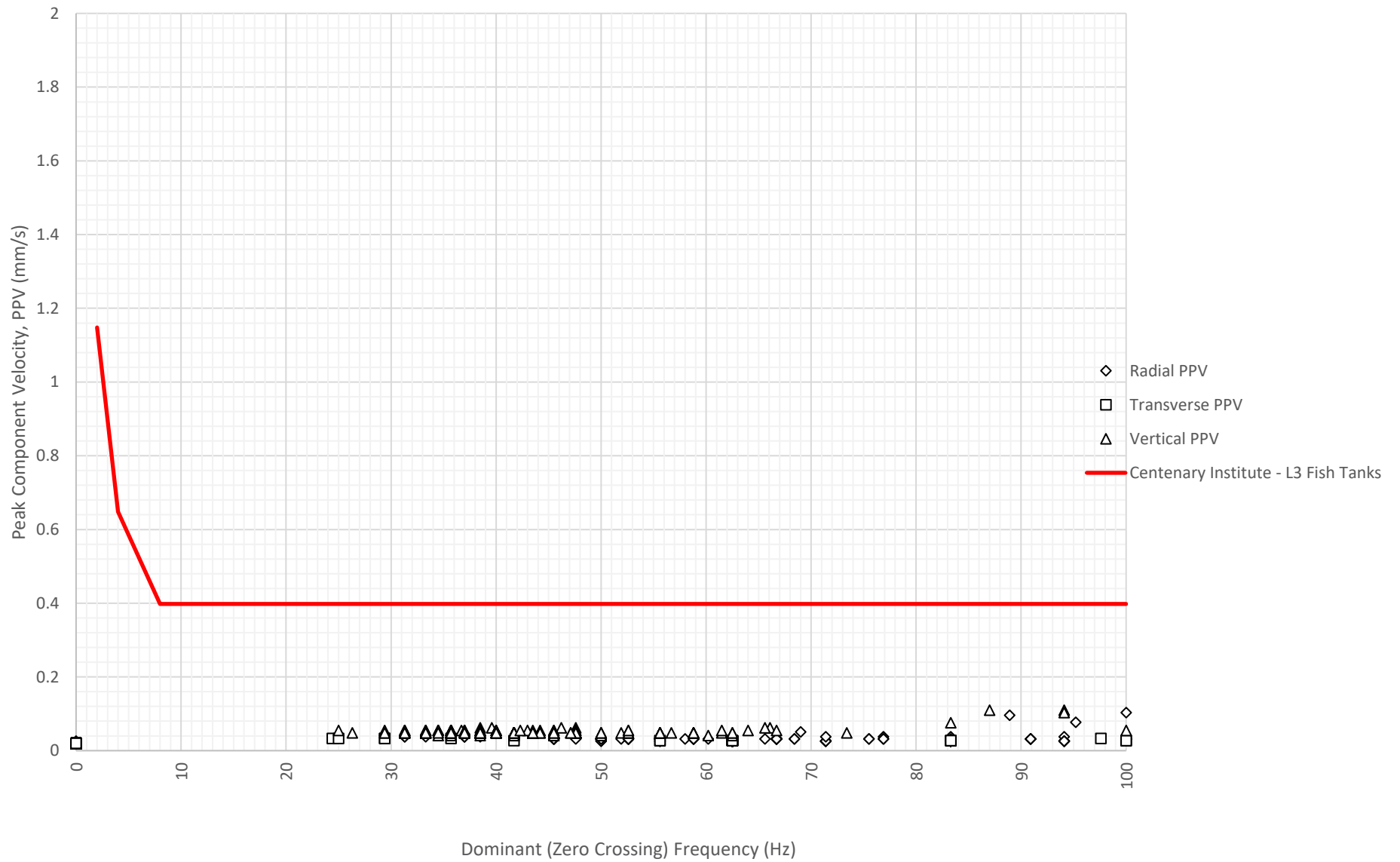
Frequency Content of Vibration Levels at Centenary Institute L3 Fish Tanks on 16-01-2024



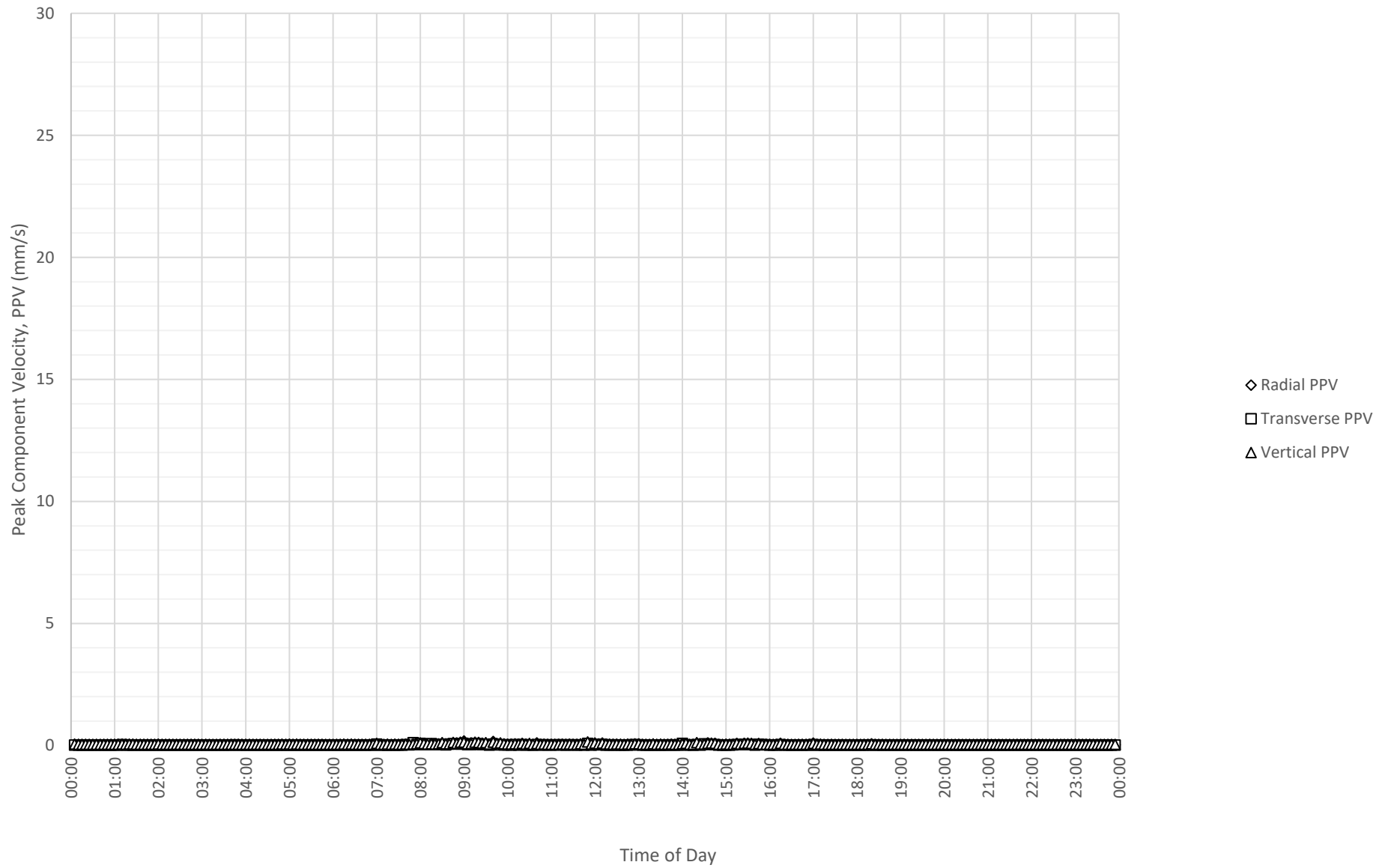
Daily Monitored Vibration Levels at Centenary Institute L3 Fish Tanks on 17-01-2024



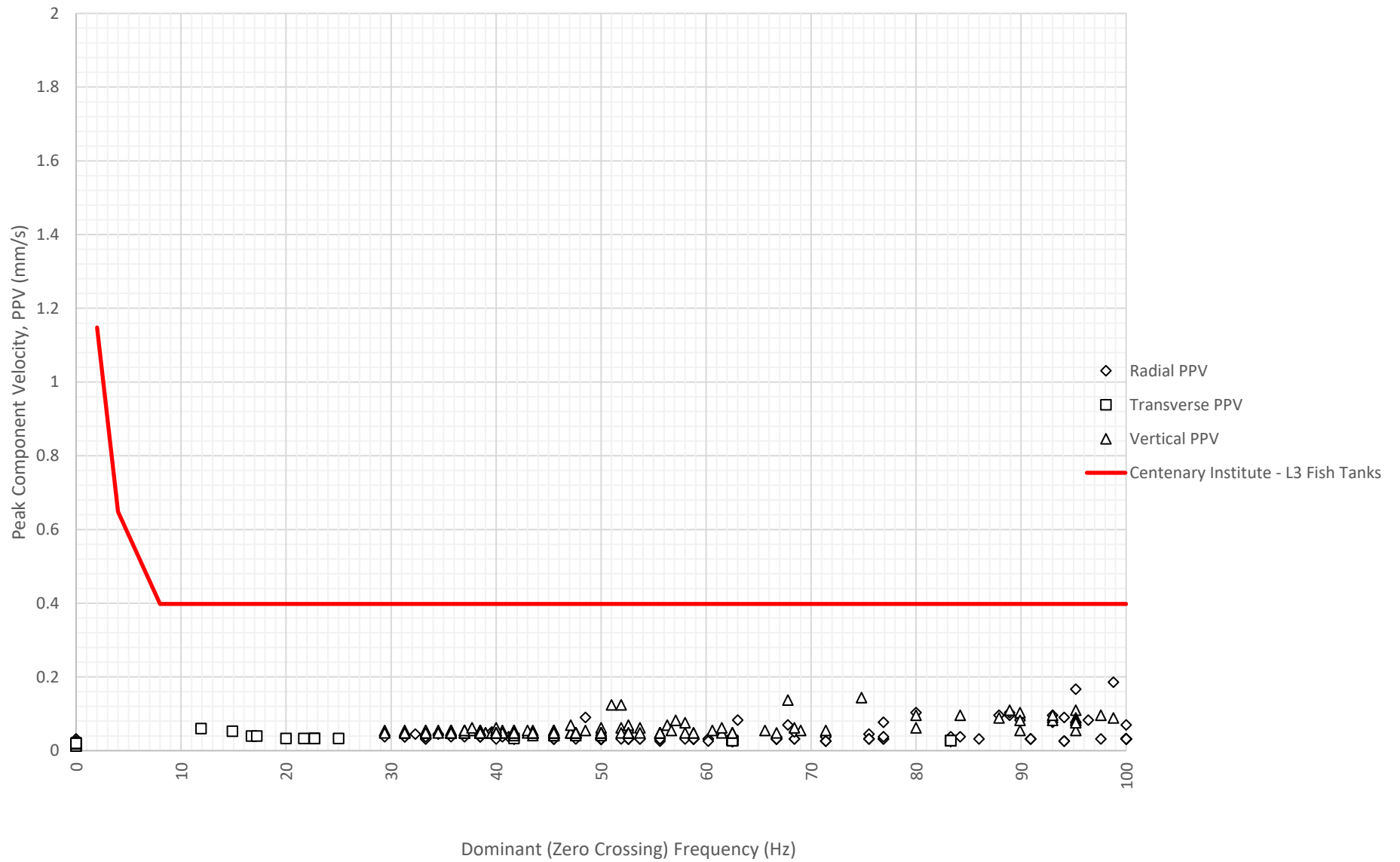
Frequency Content of Vibration Levels at Centenary Institute L3 Fish Tanks on 17-01-2024



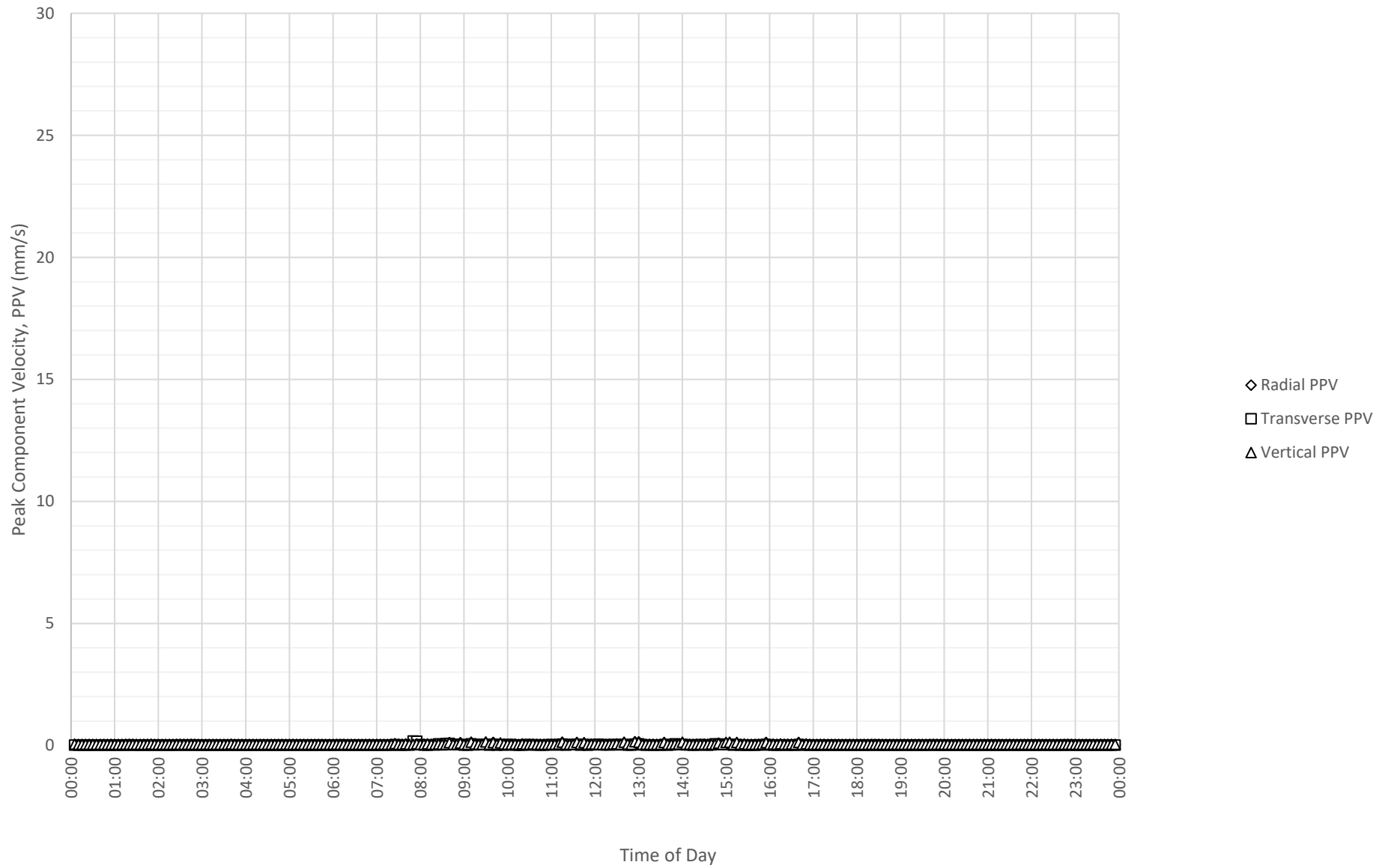
Daily Monitored Vibration Levels at Centenary Institute L3 Fish Tanks on 18-01-2024



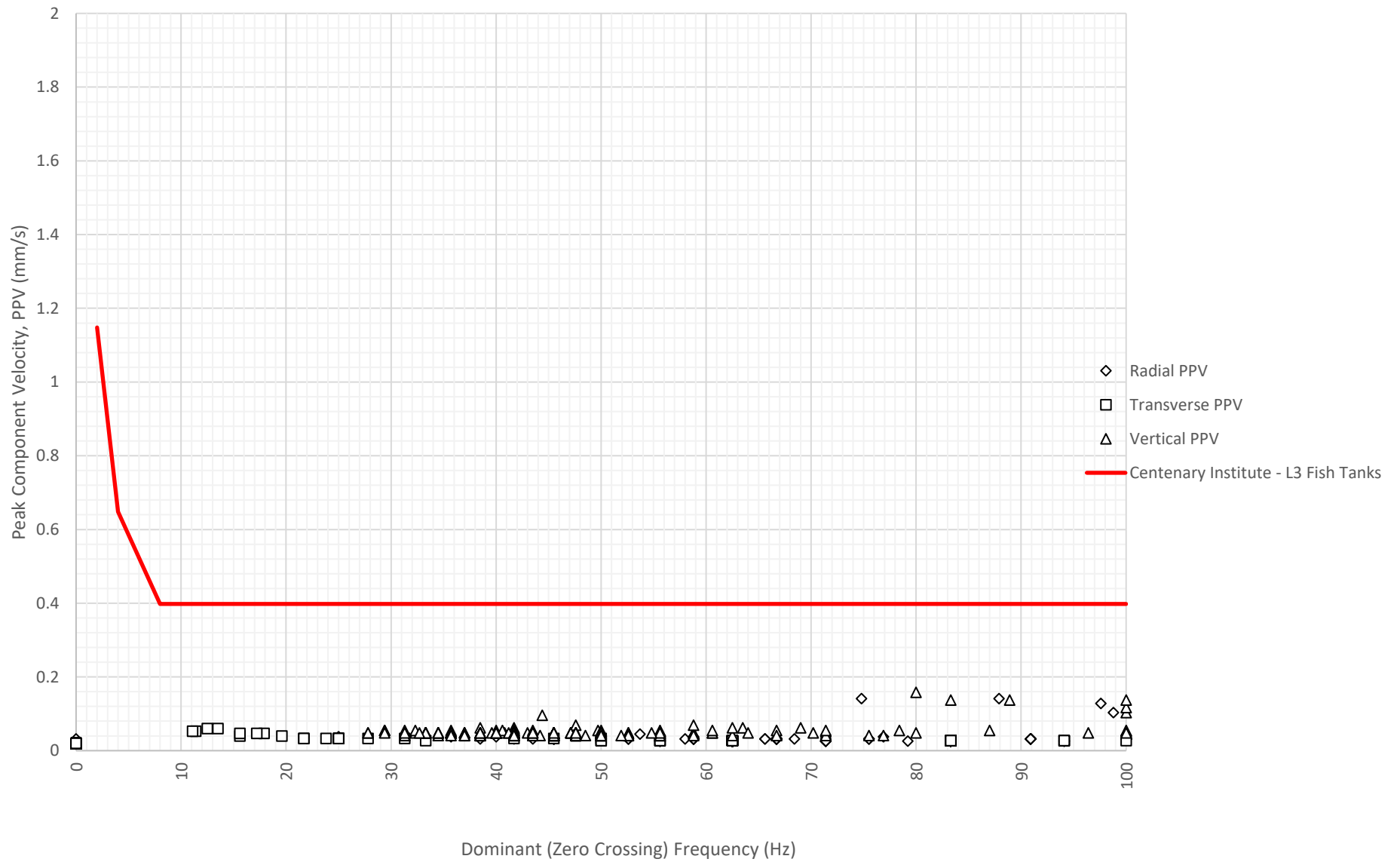
Frequency Content of Vibration Levels at Centenary Institute L3 Fish Tanks on 18-01-2024



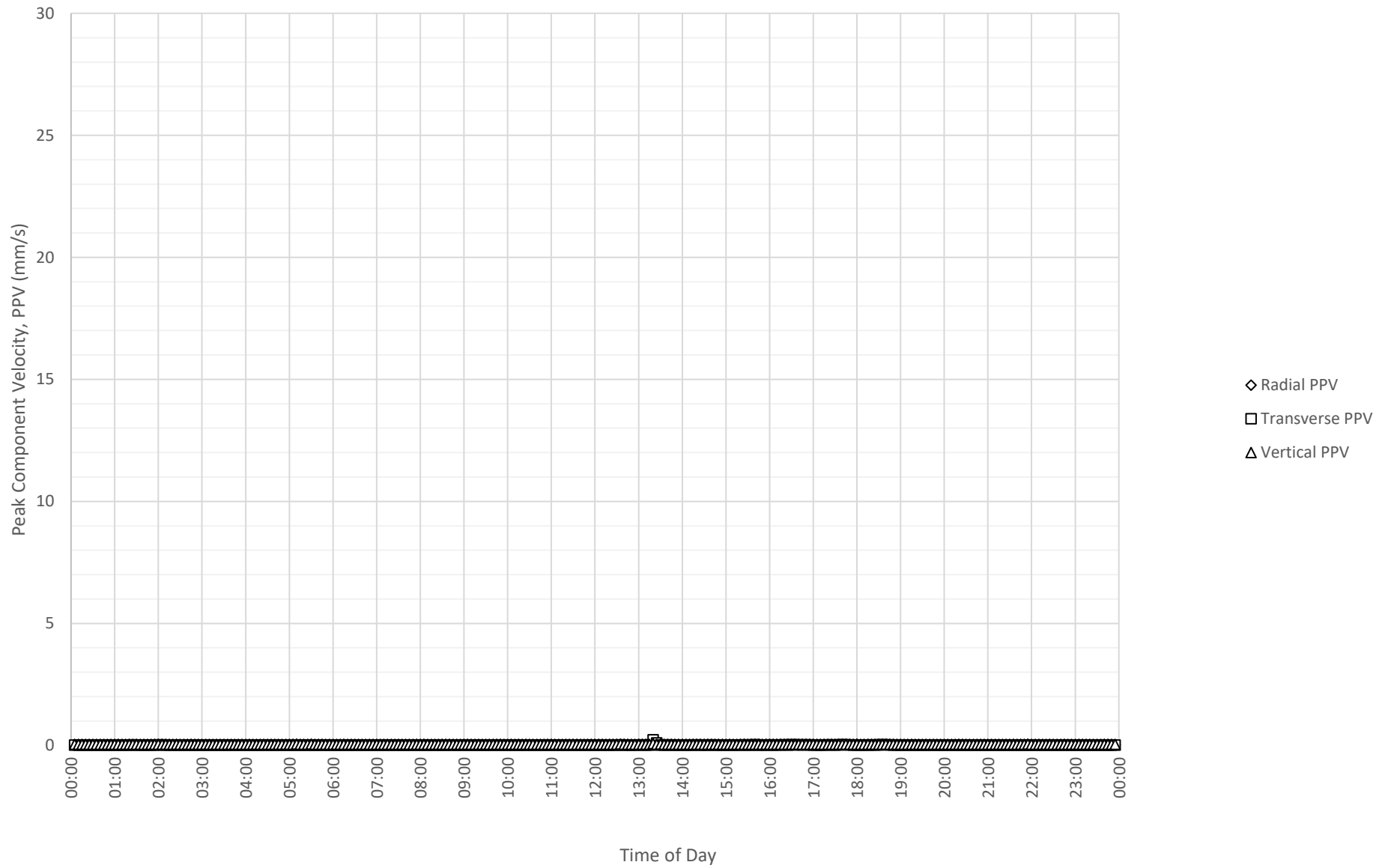
Daily Monitored Vibration Levels at Centenary Institute L3 Fish Tanks on 19-01-2024



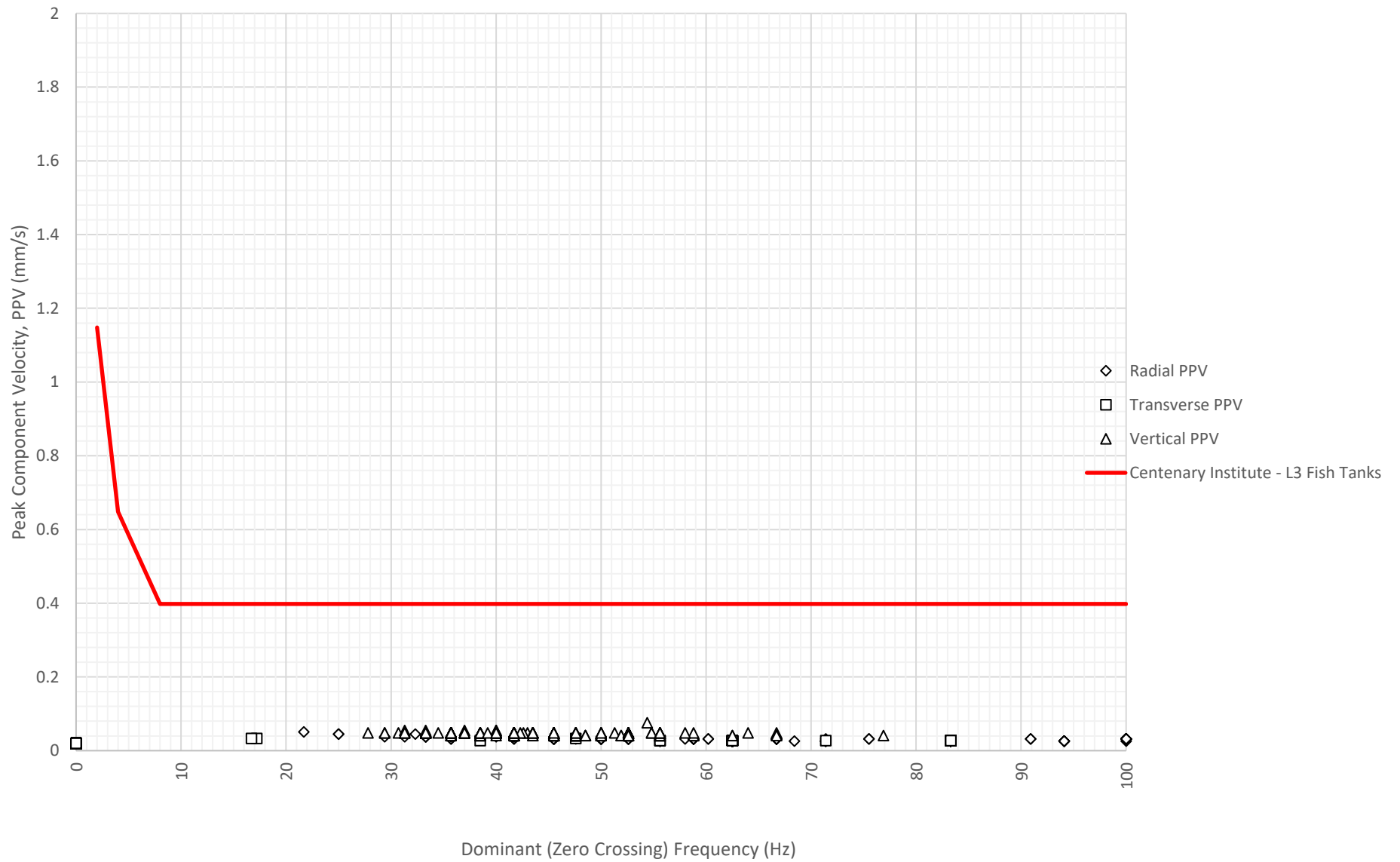
Frequency Content of Vibration Levels at Centenary Institute L3 Fish Tanks on 19-01-2024



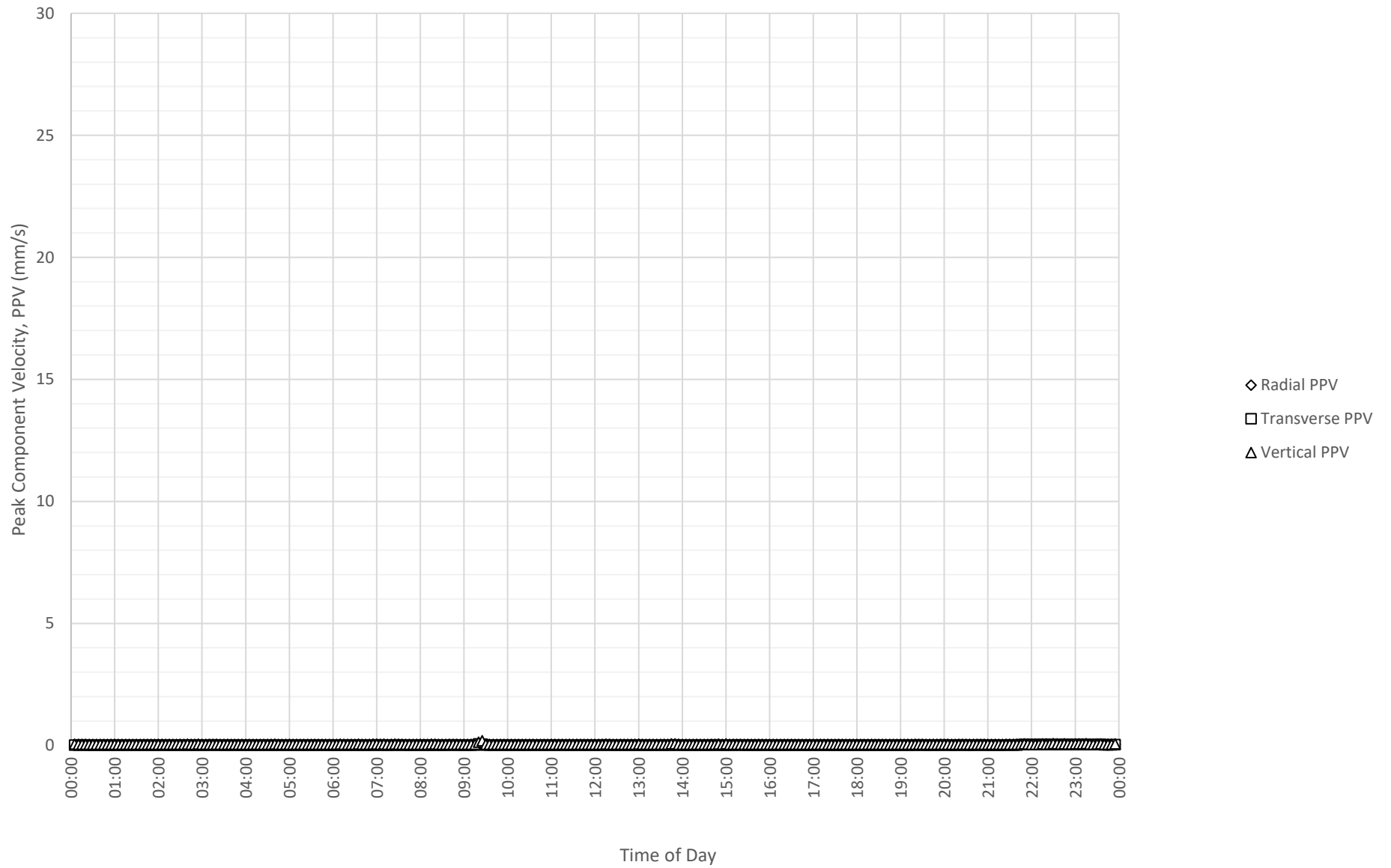
Daily Monitored Vibration Levels at Centenary Institute L3 Fish Tanks on 20-01-2024



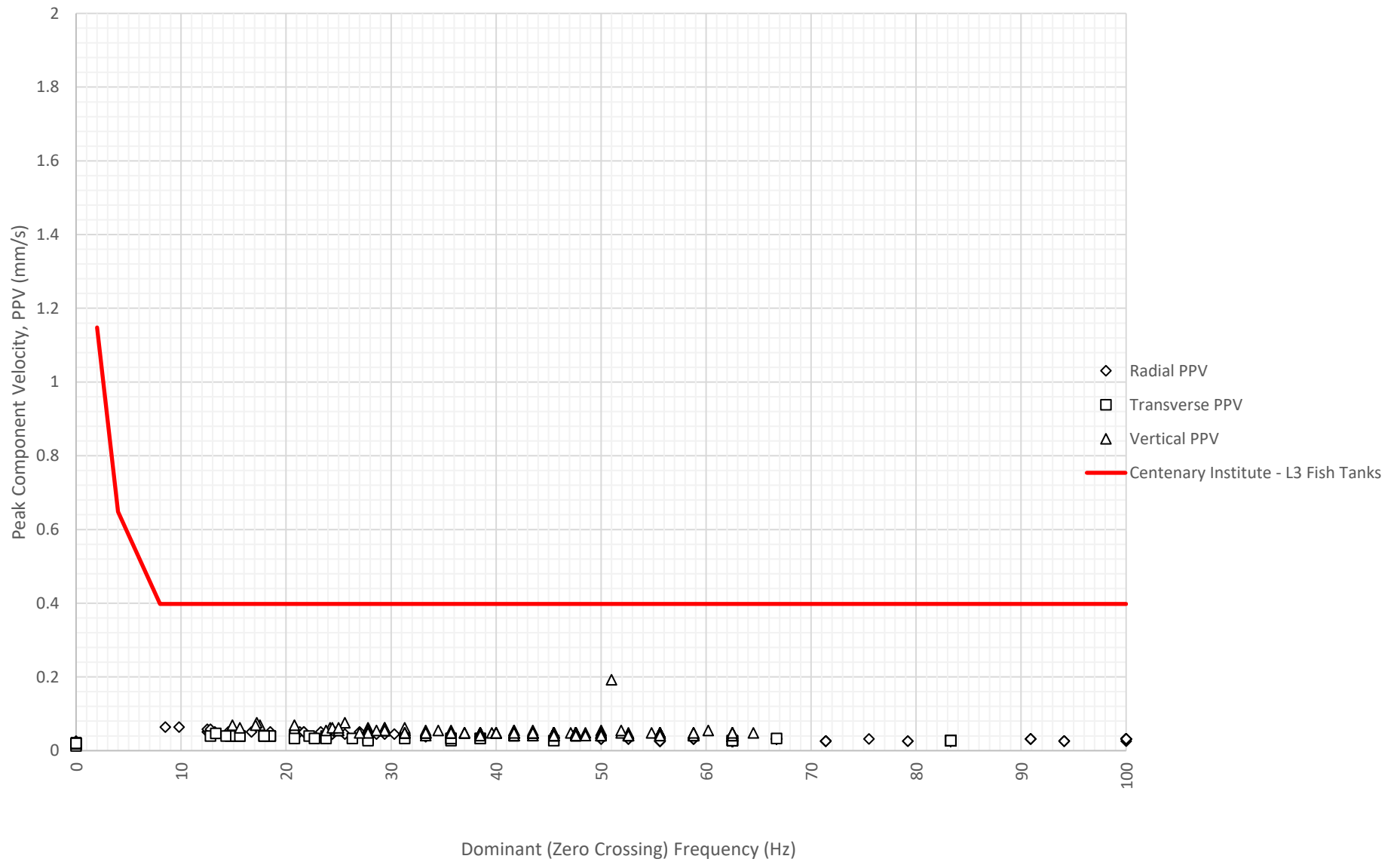
Frequency Content of Vibration Levels at Centenary Institute L3 Fish Tanks on 20-01-2024



Daily Monitored Vibration Levels at Centenary Institute L3 Fish Tanks on 21-01-2024

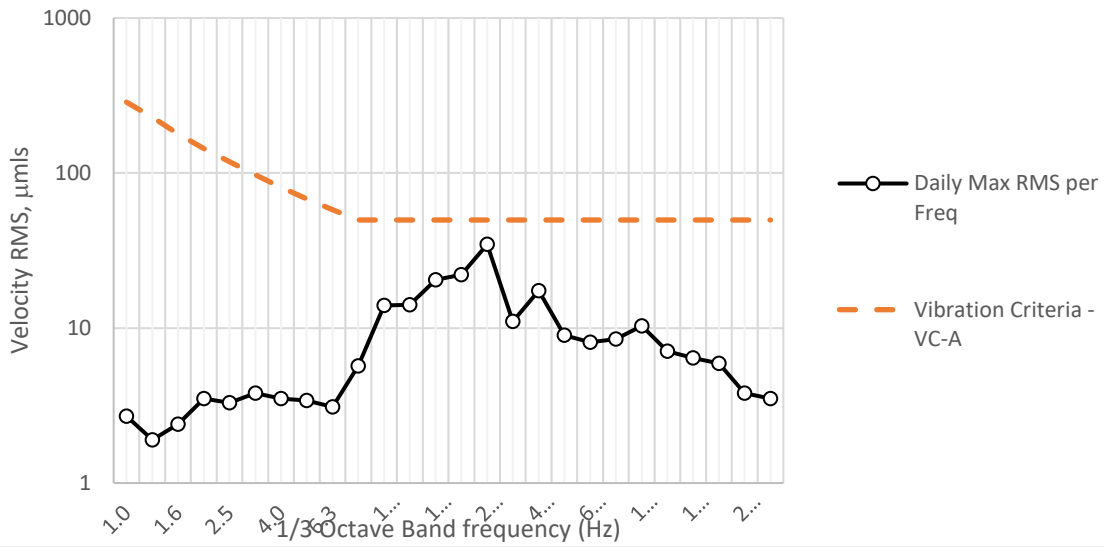


Frequency Content of Vibration Levels at Centenary Institute L3 Fish Tanks on 21-01-2024

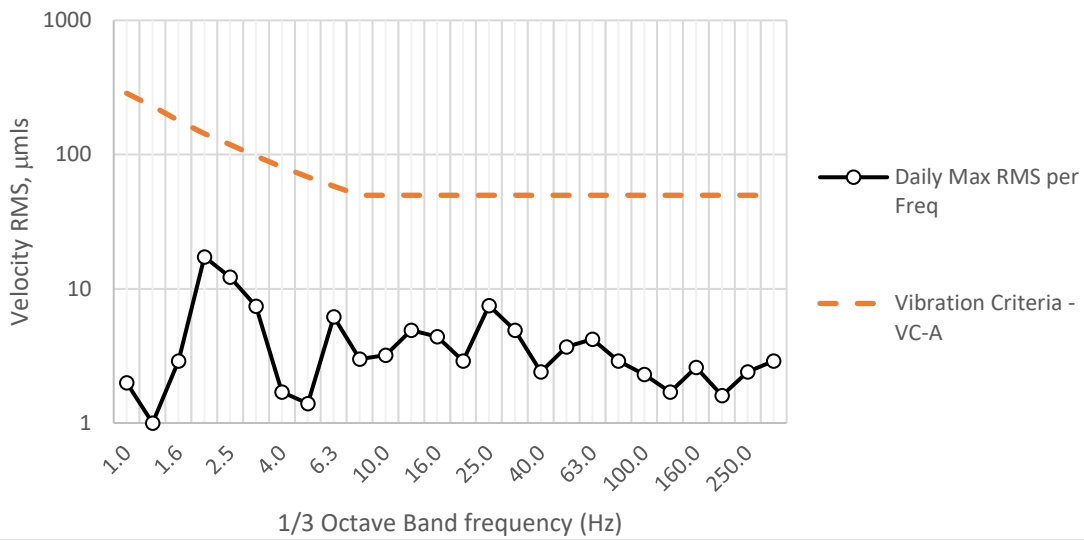


CENTENARY INSTITUTE – LEVEL 4 SURGERY ROOM (SOUTHERN FAÇADE)

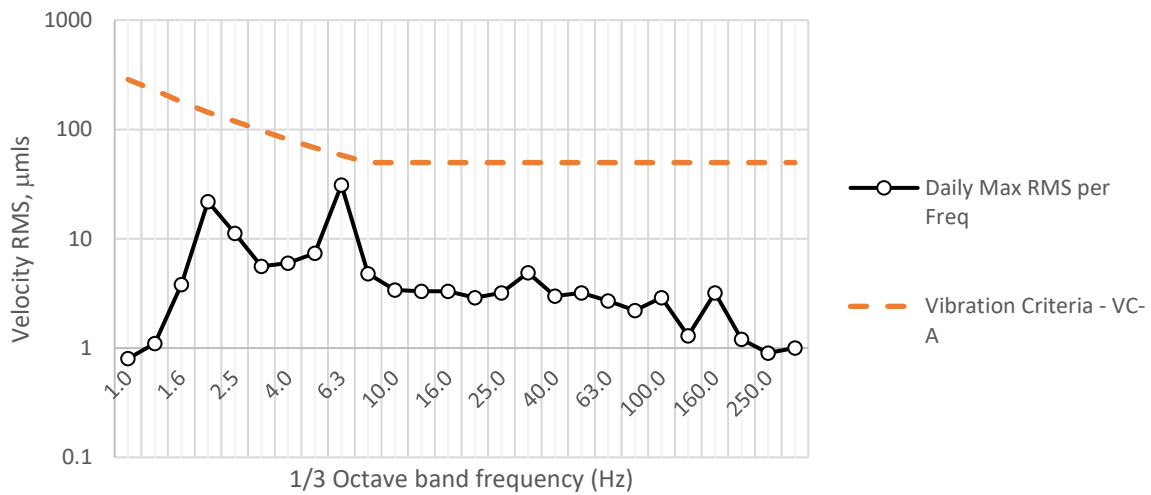
Vertical Vibration



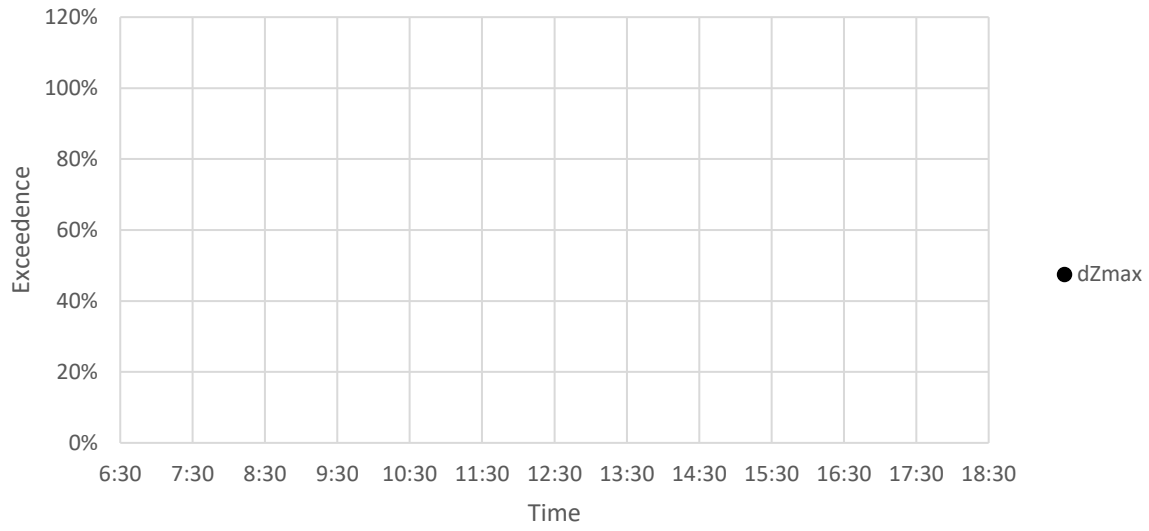
FwdBackwd Vibration



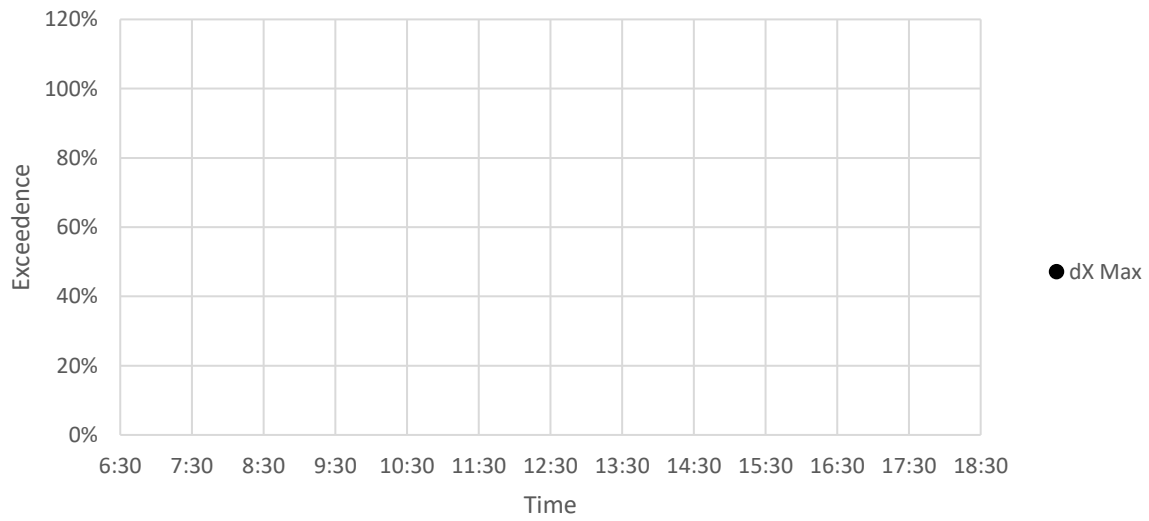
Sideways Vibration



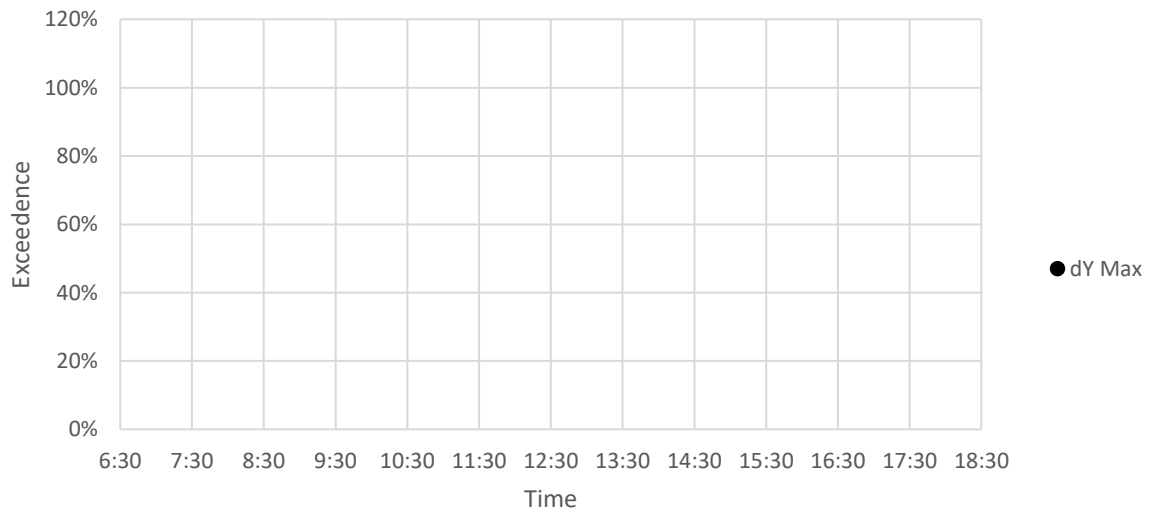
Vertical



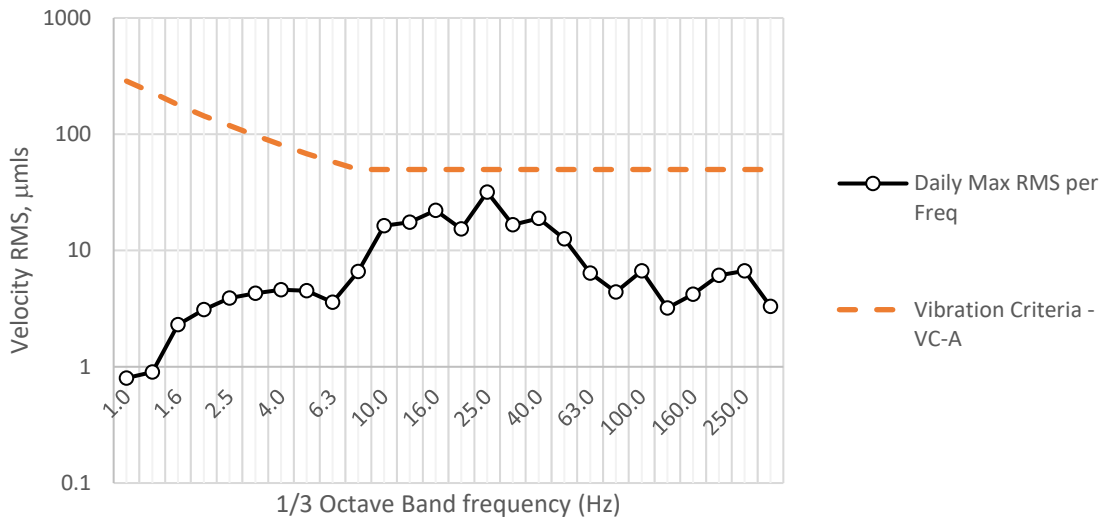
Fwd/Backwards



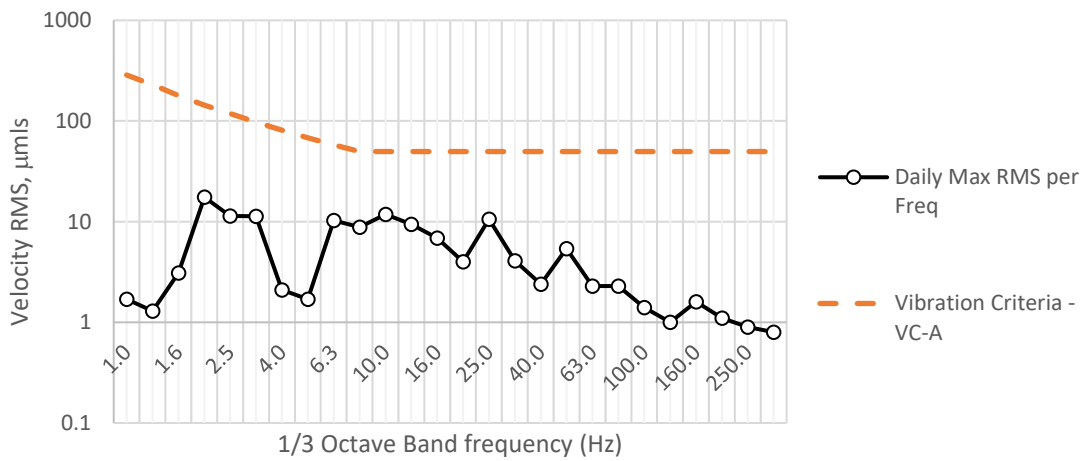
Sideways



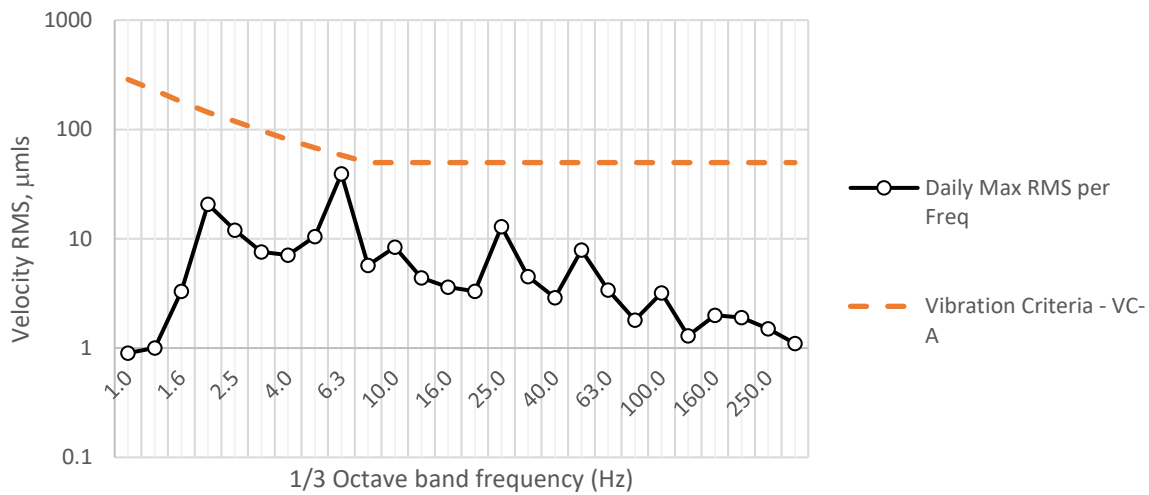
Vertical Vibration



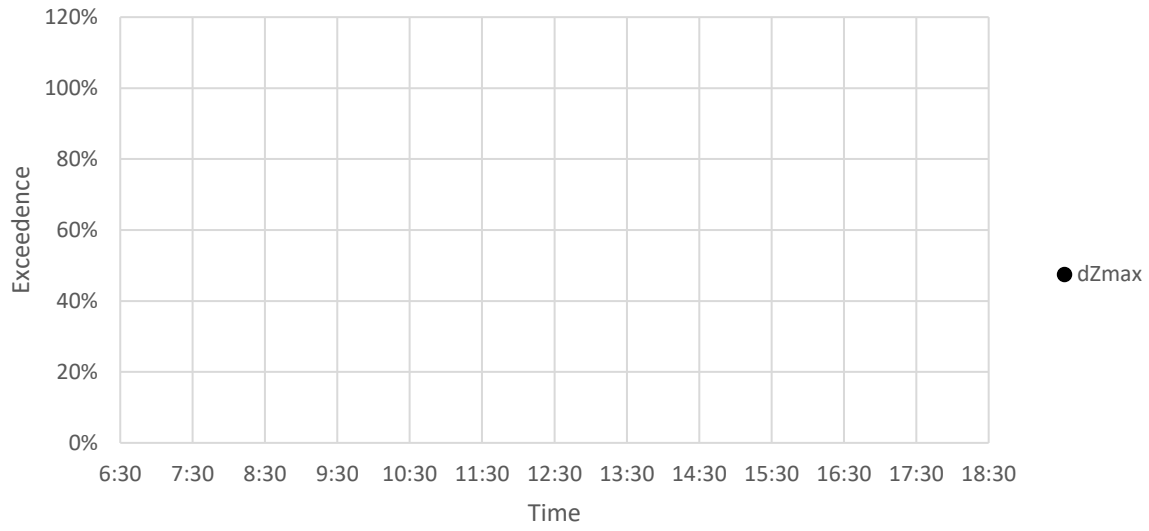
FwdBackwd Vibration



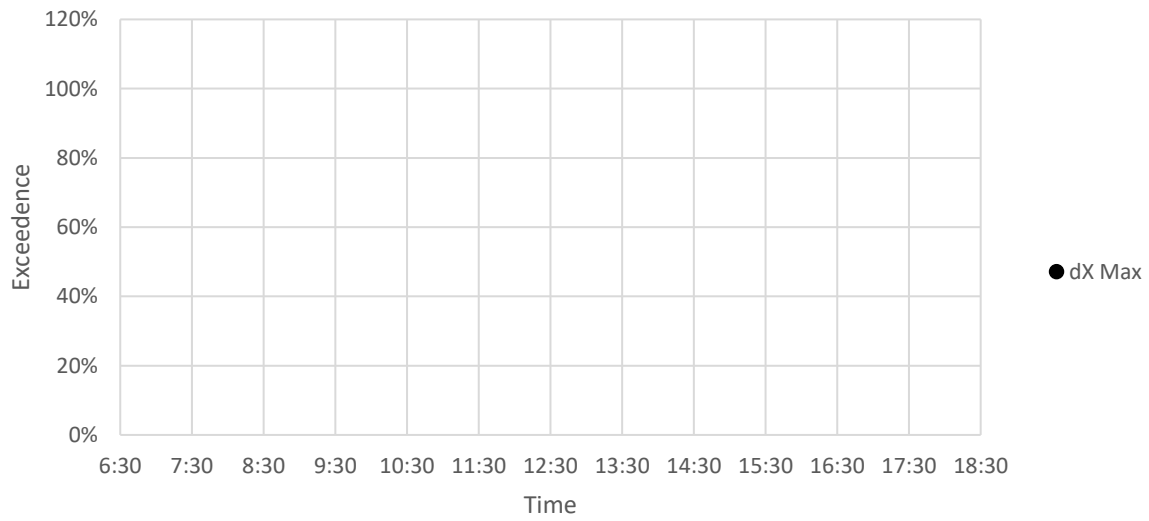
Sideways Vibration



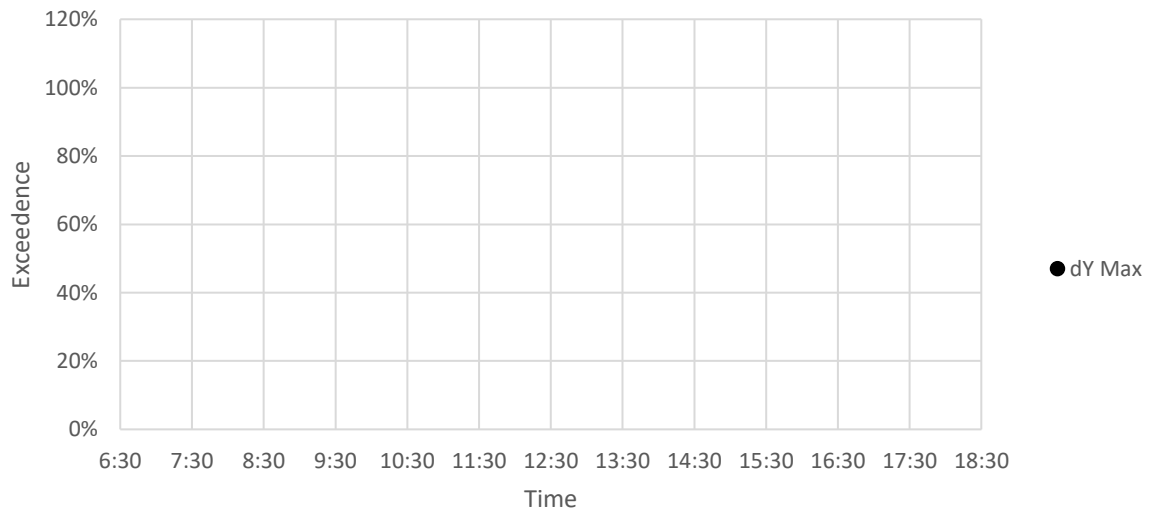
Vertical



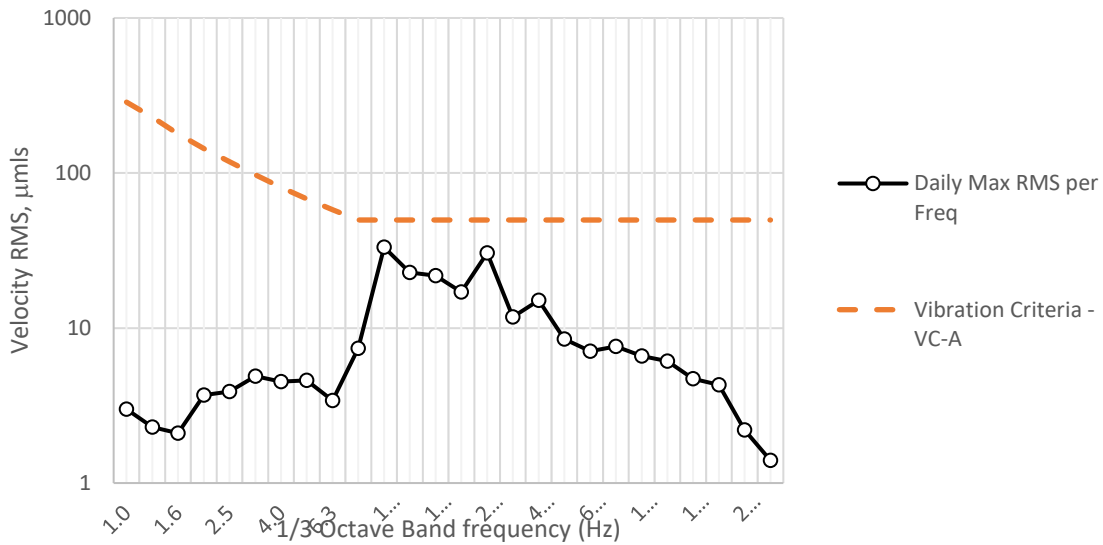
Fwd/Backwards



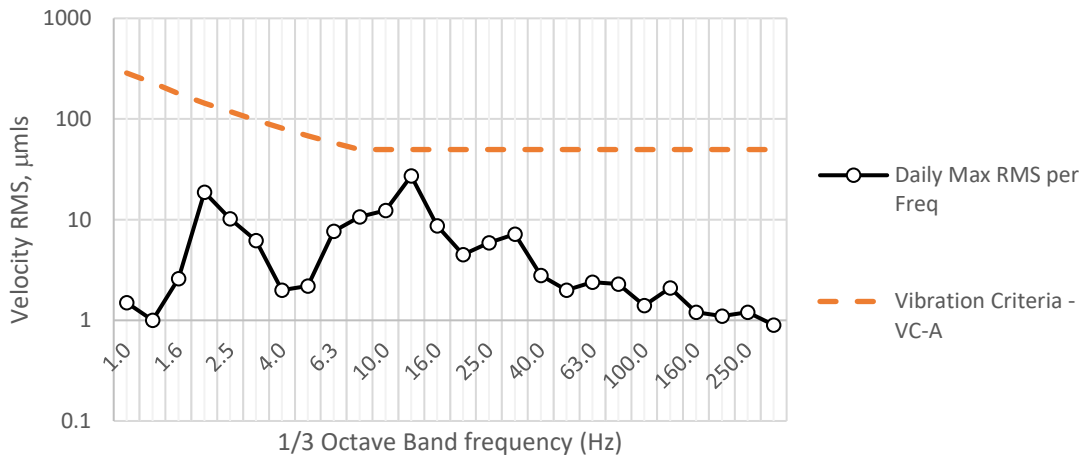
Sideways



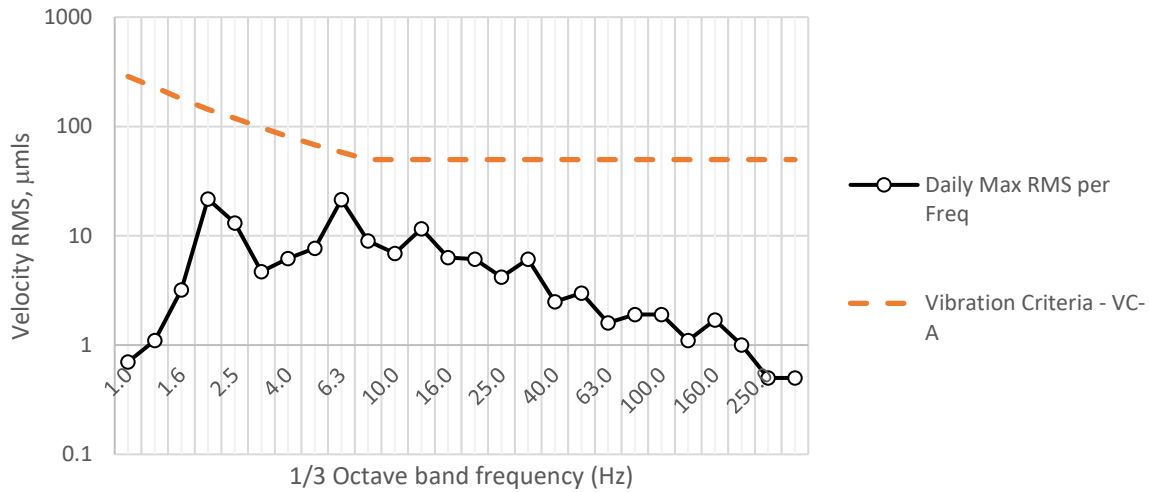
Vertical Vibration



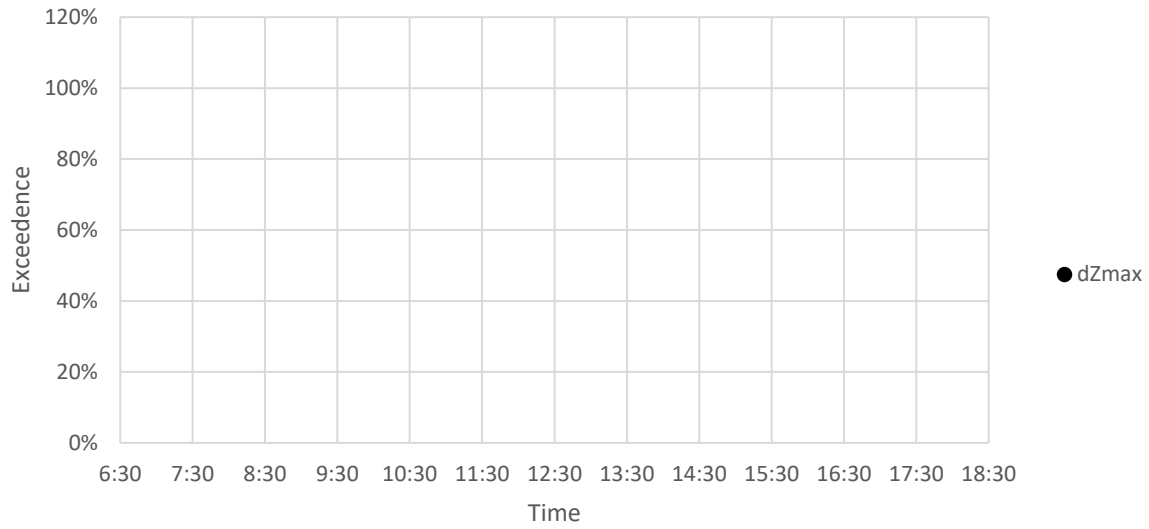
FwdBackwd Vibration



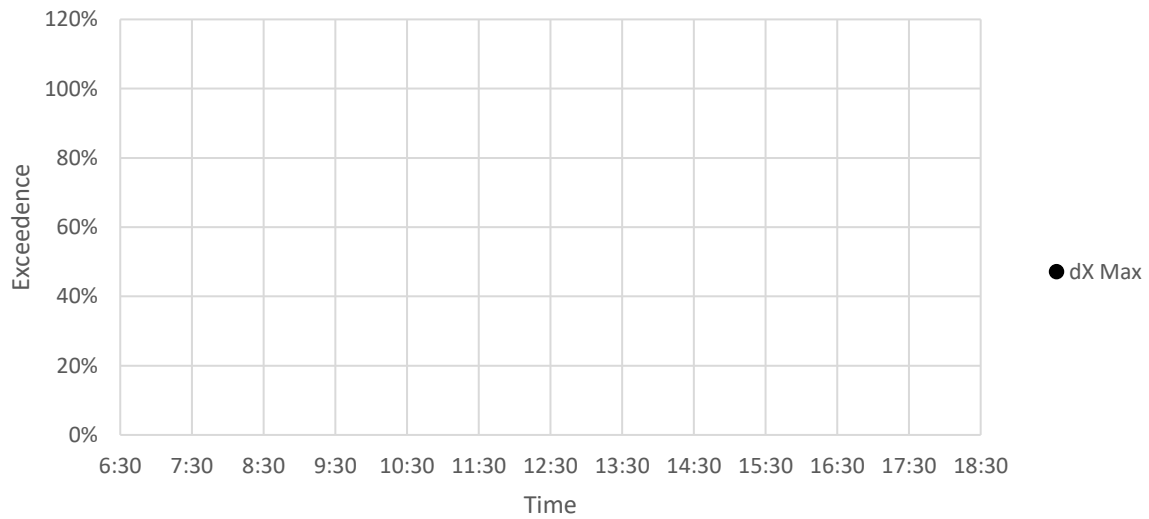
Sideways Vibration



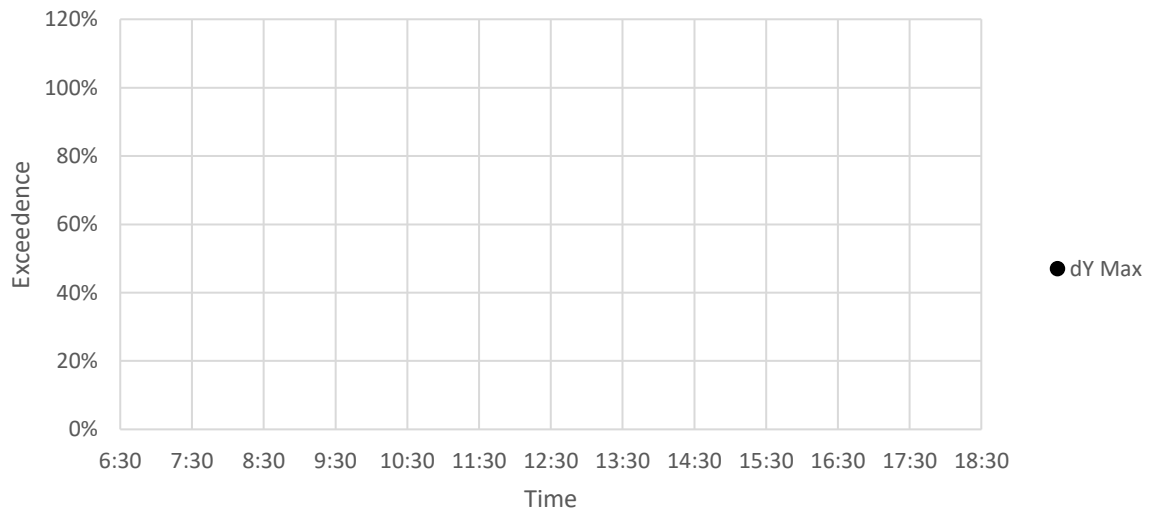
Vertical

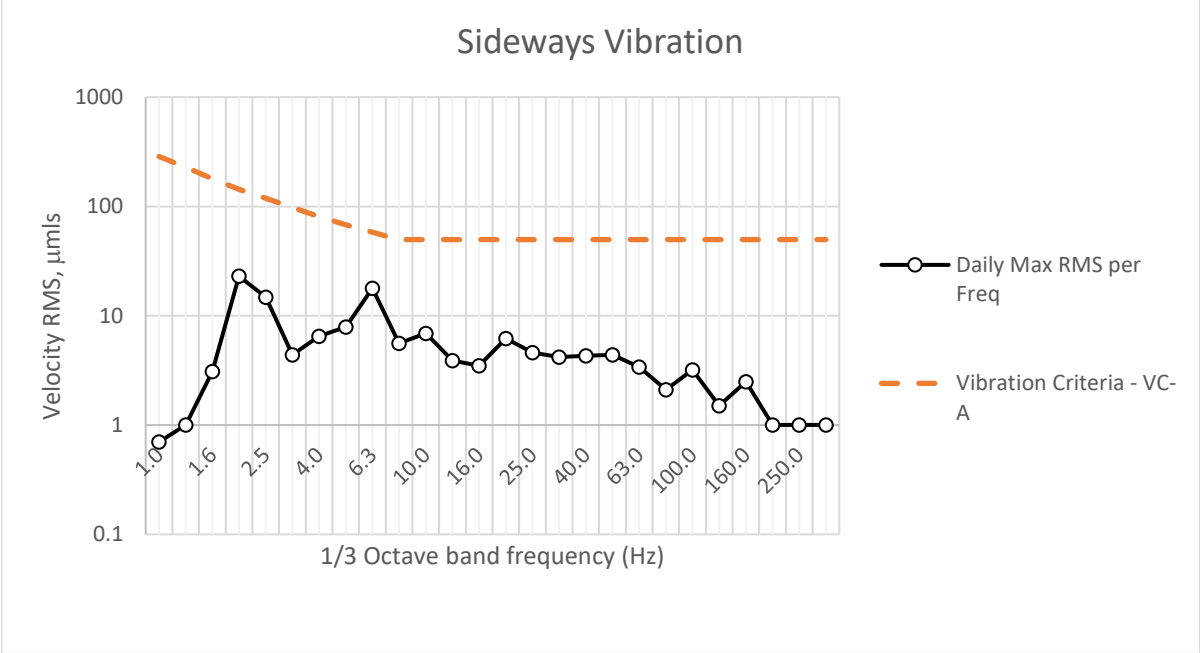
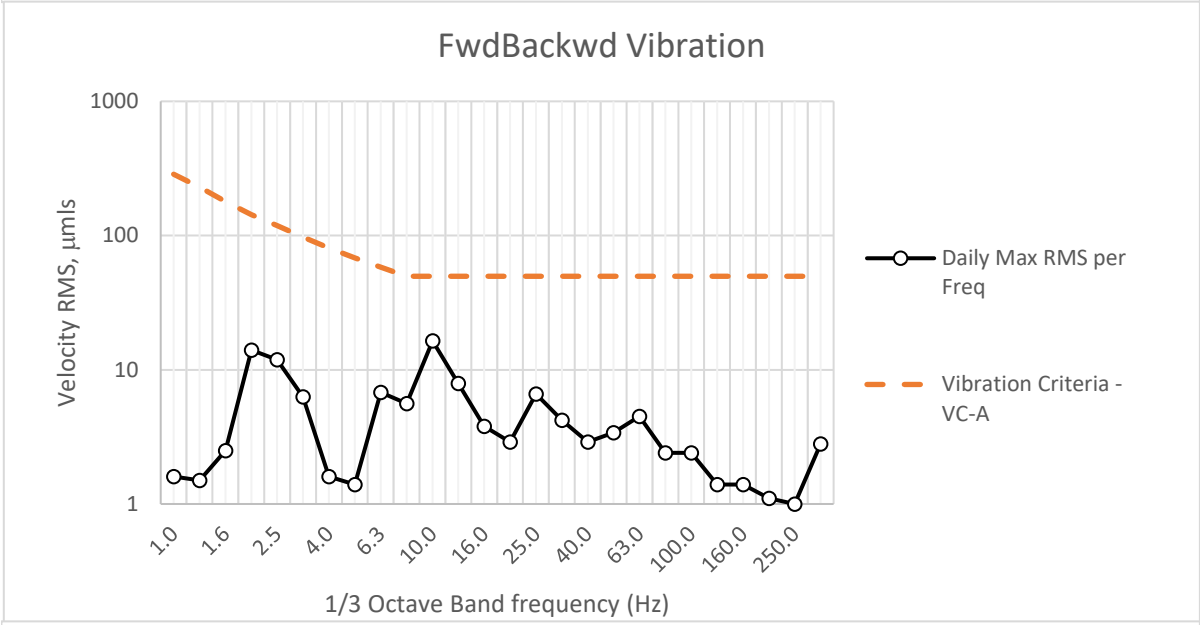
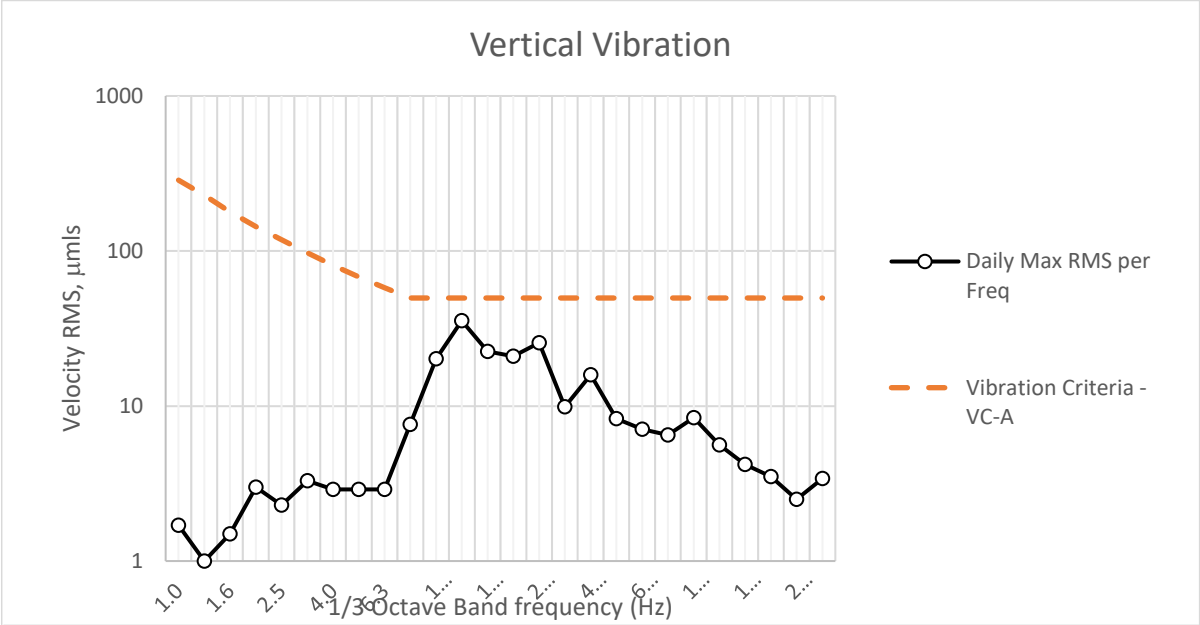


Fwd/Backwards

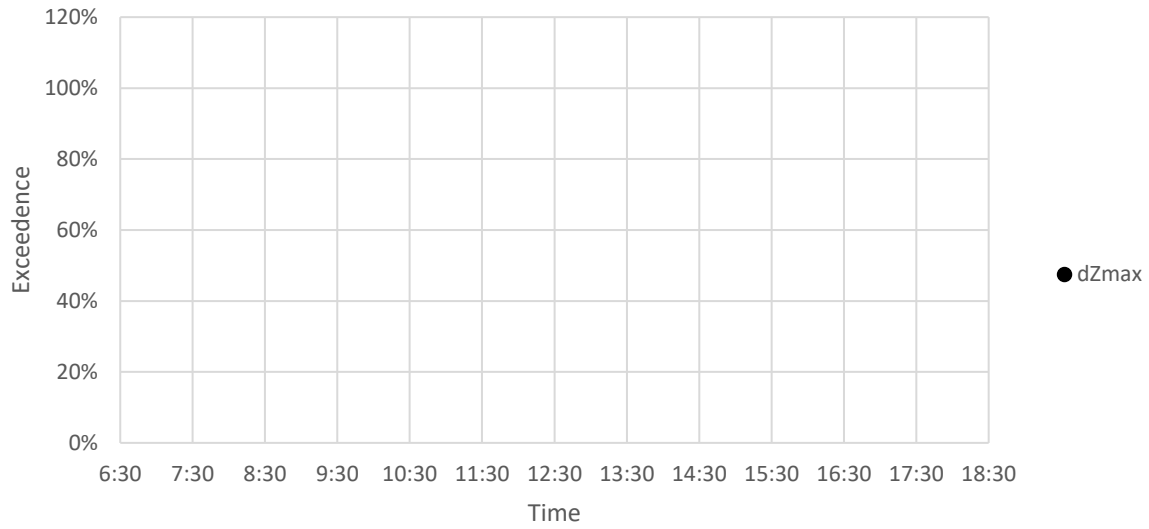


Sideways

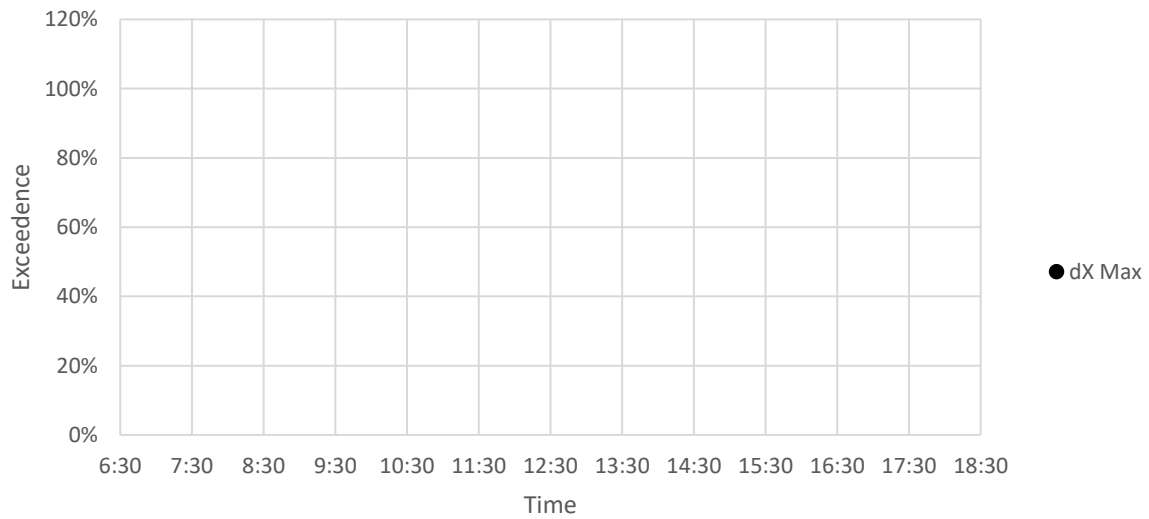




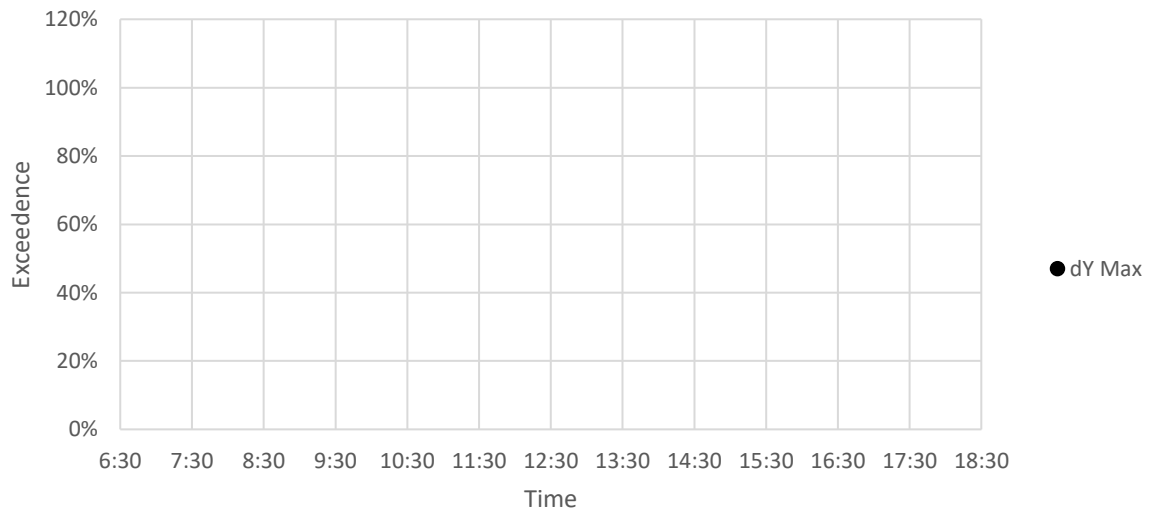
Vertical



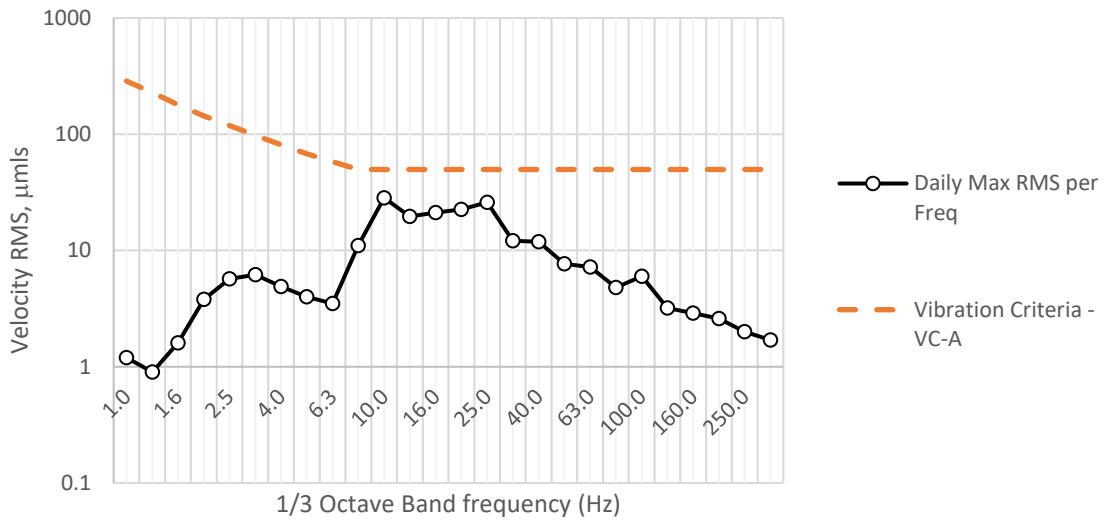
Fwd/Backwards



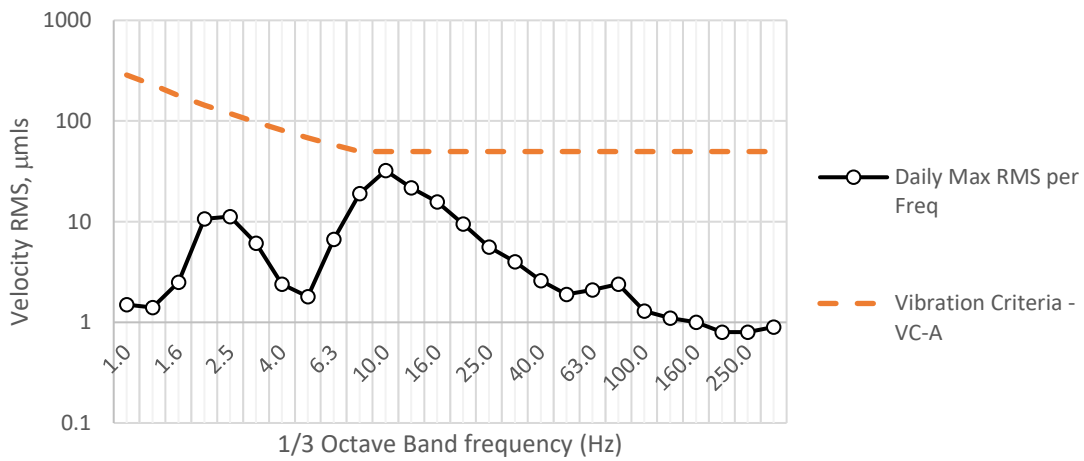
Sideways



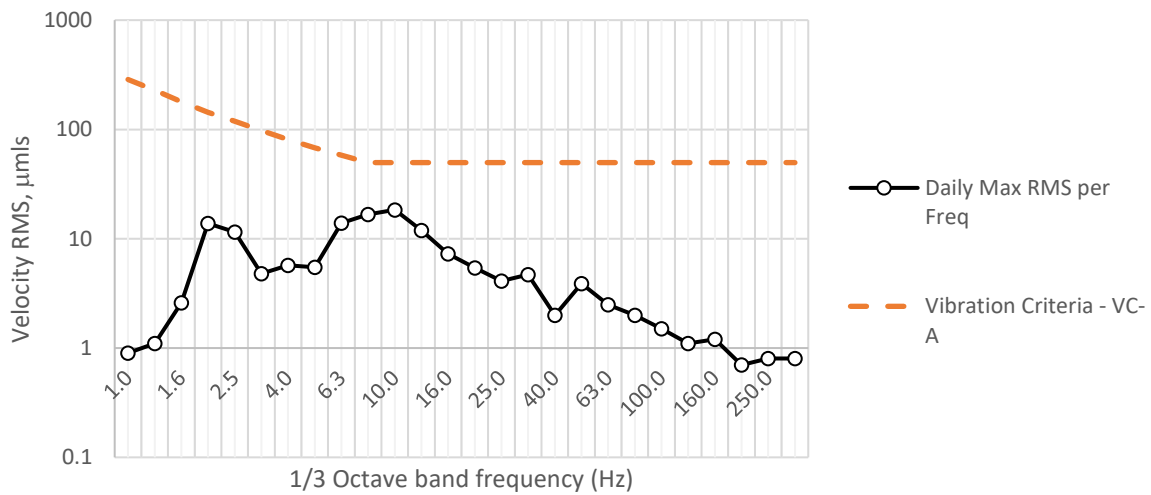
Vertical Vibration



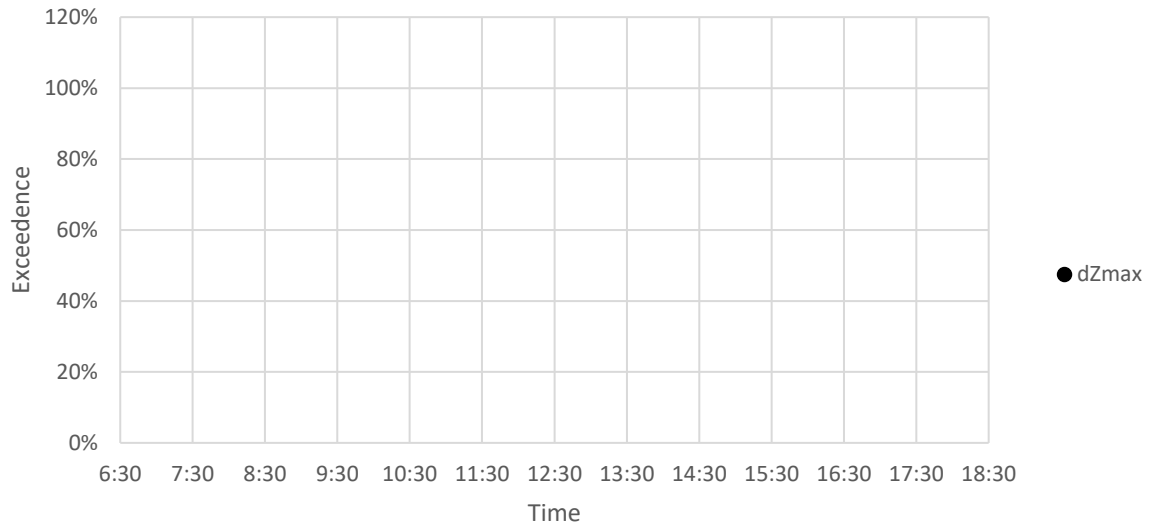
FwdBackwd Vibration



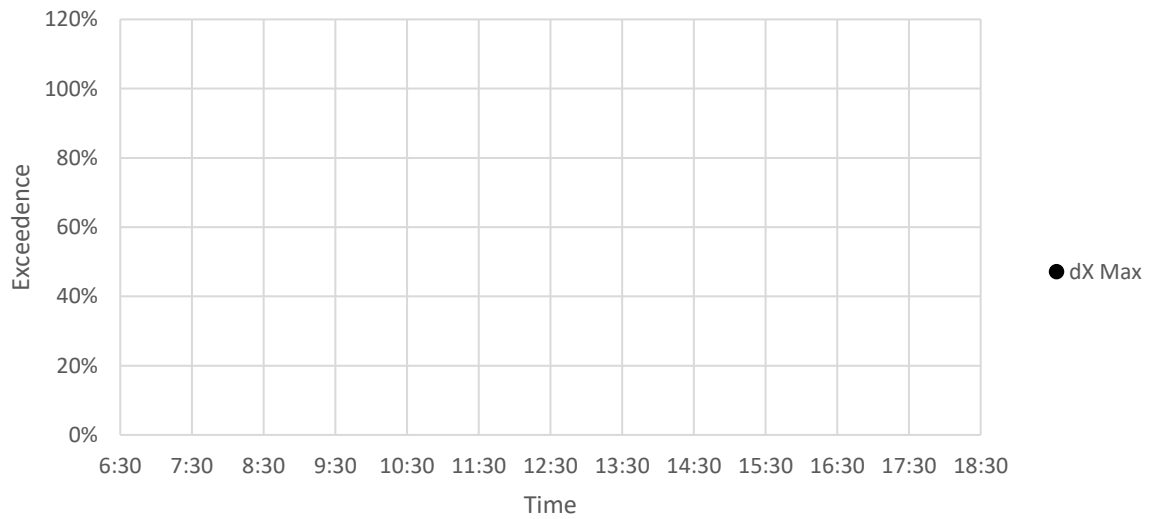
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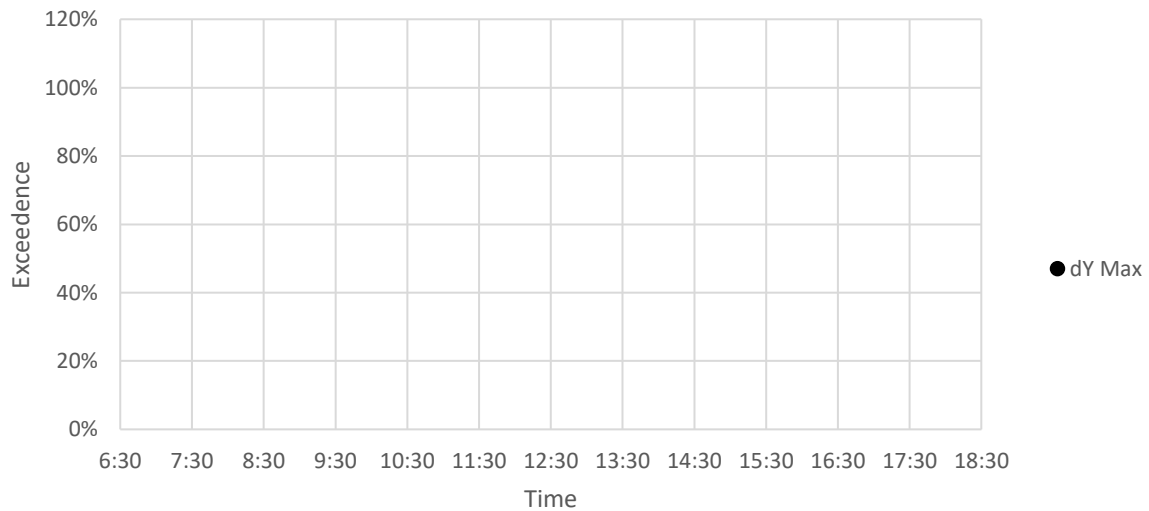
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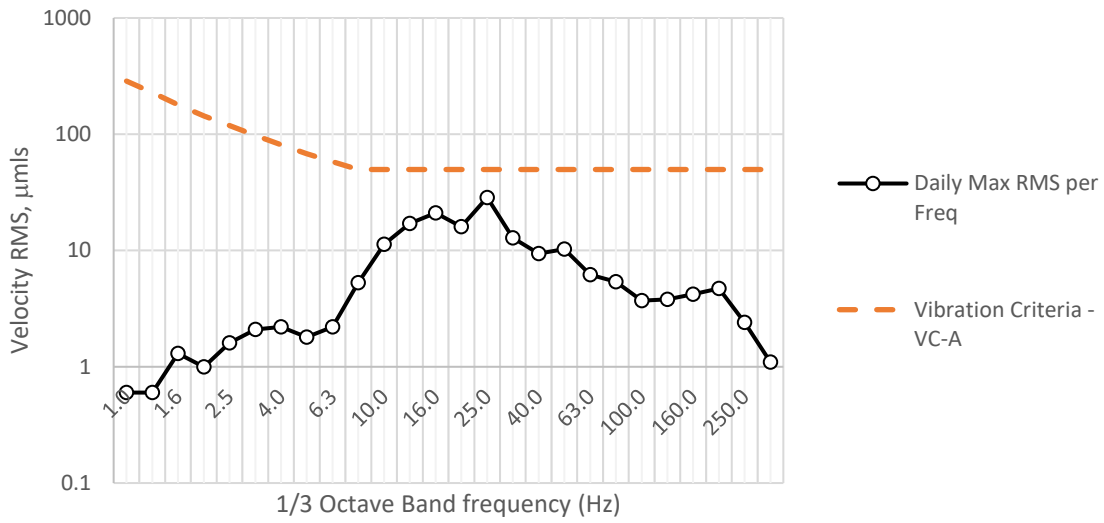
Fwd/Backwards



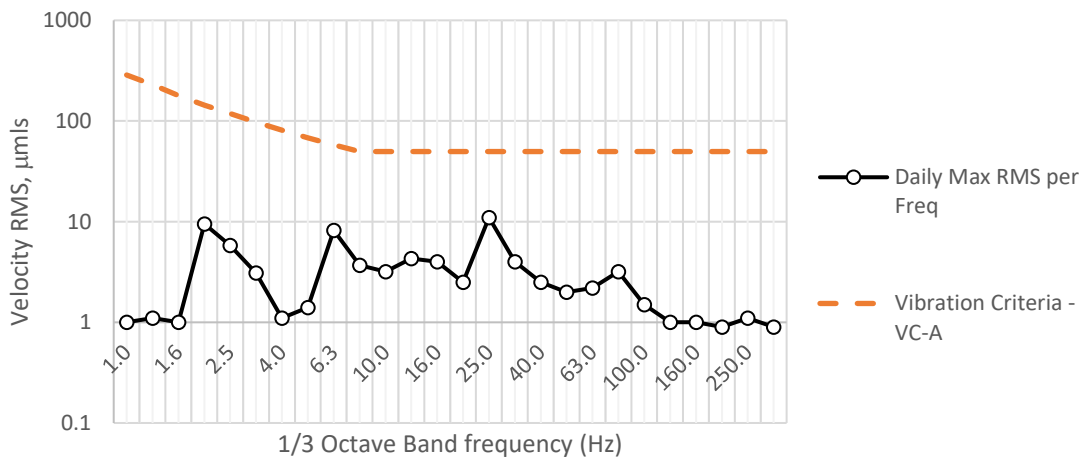
Sideways



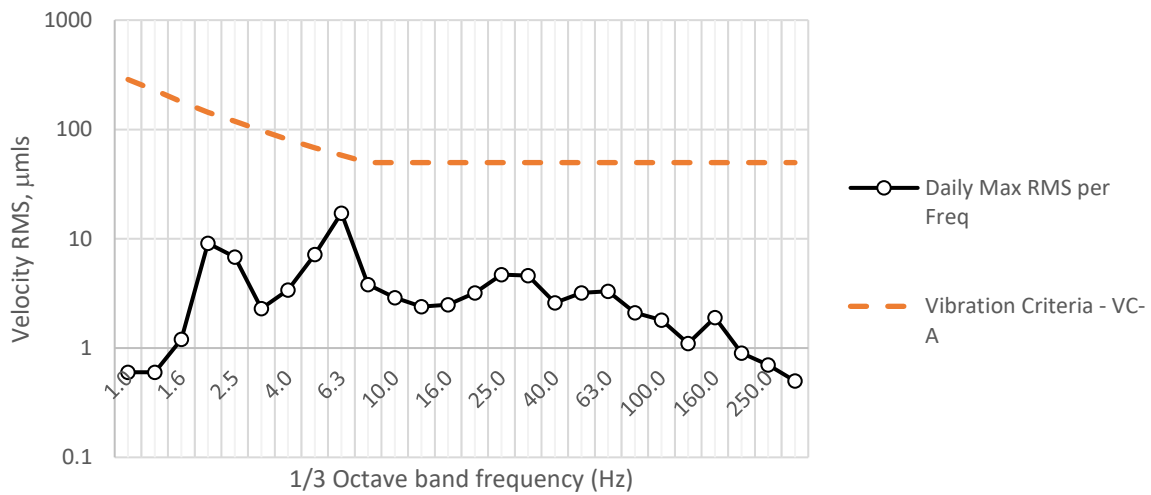
Vertical Vibration



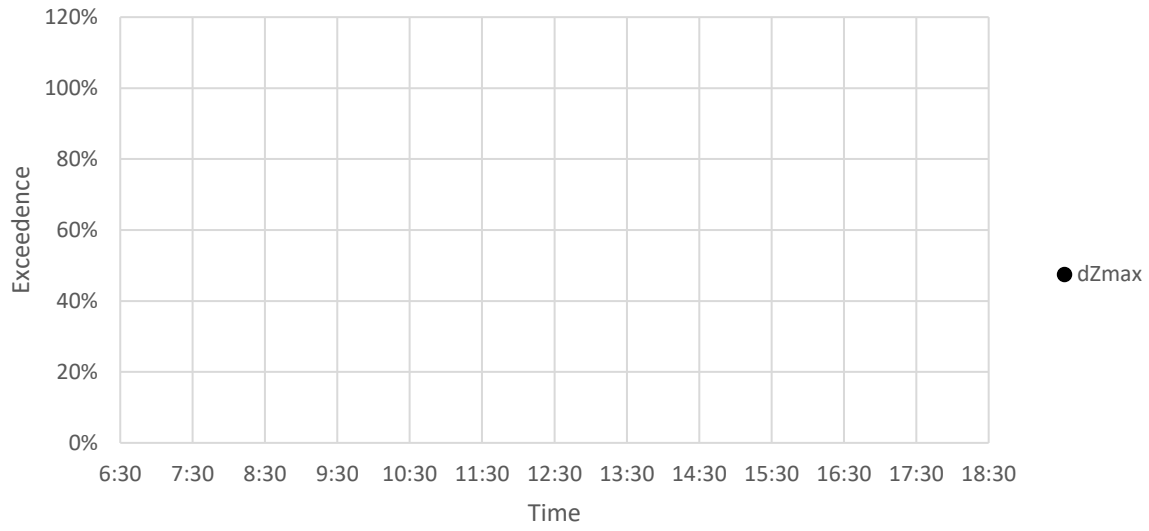
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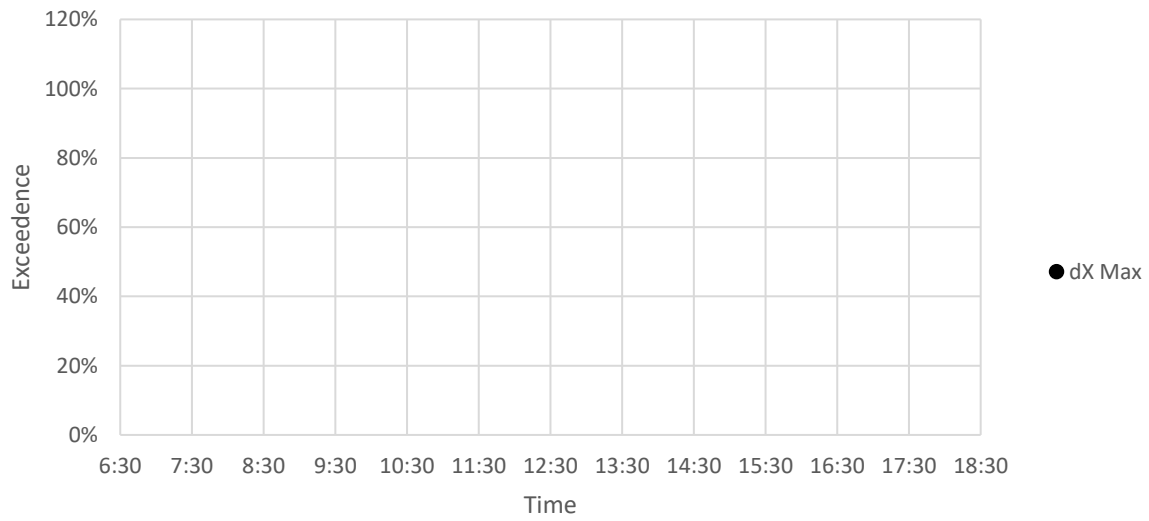
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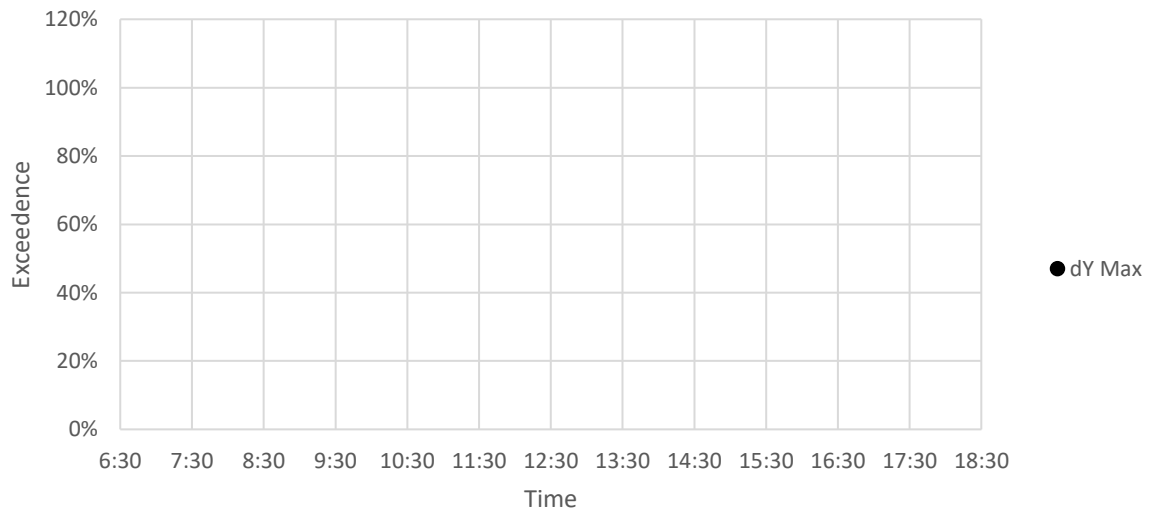
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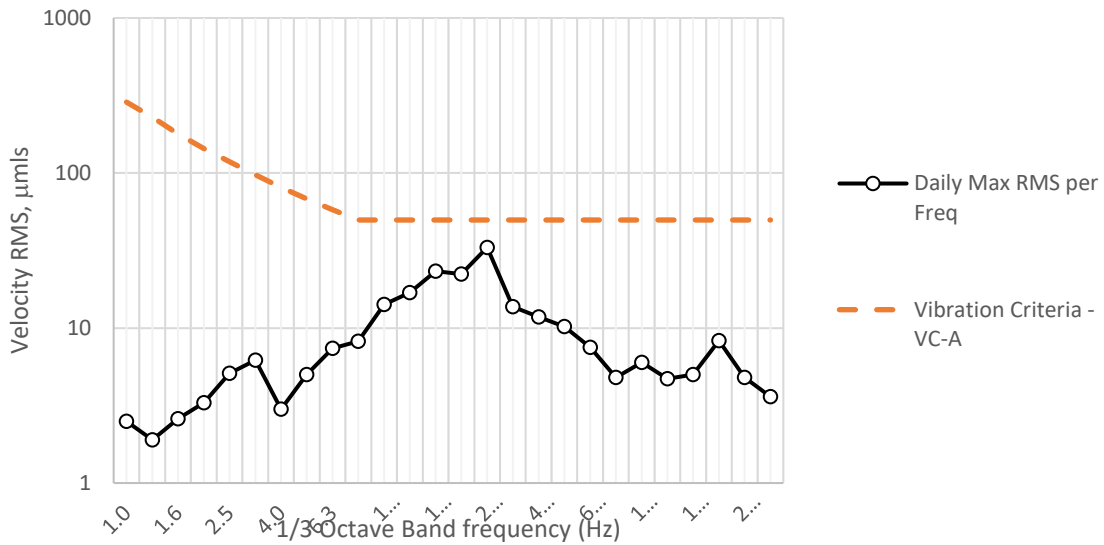
Fwd/Backwards



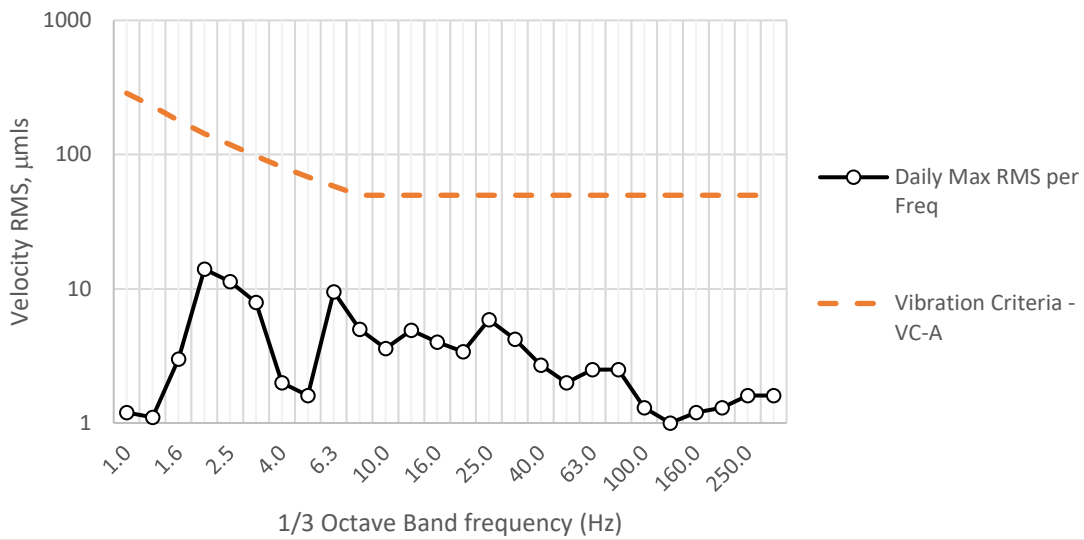
Sideways



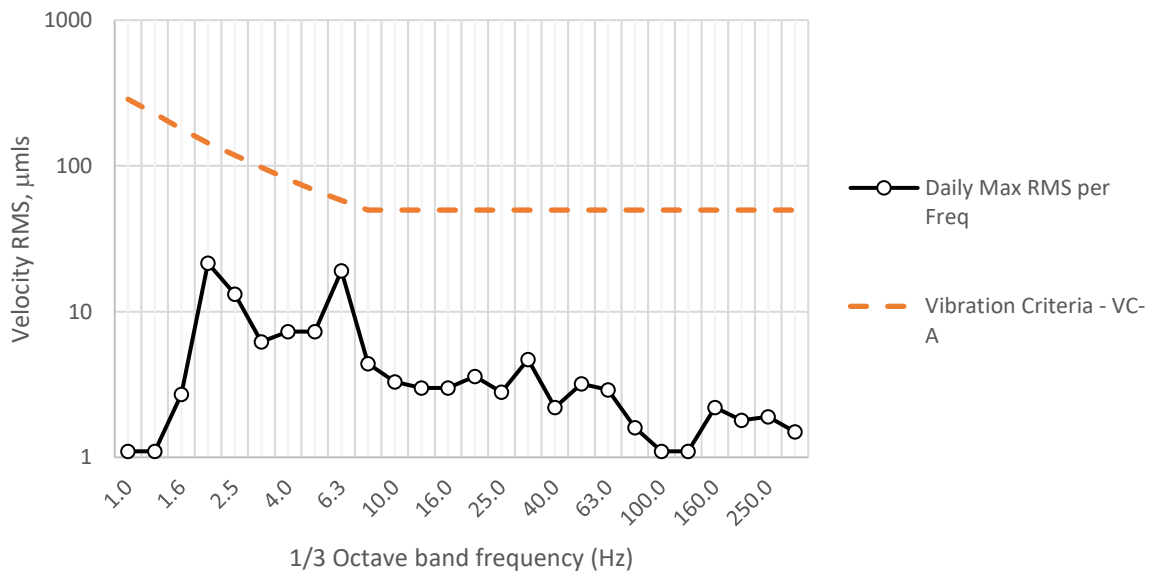
Vertical Vibration



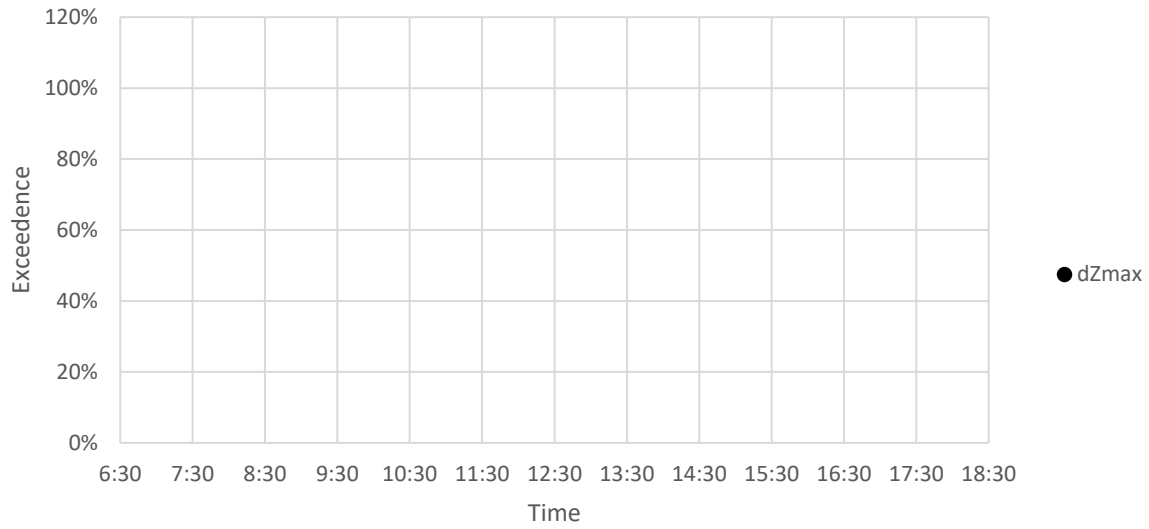
FwdBackwd Vibration



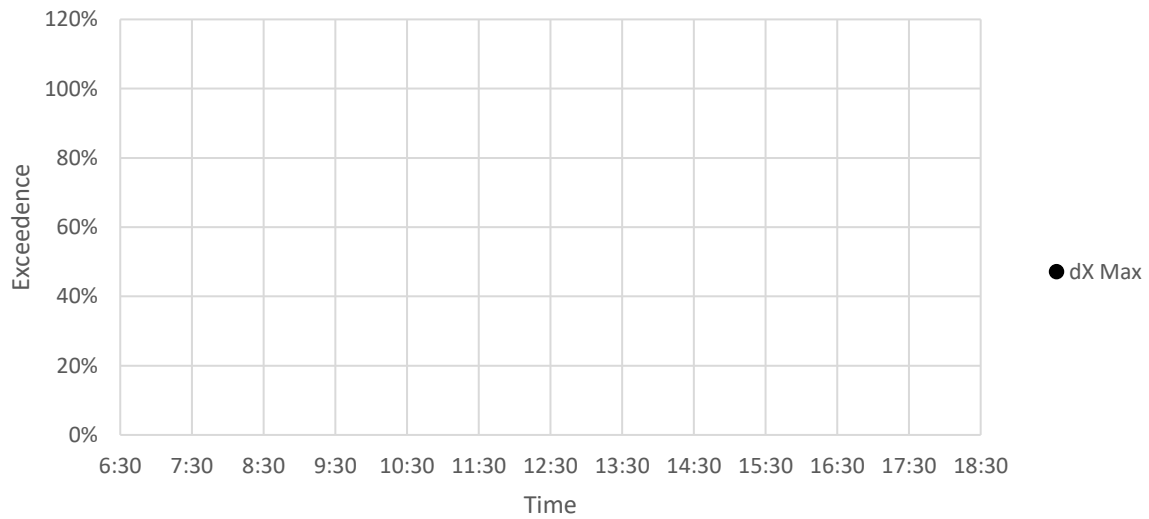
Sideways Vibration



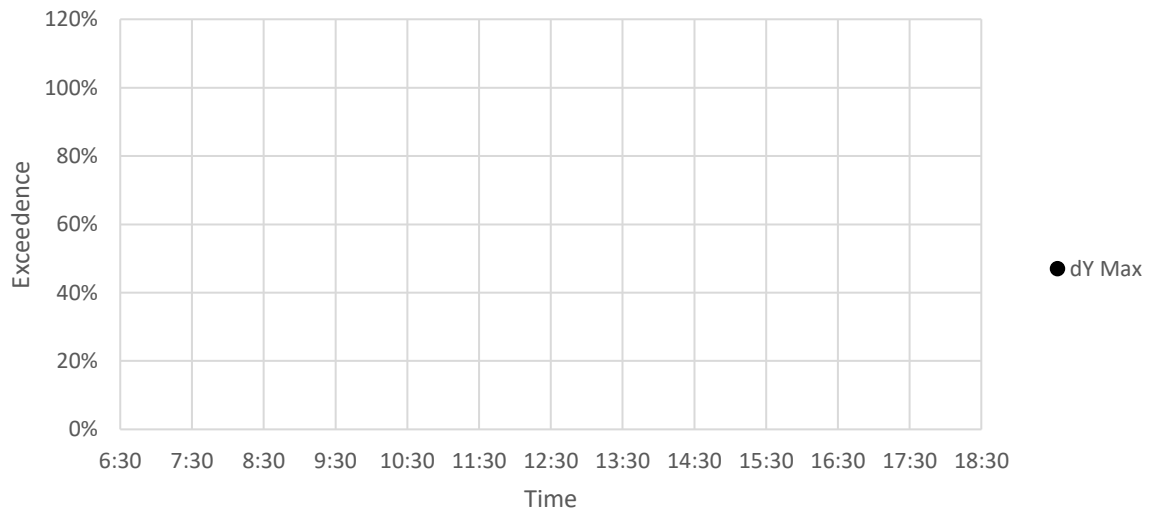
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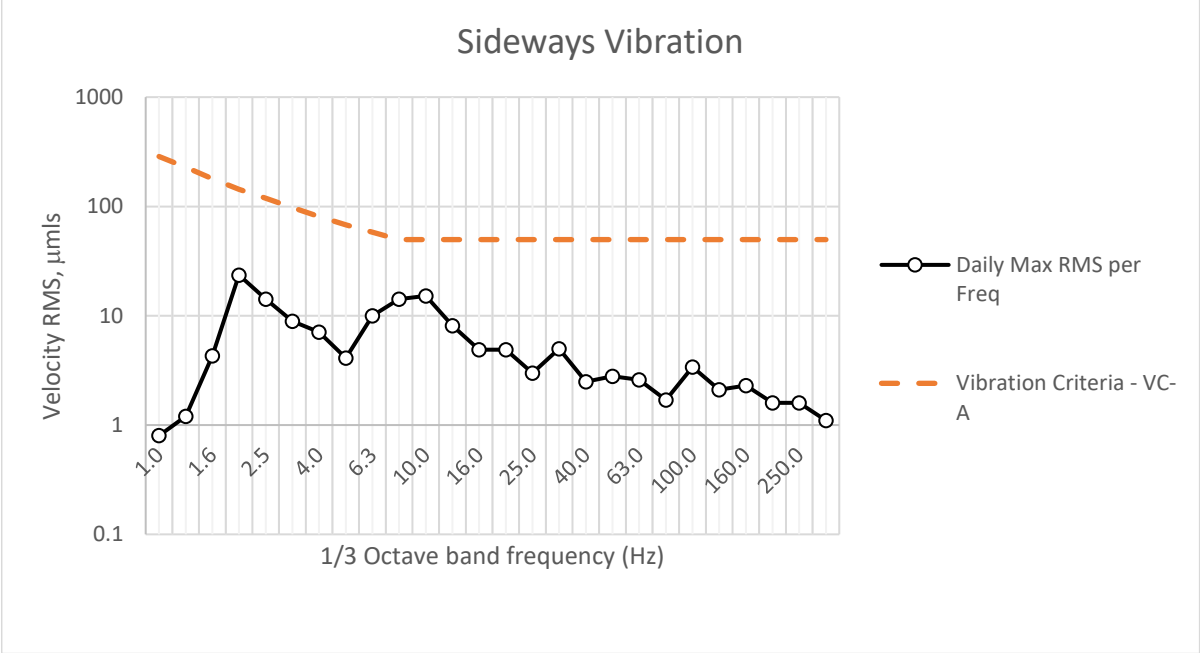
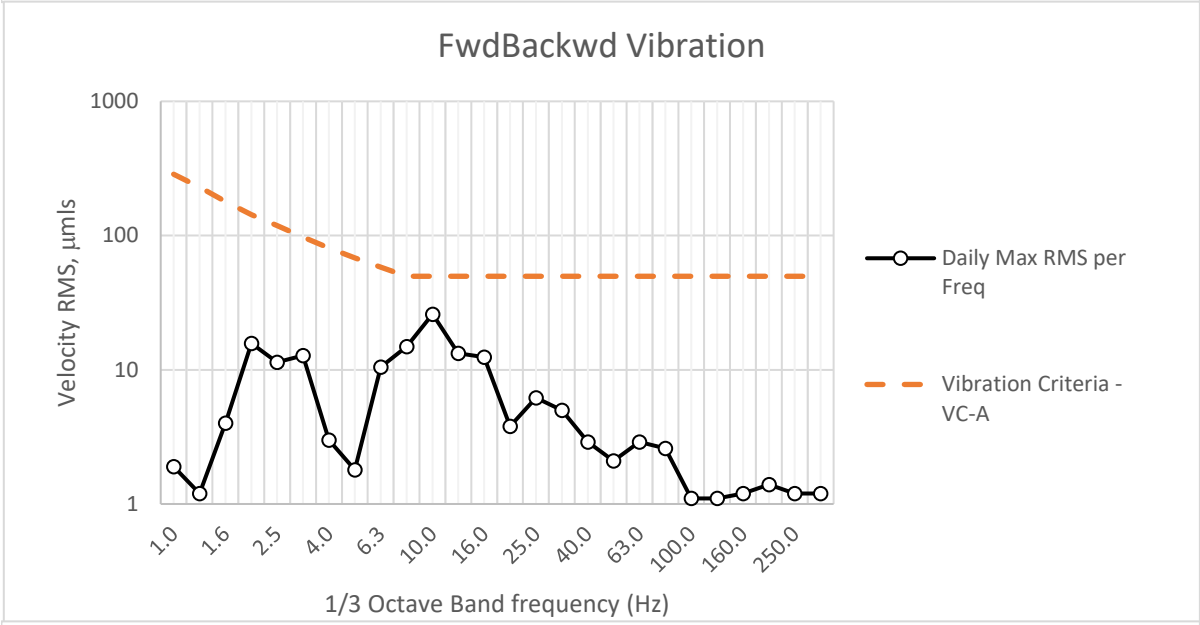
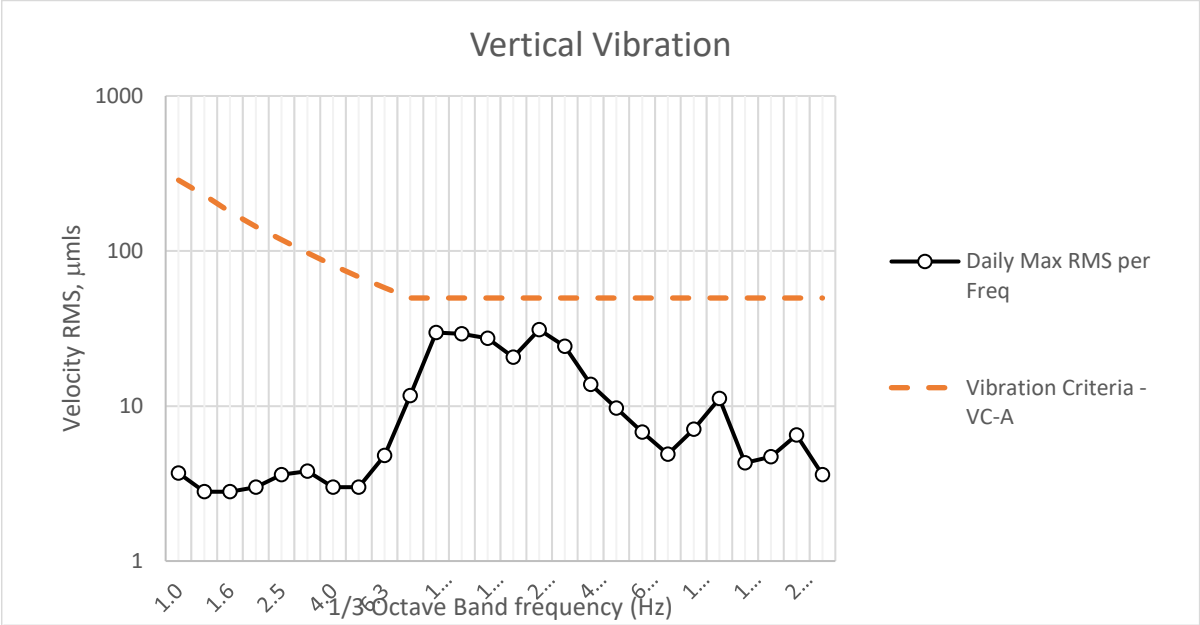


Fwd/Backwards

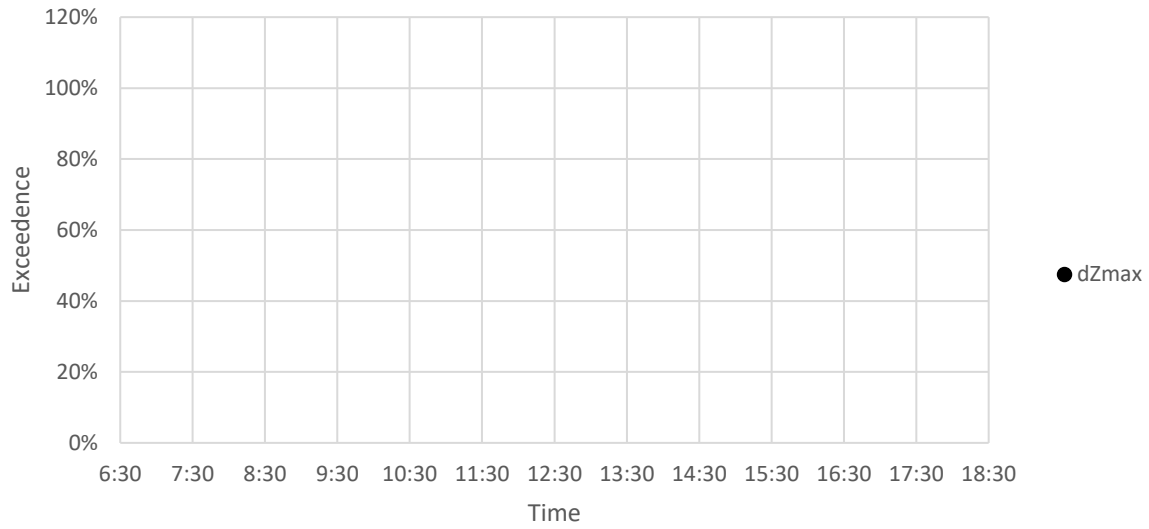


Sideways

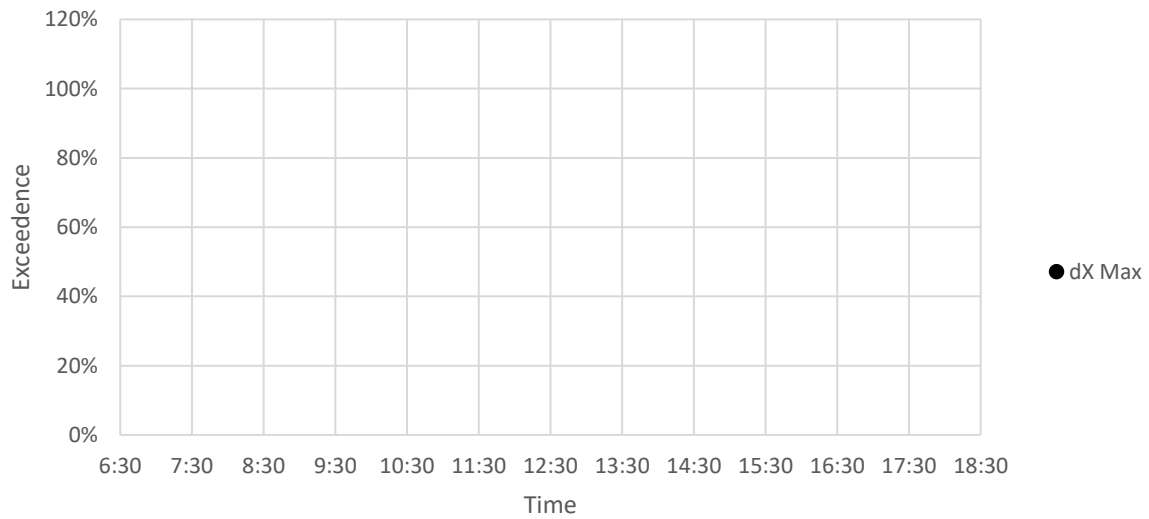




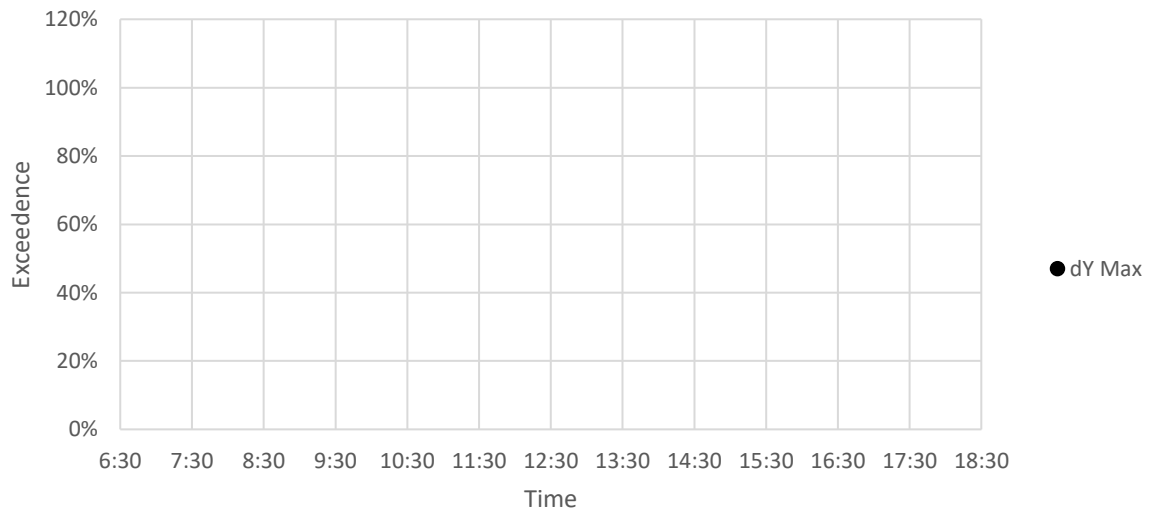
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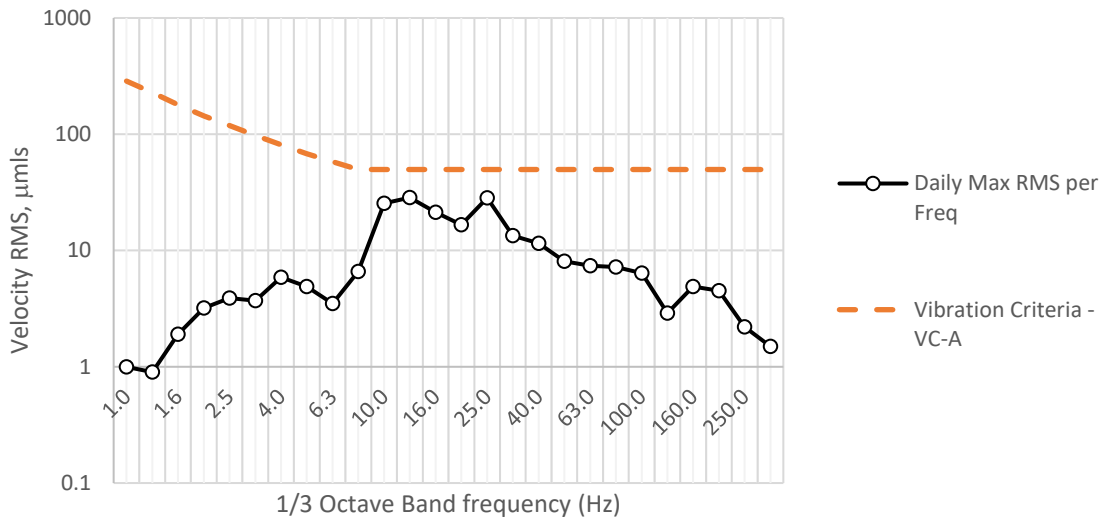
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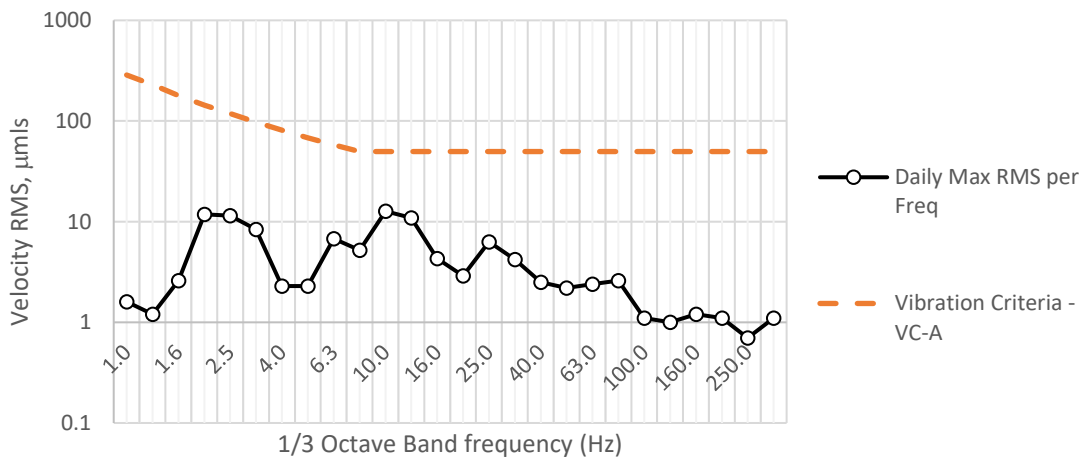
Sideways



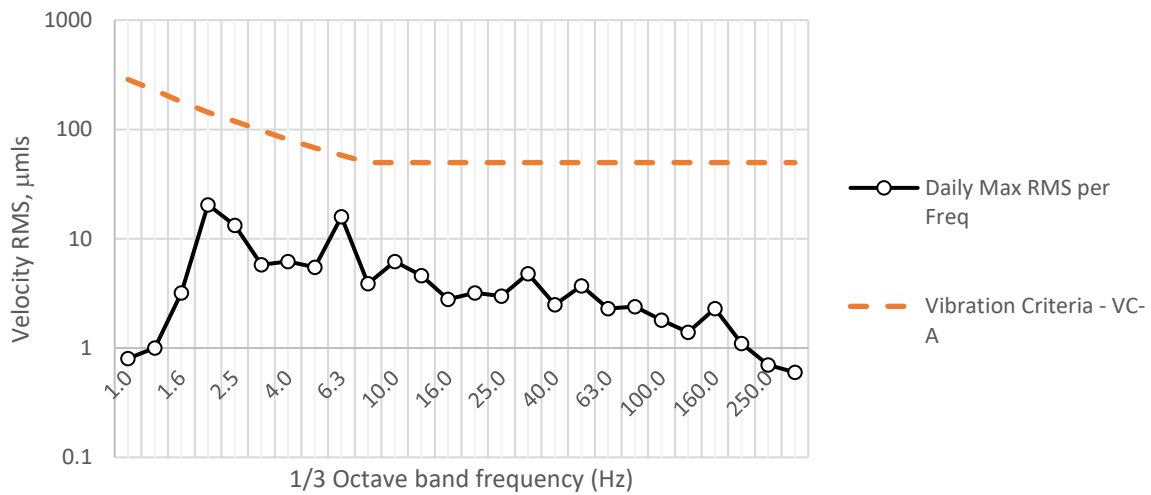
Vertical Vibration



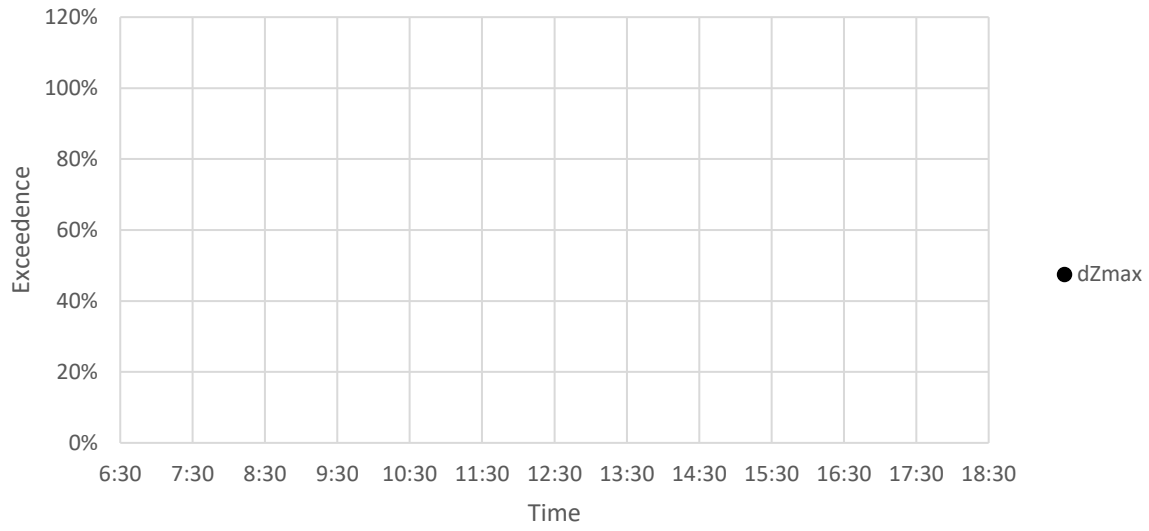
FwdBackwd Vibration



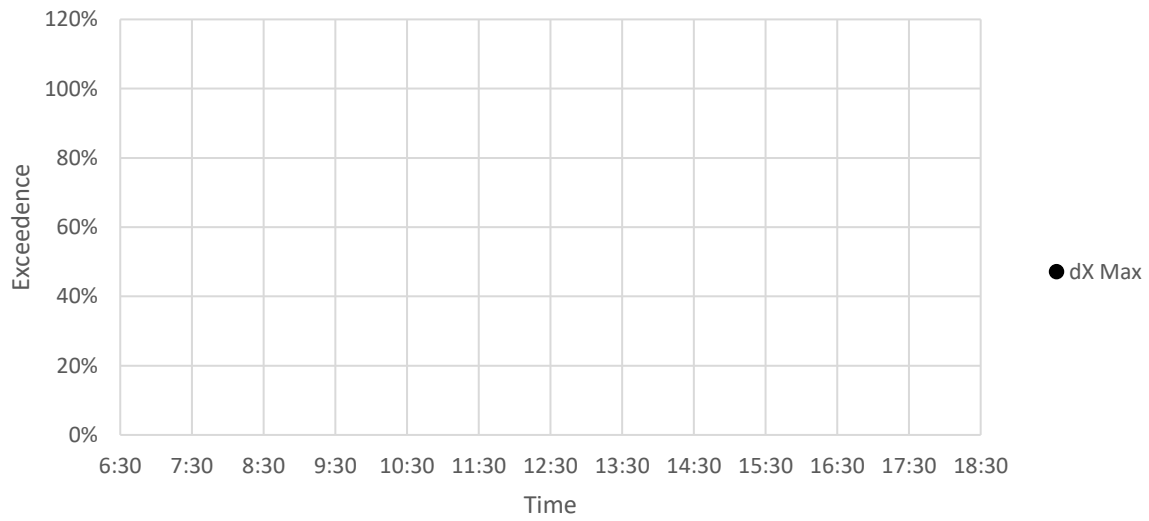
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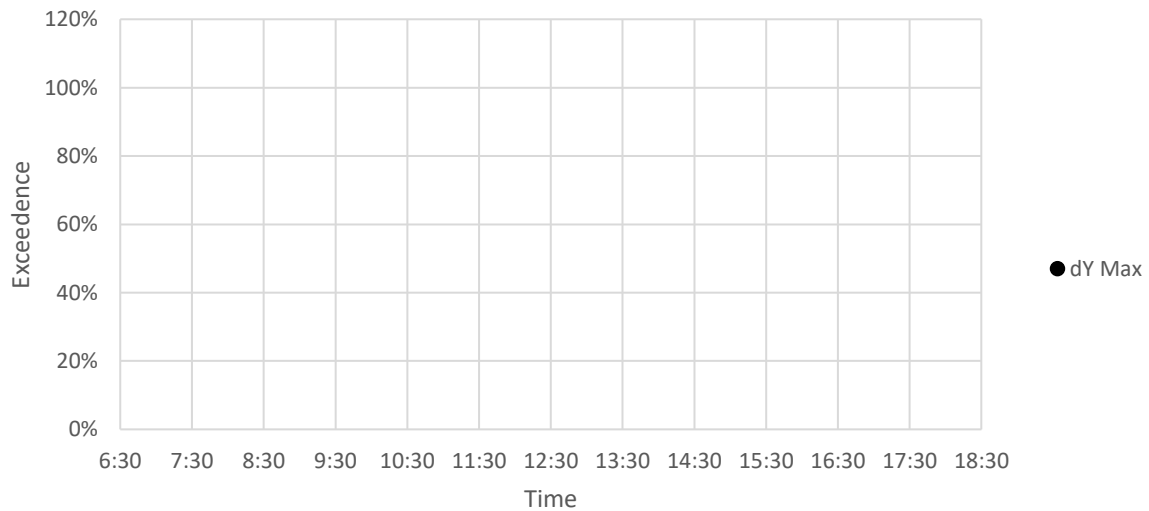
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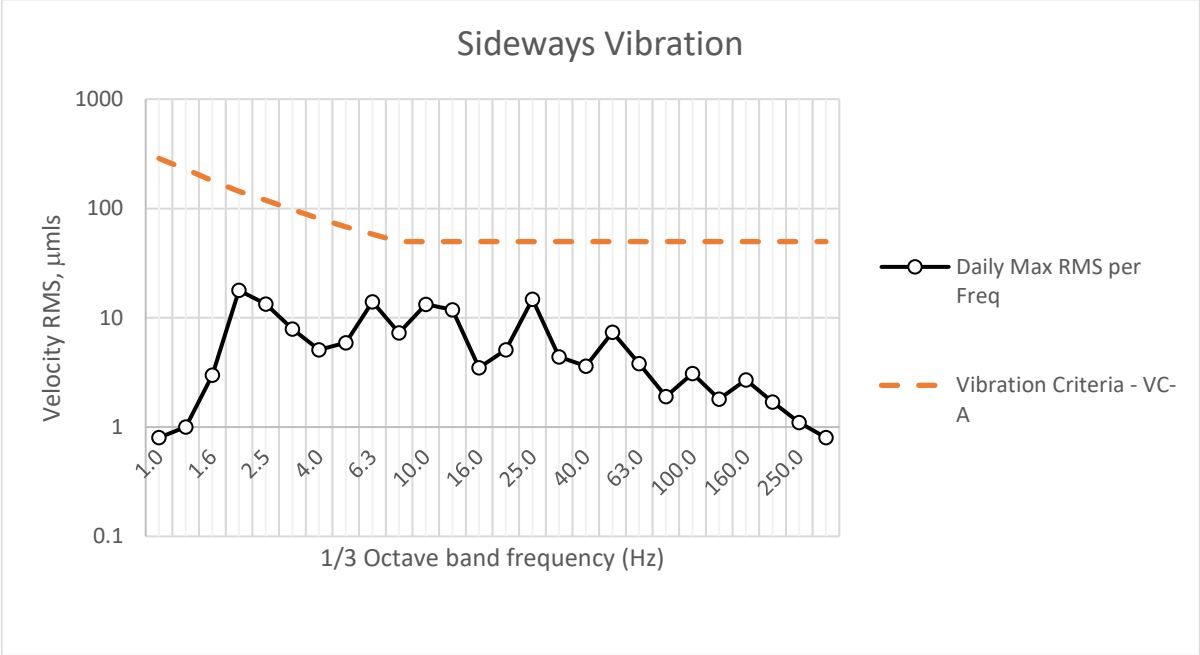
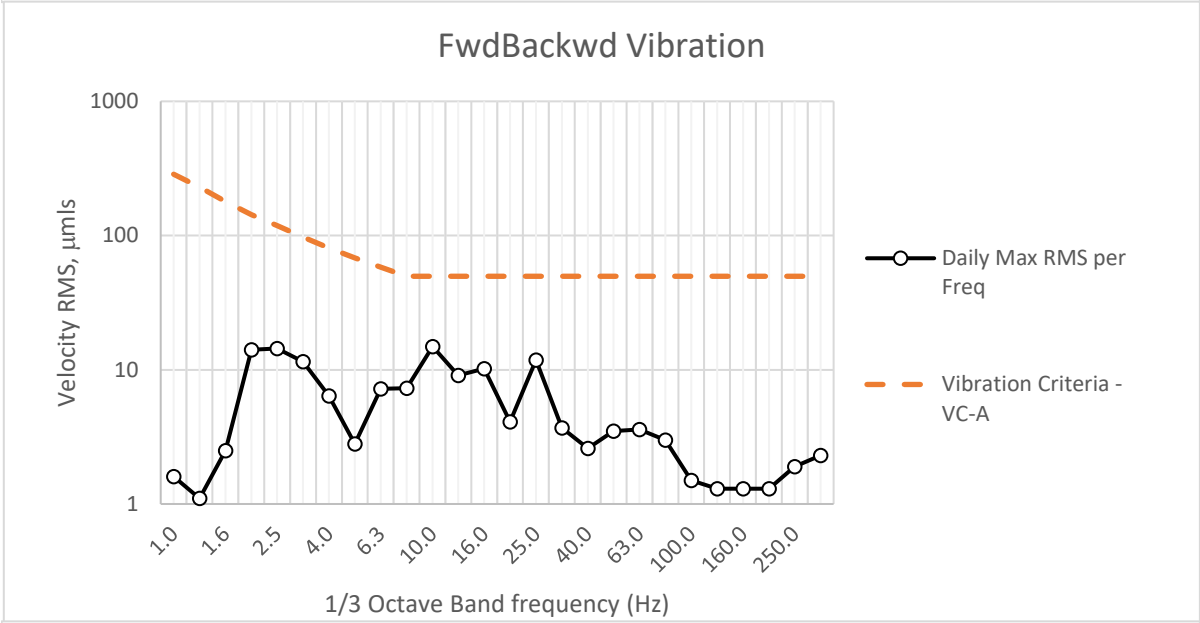
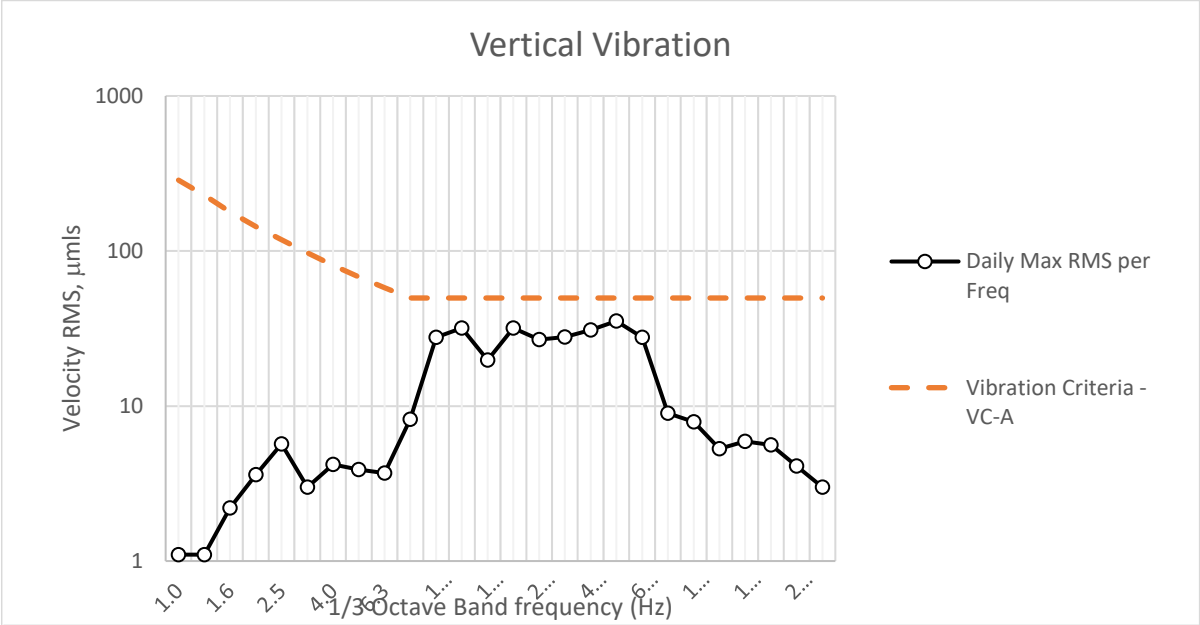


Fwd/Backwards

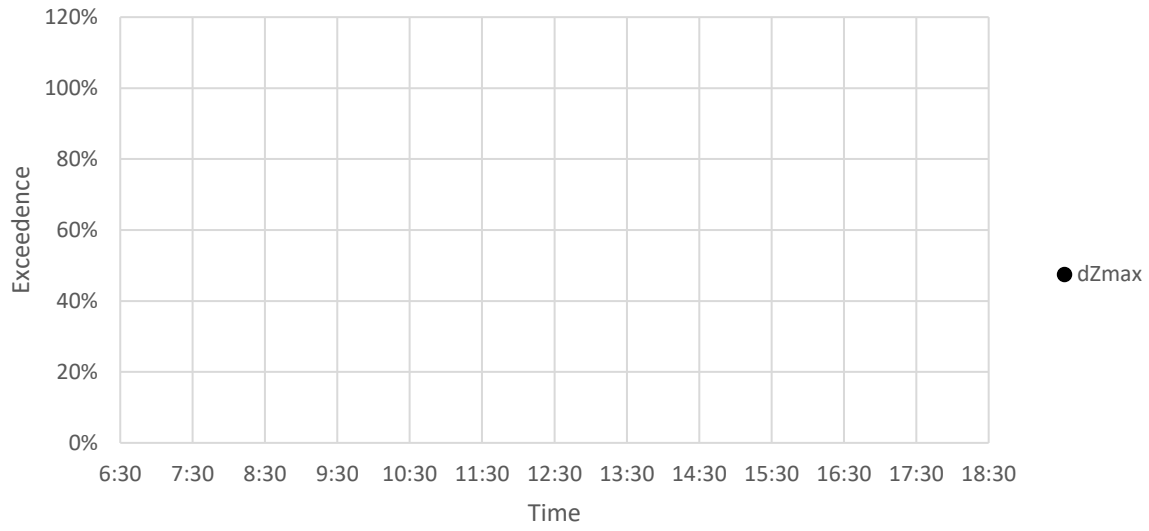


Sideways

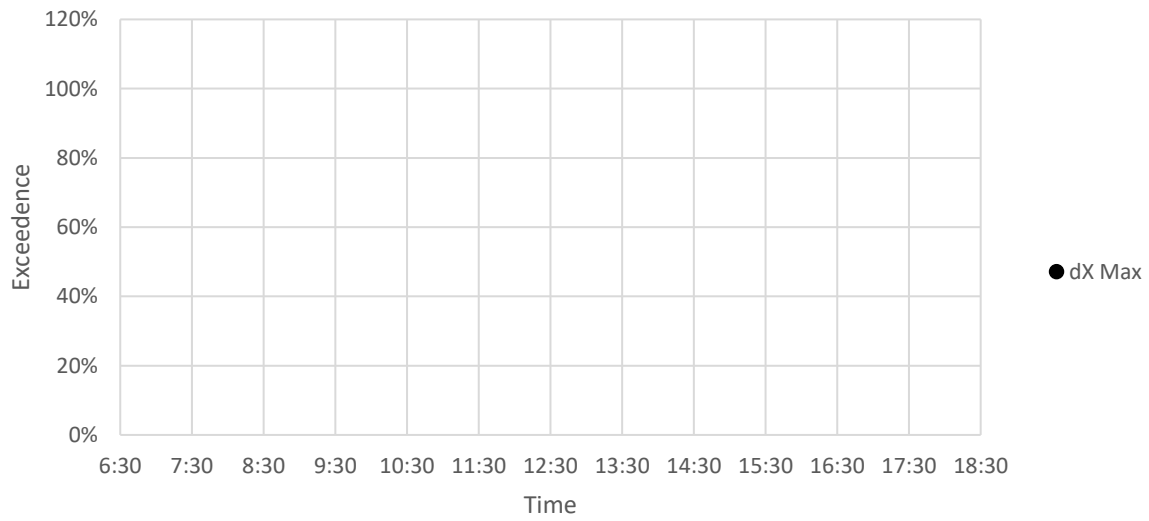




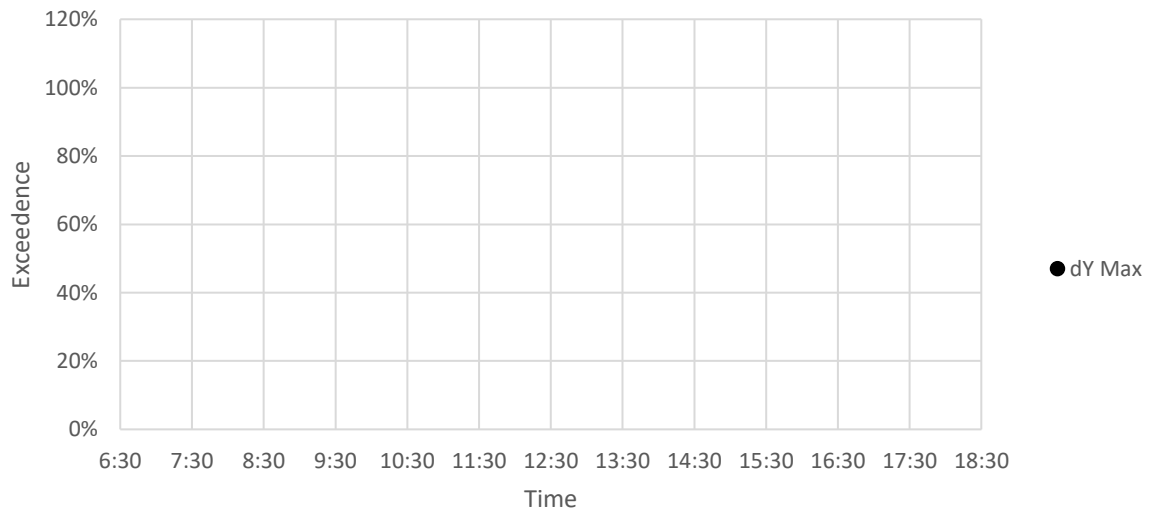
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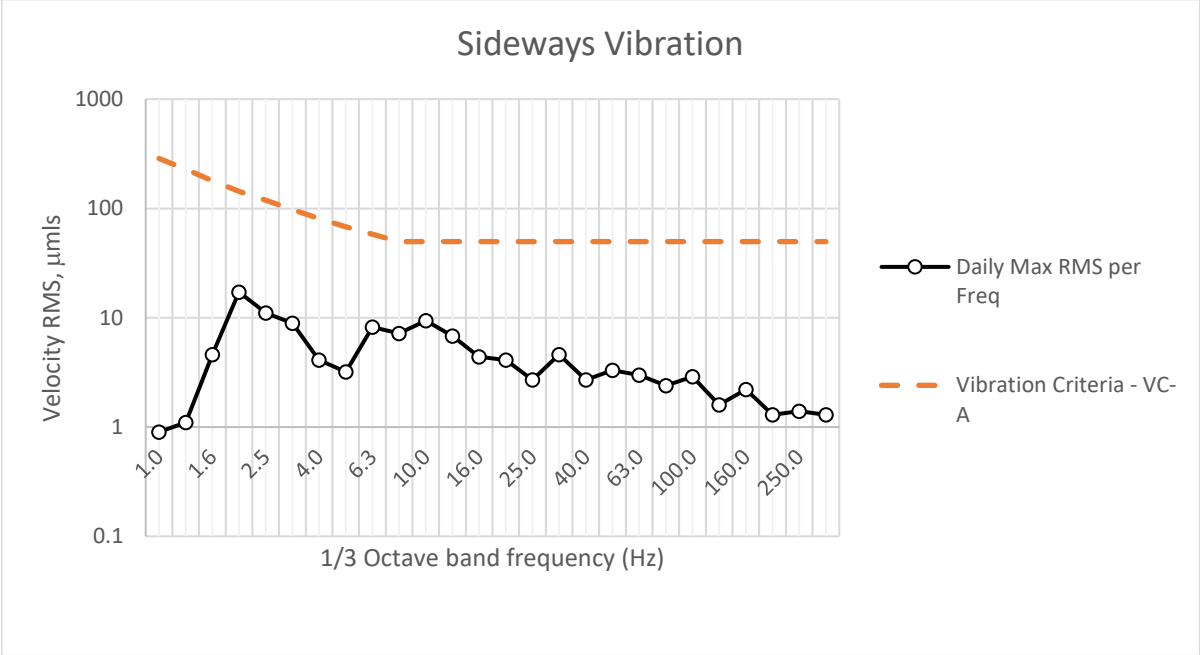
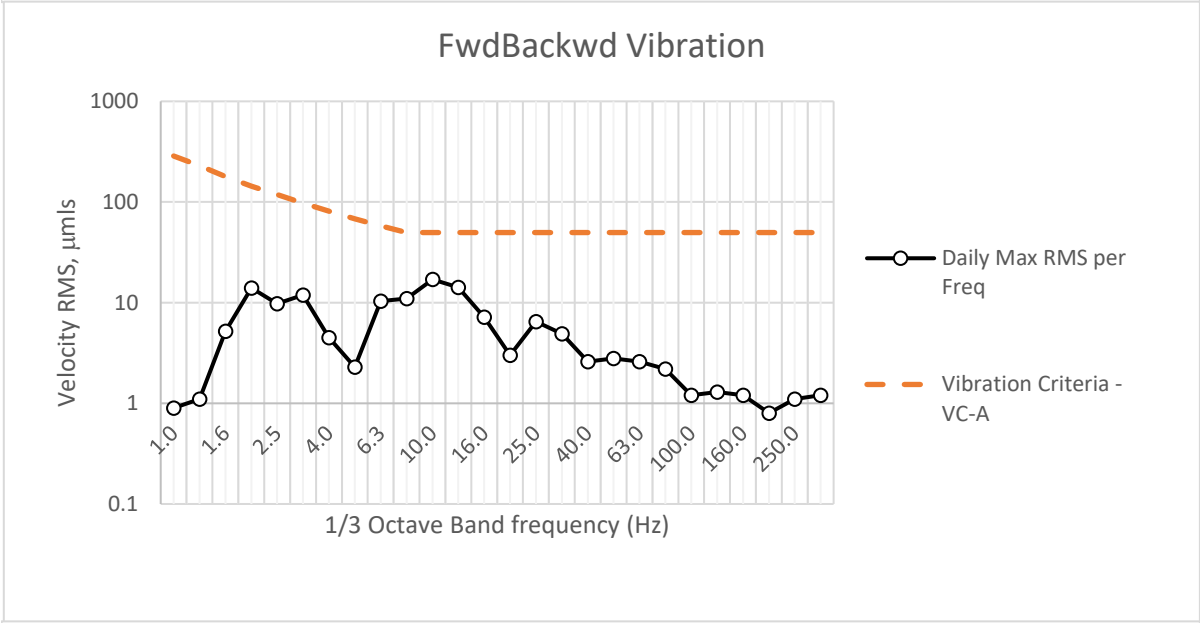
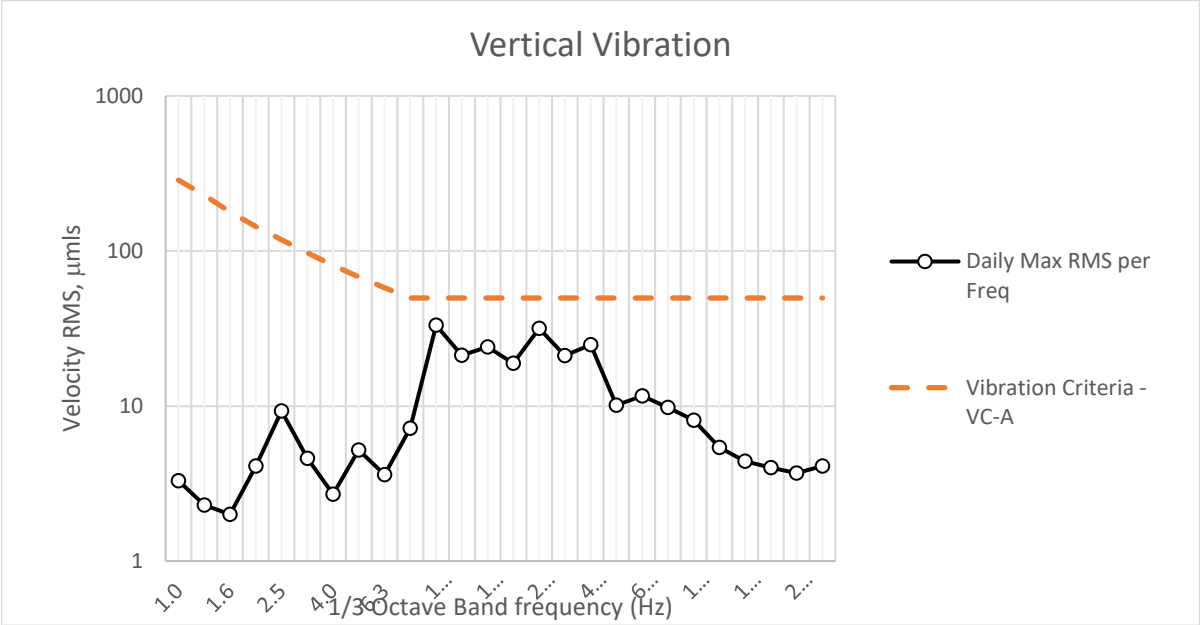


Fwd/Backwards

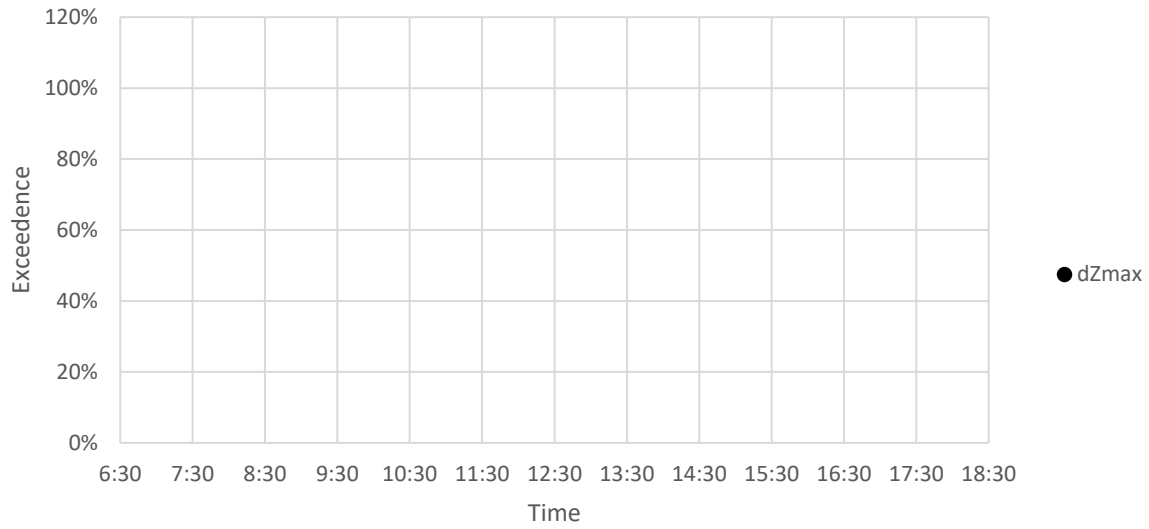


Sideways

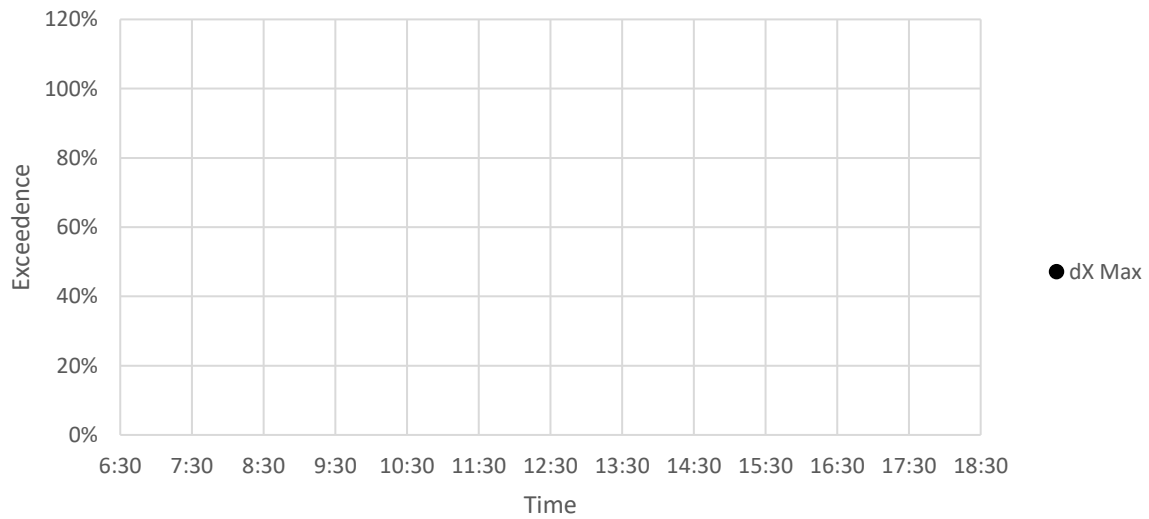




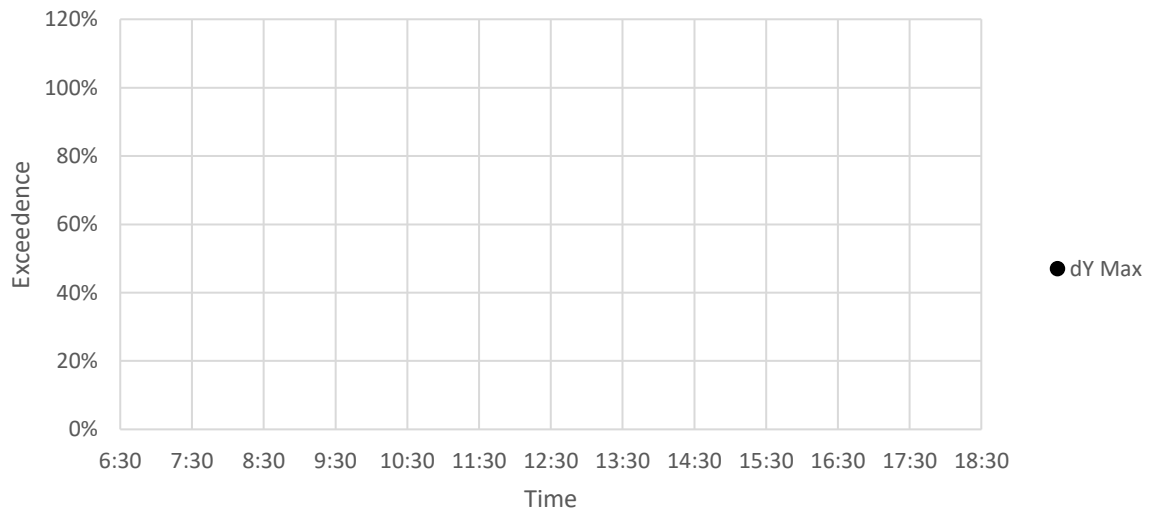
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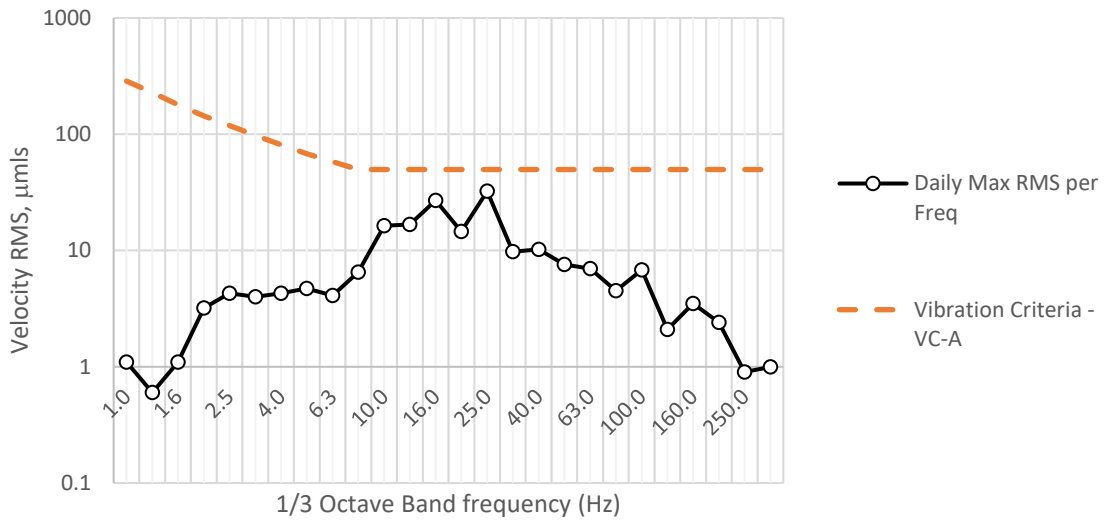
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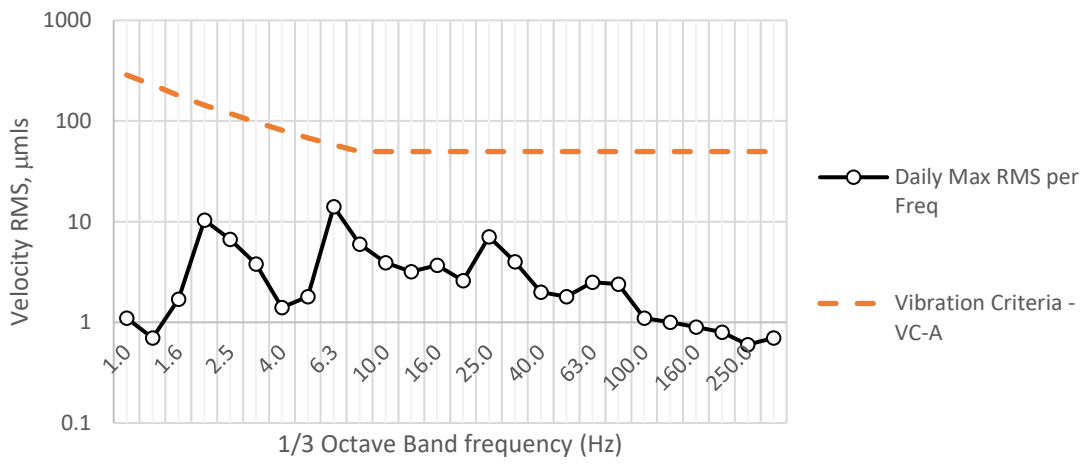
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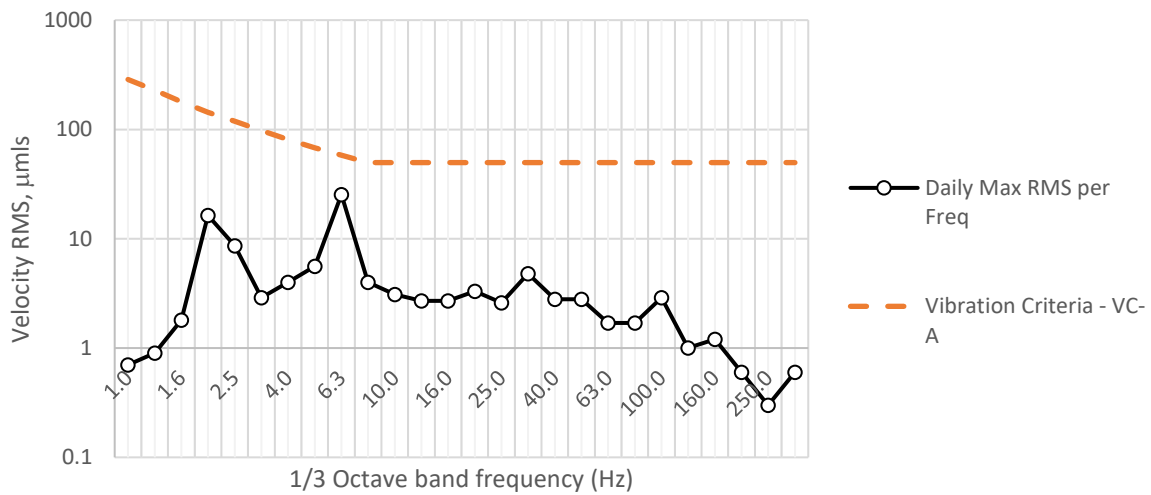
Vertical Vibration



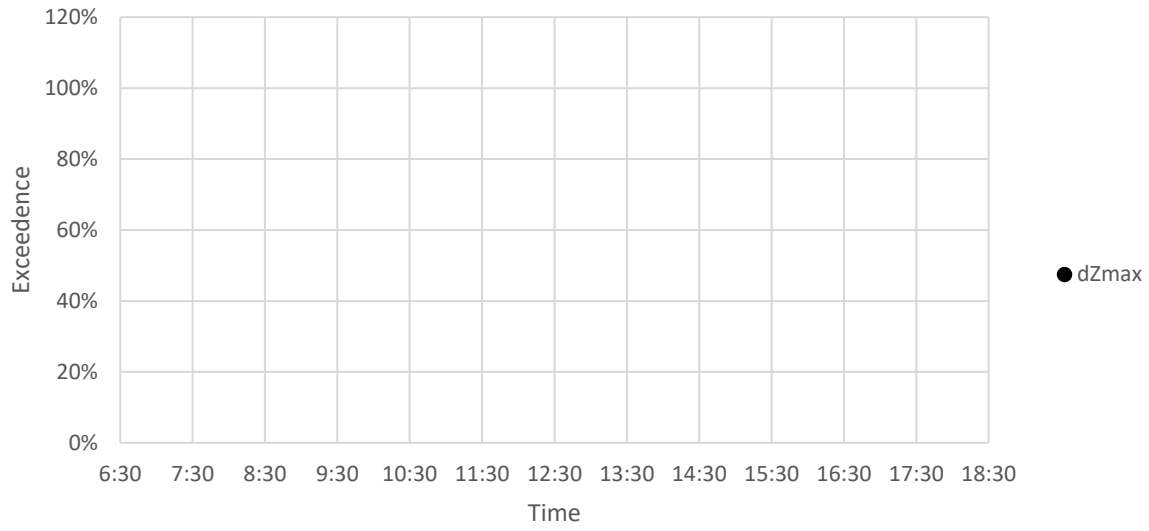
FwdBackwd Vibration



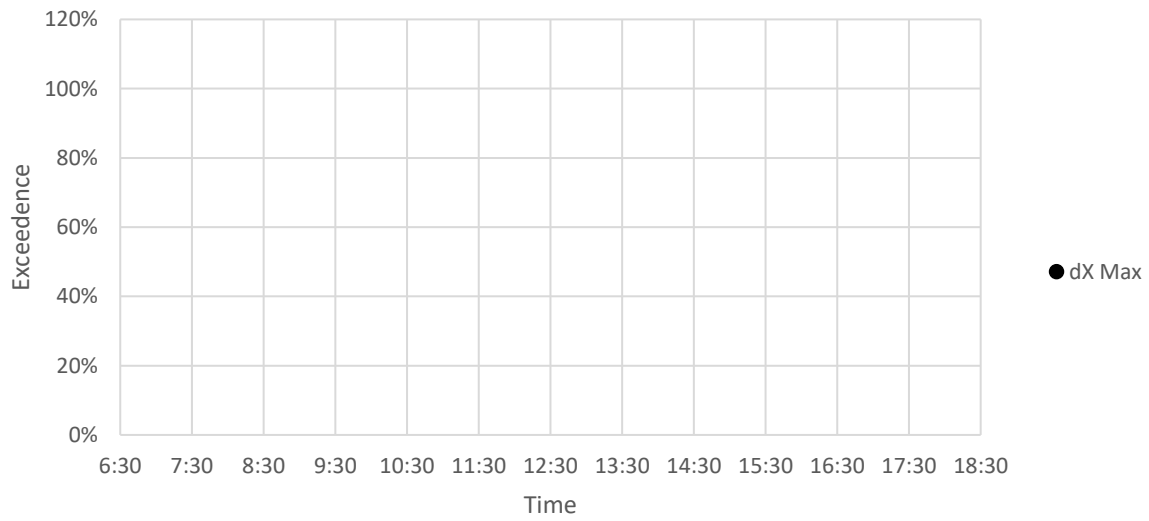
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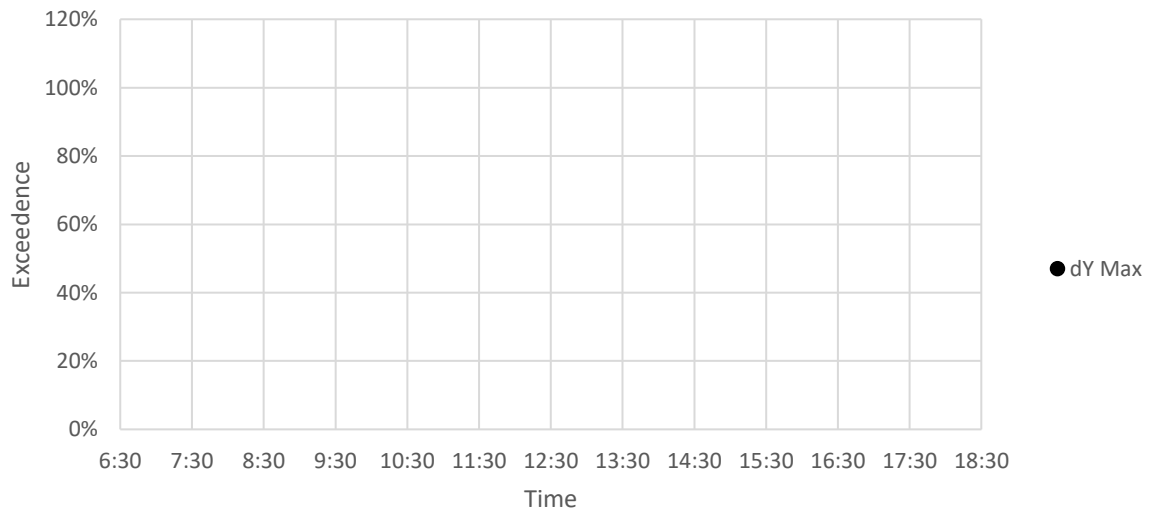
Vertical



Fwd/Backwards

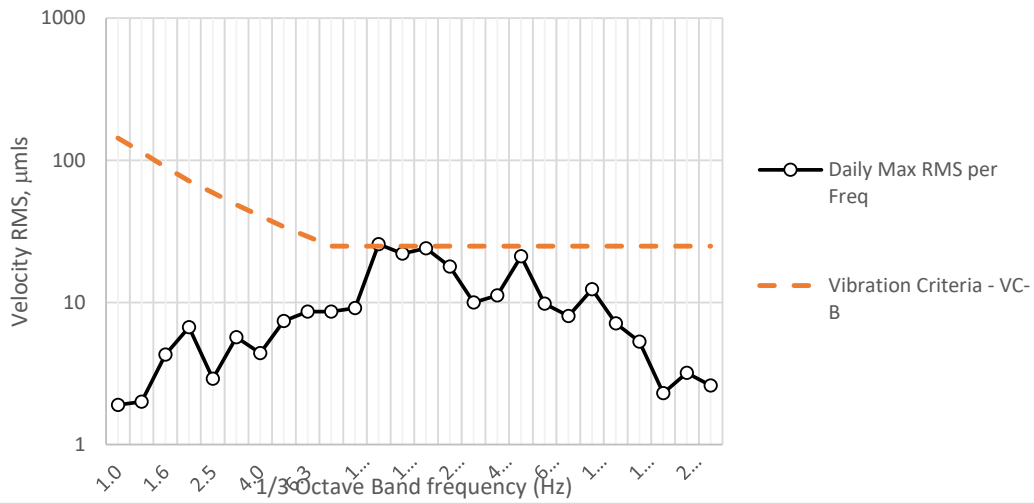


Sideways

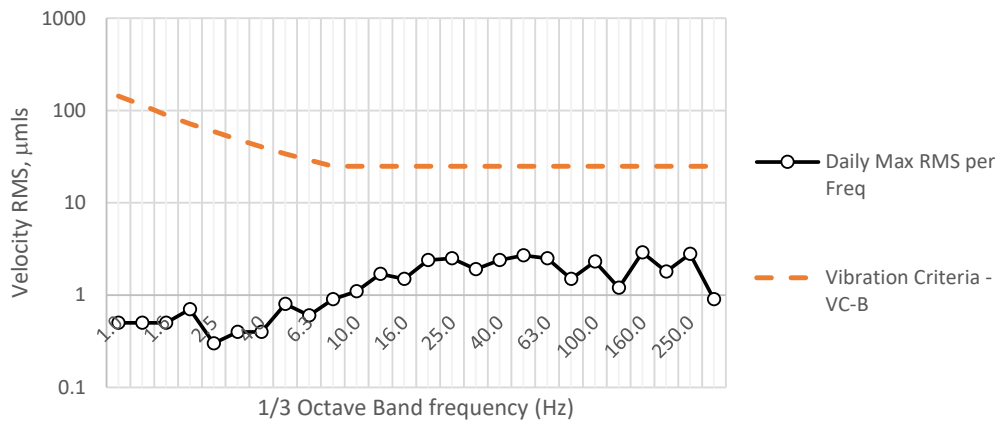


CENTENARY INSTITUTE – LEVEL 4 BATHROOM (NORTHERN FAÇADE)

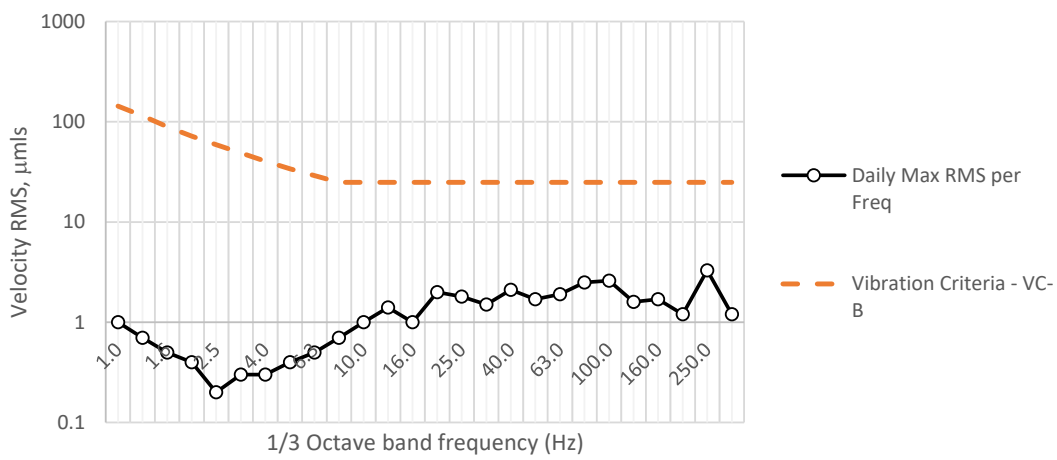
Vertical Vibration



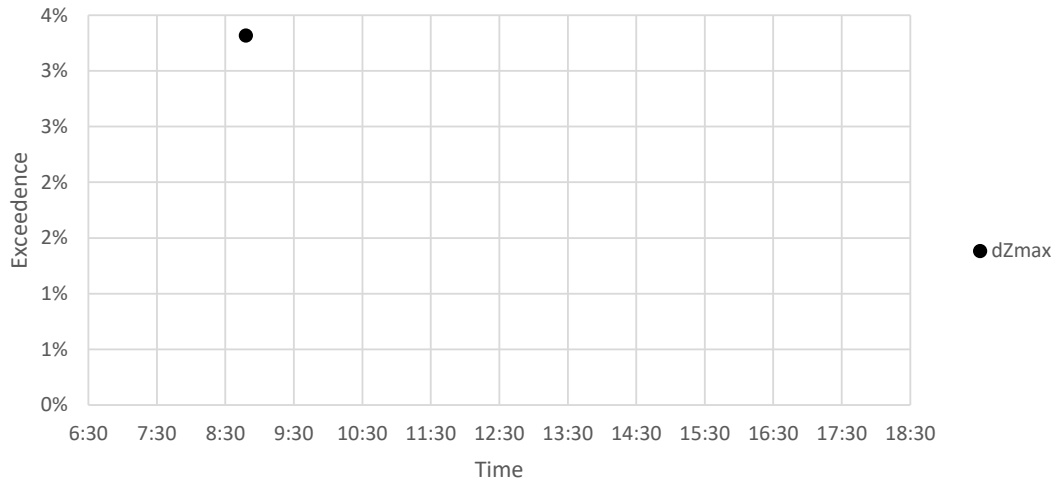
FwdBackwd Vibration



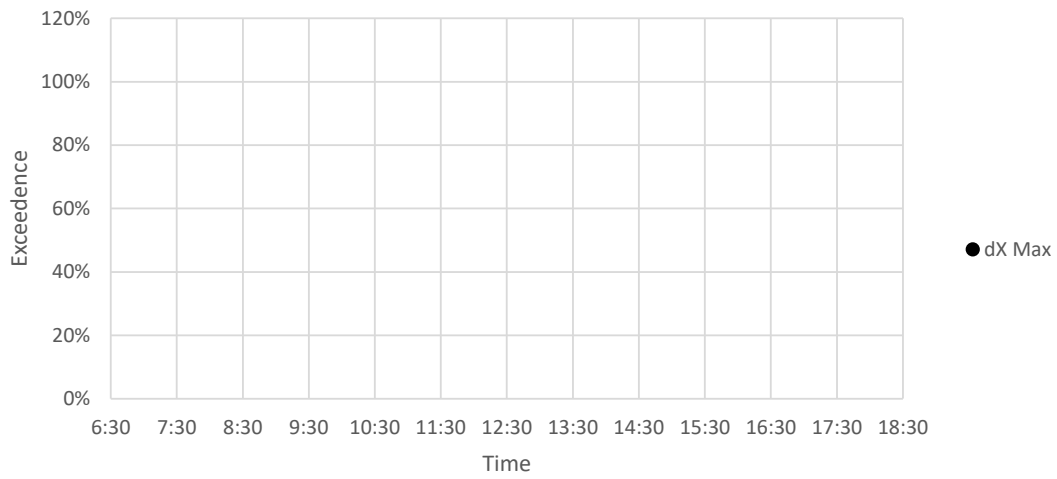
Sideways Vibration



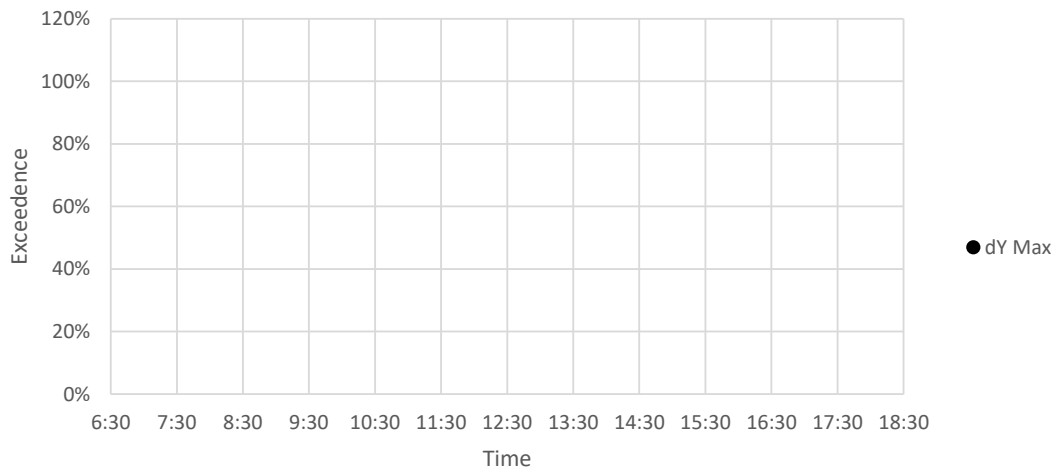
Vertical



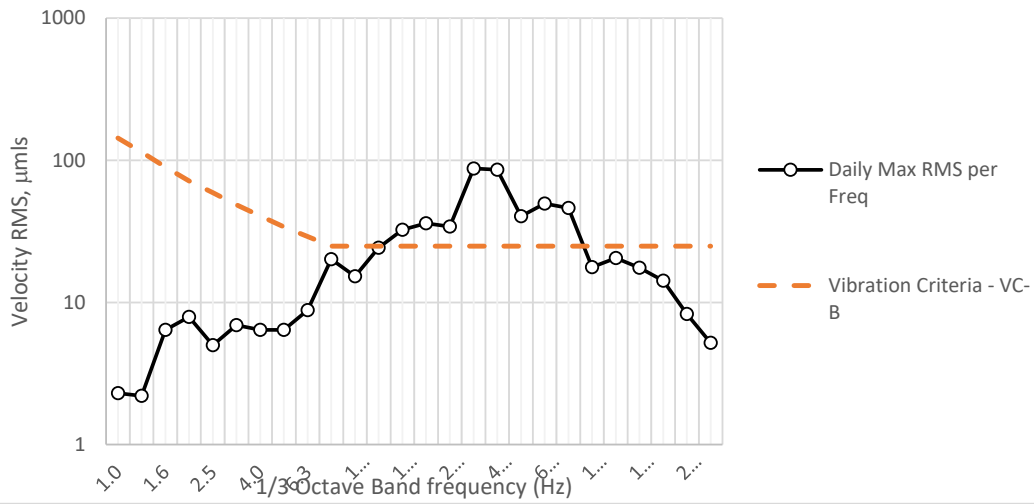
Fwd/Backwards



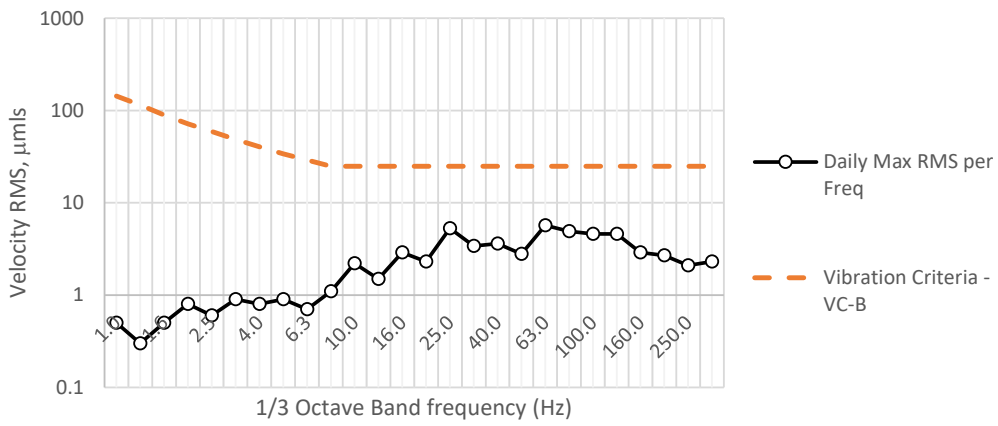
Sideways



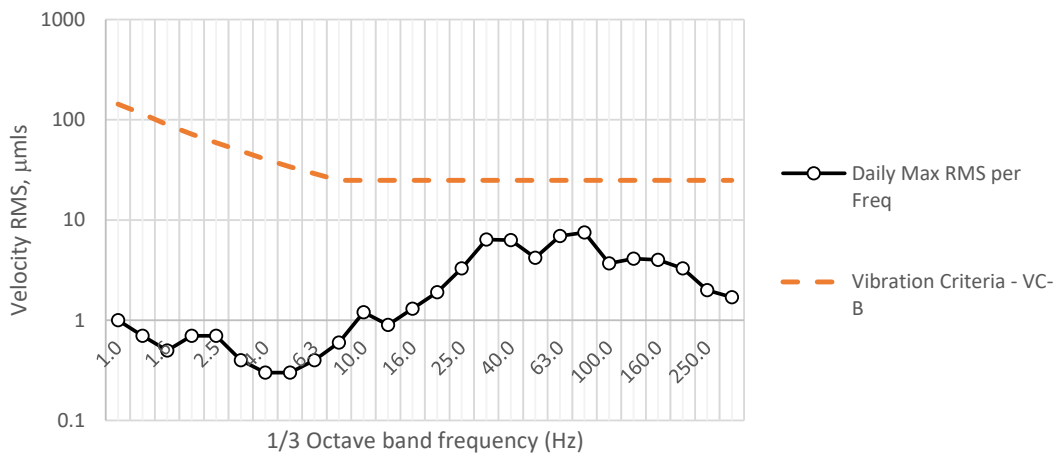
Vertical Vibration



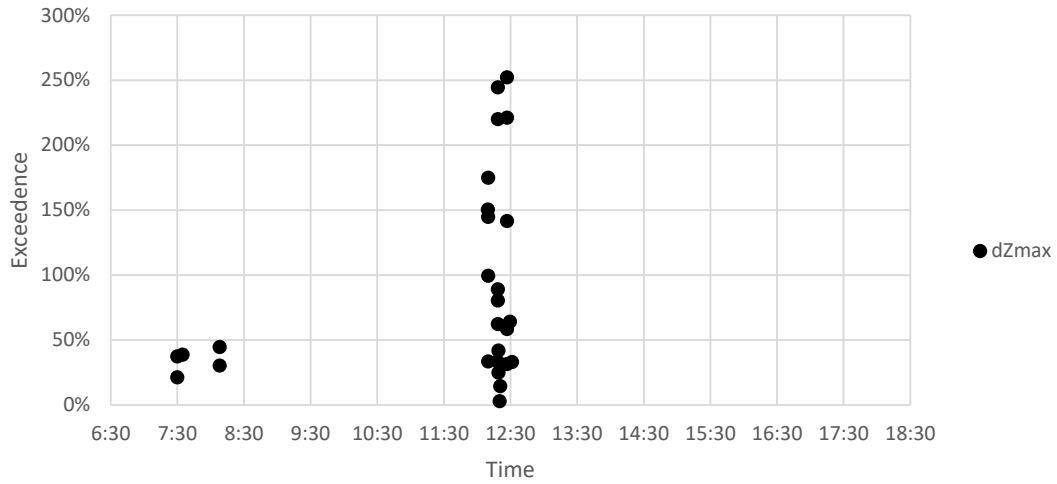
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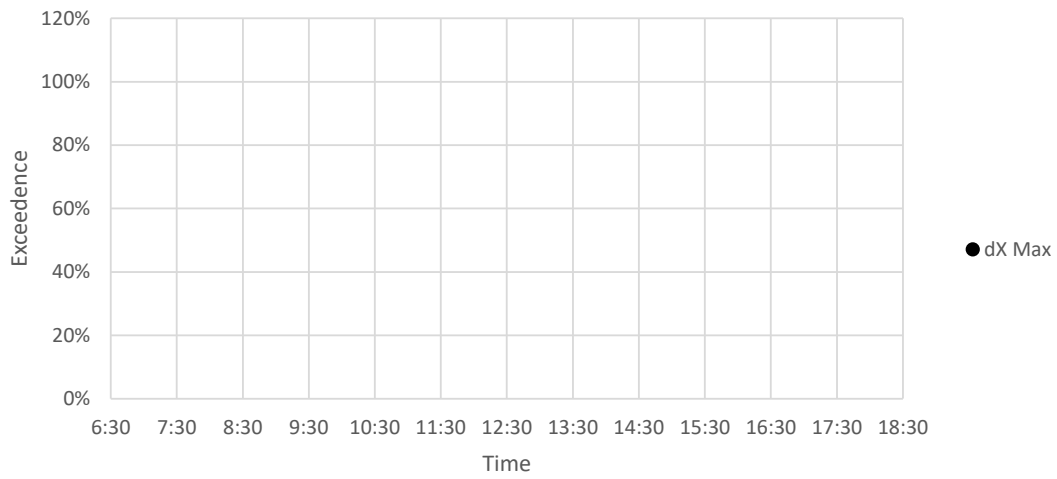
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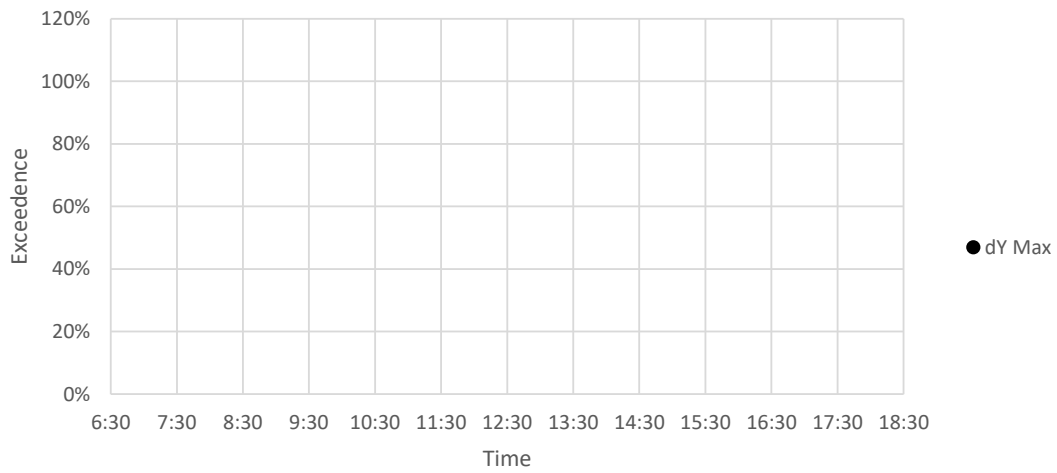
Vertical



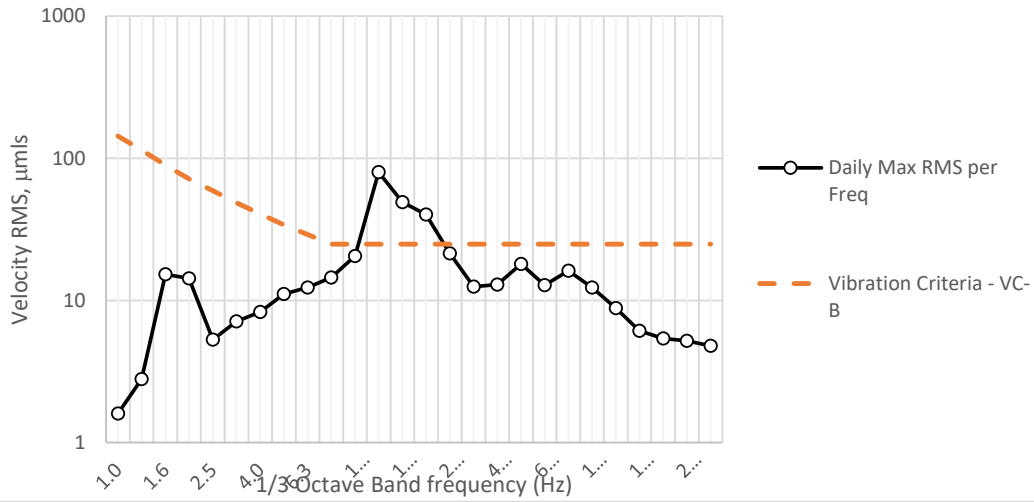
Fwd/Backwards



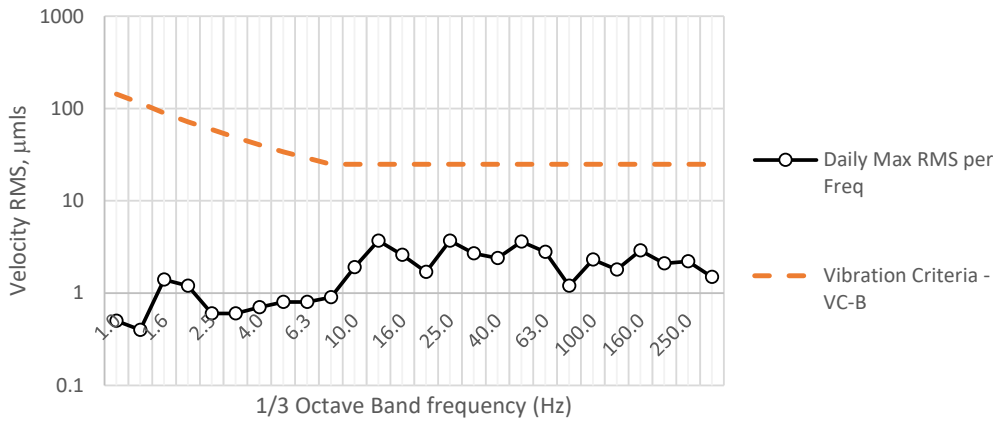
Sideways



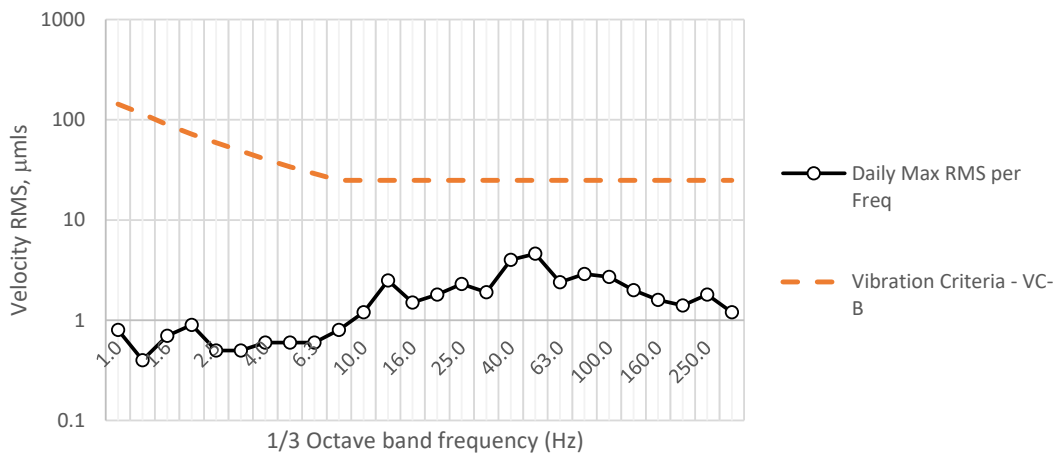
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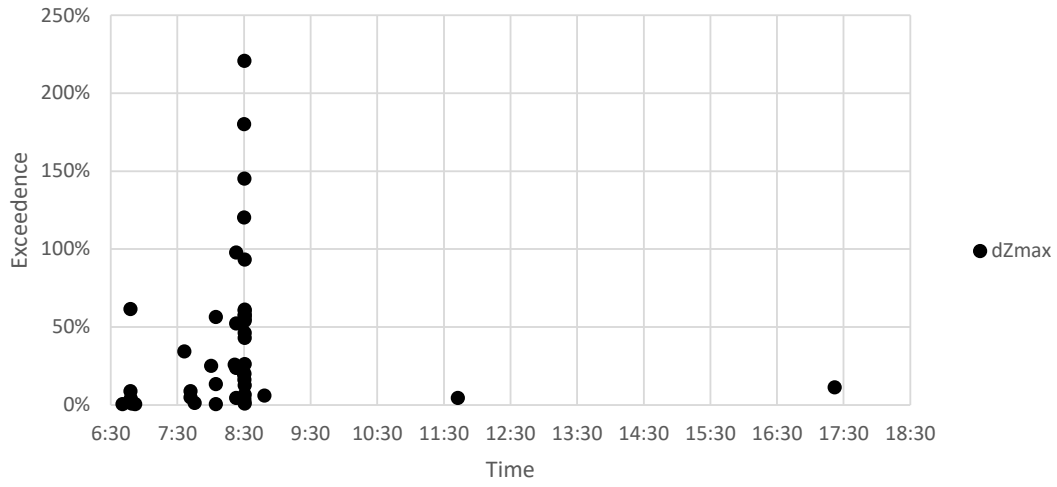
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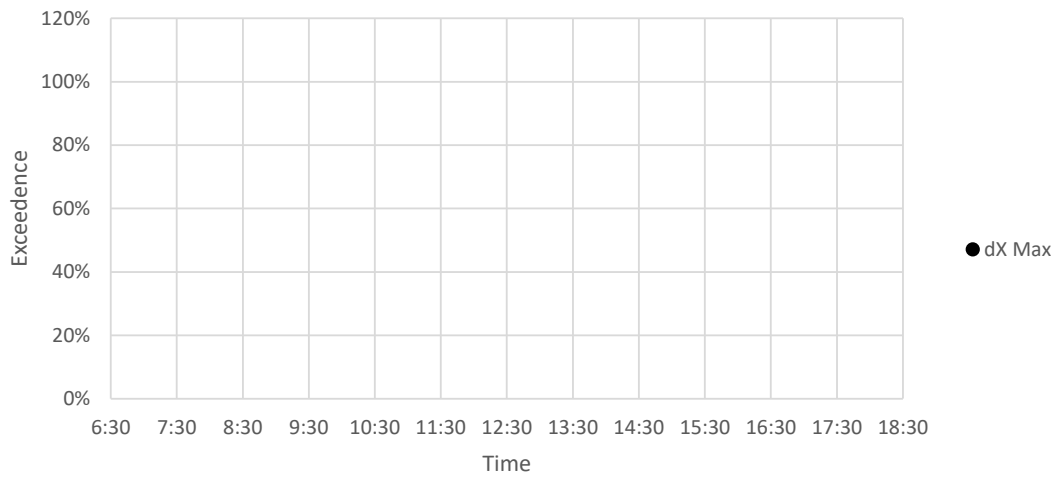
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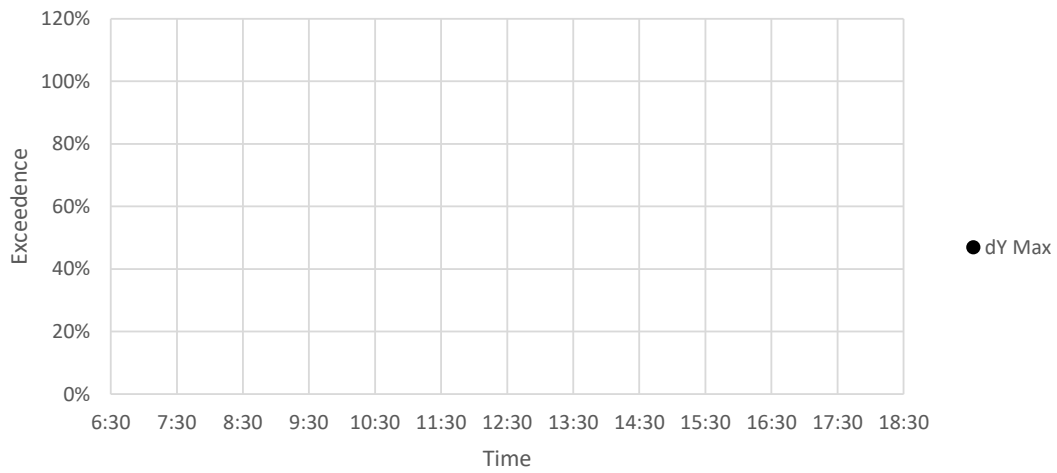
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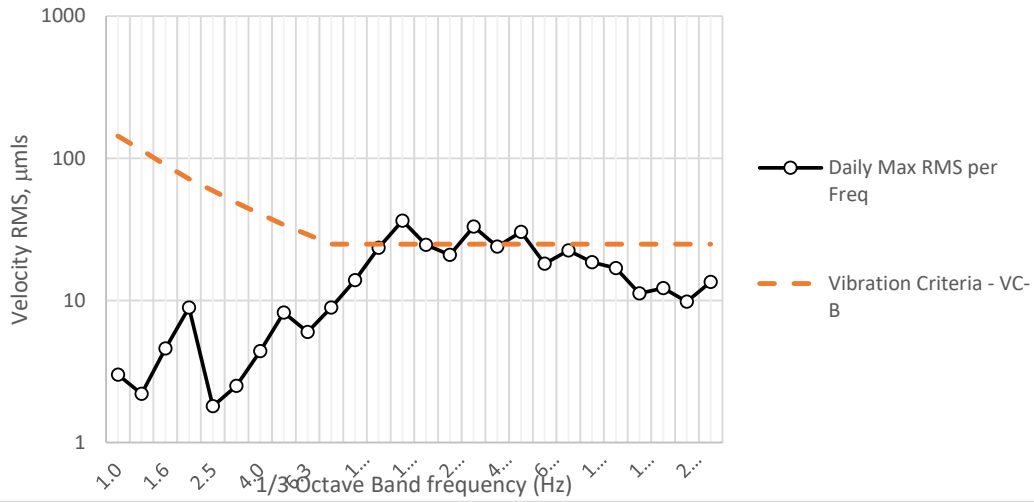
Fwd/Backwards



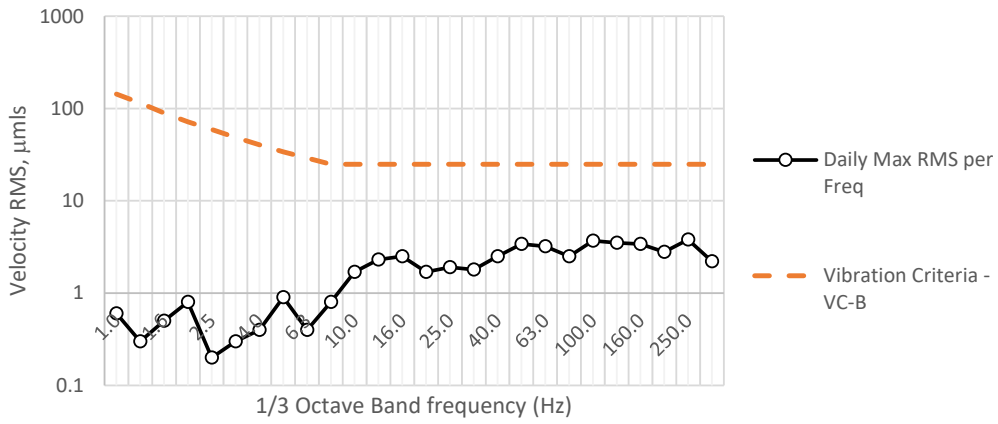
Sideways



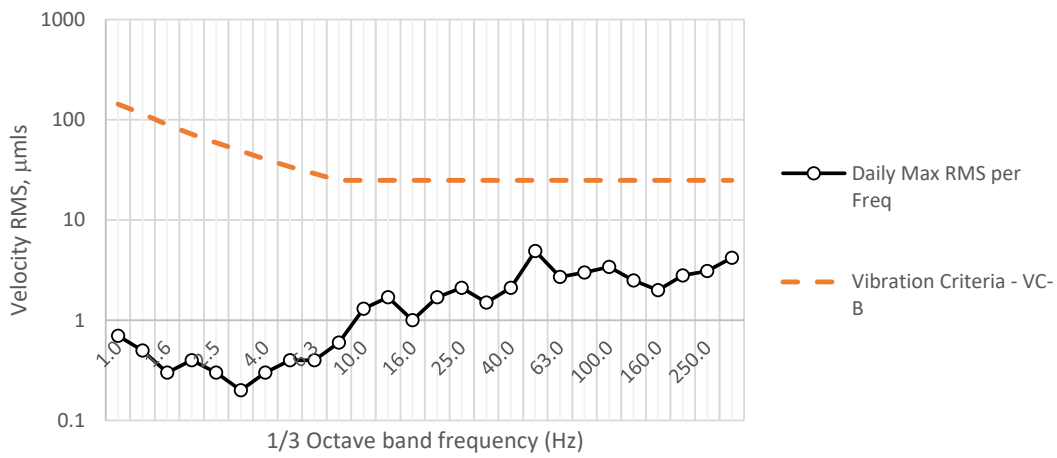
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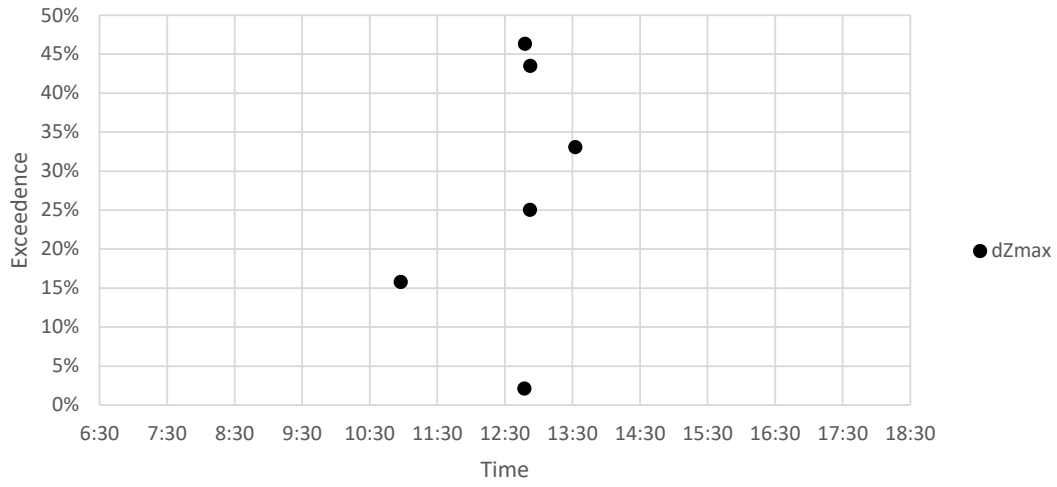
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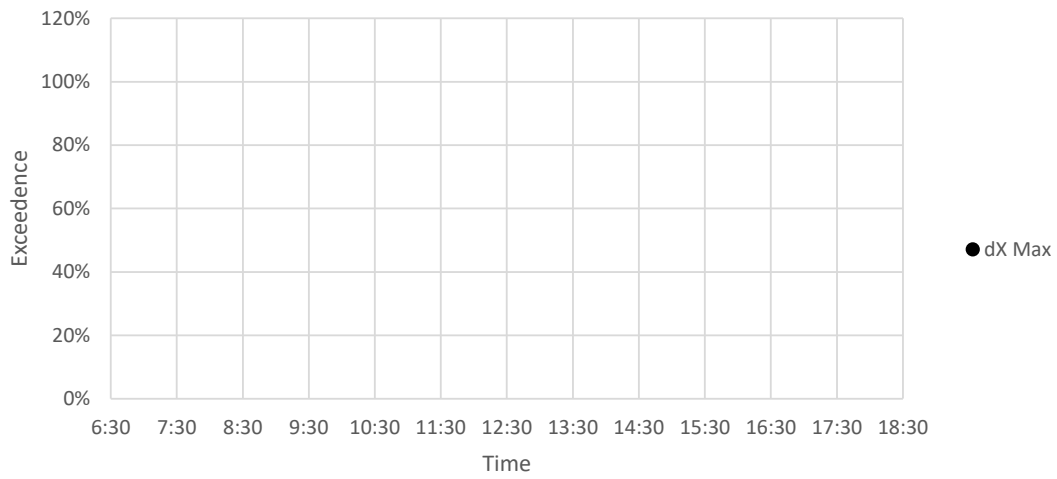
Sideways Vibration



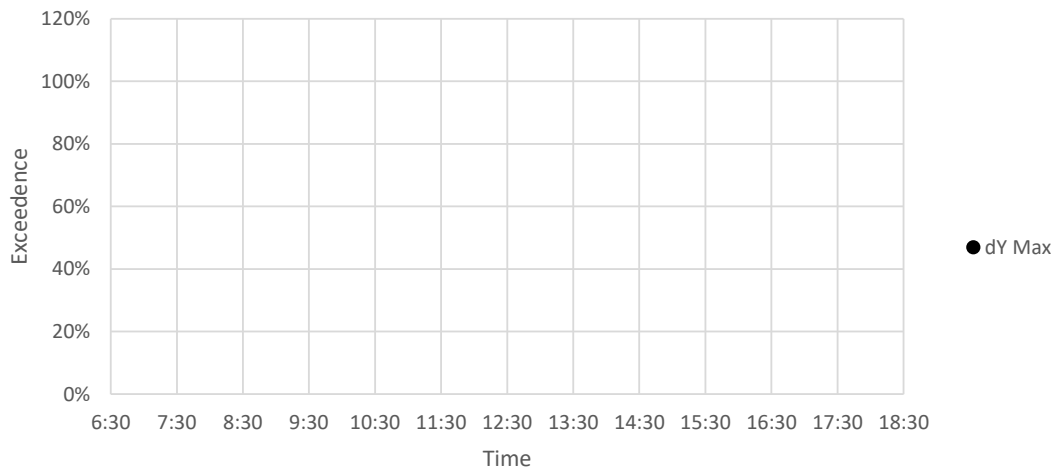
Vertical



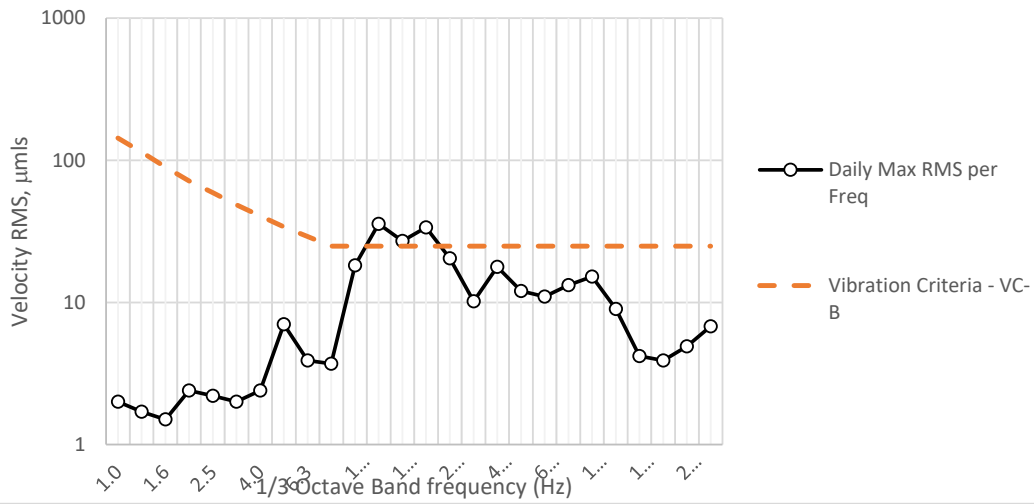
Fwd/Backwards



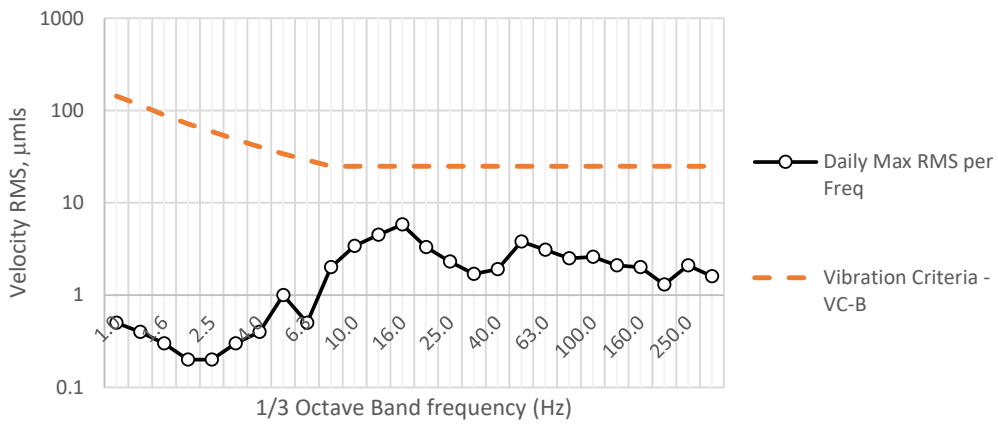
Sideways



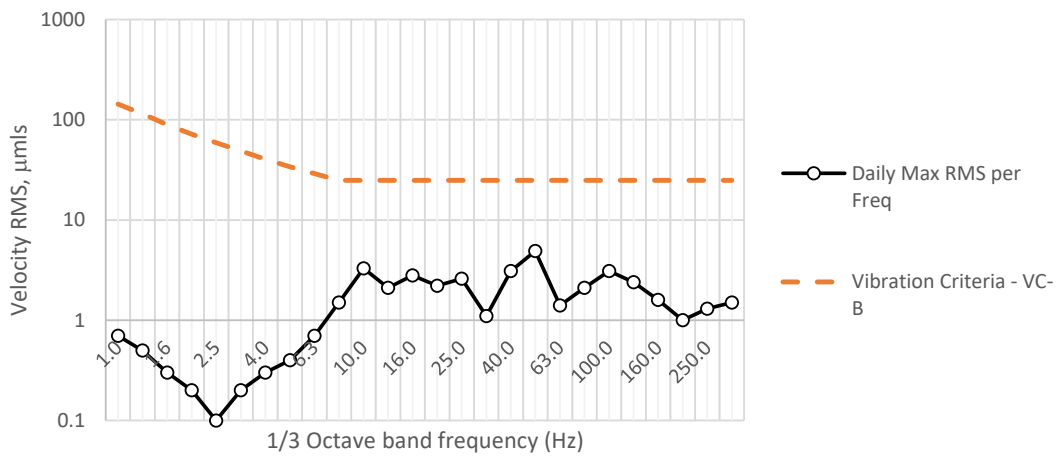
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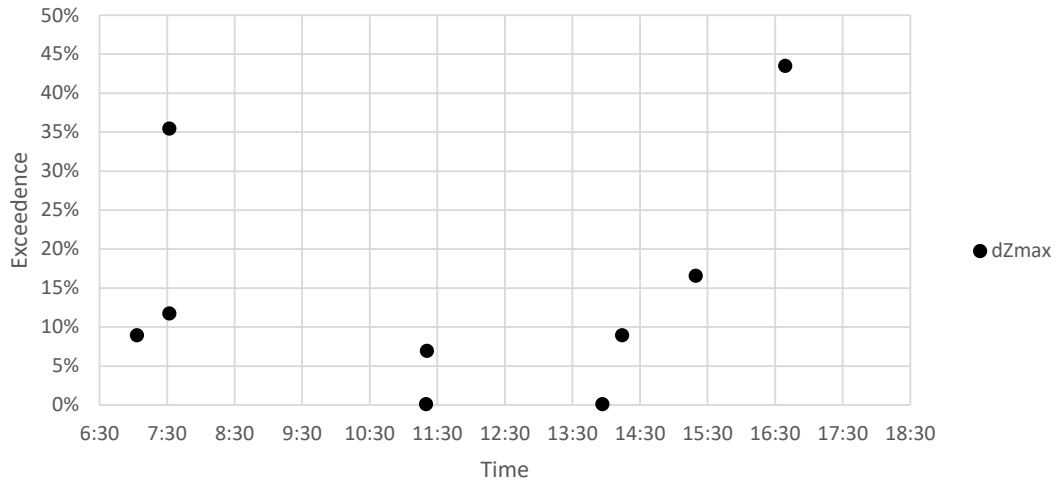
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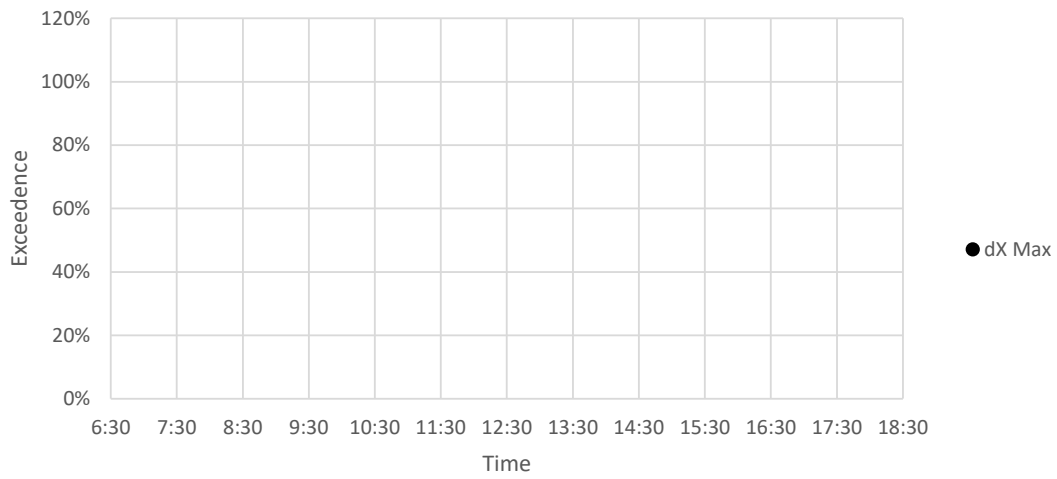
Sideways Vibration



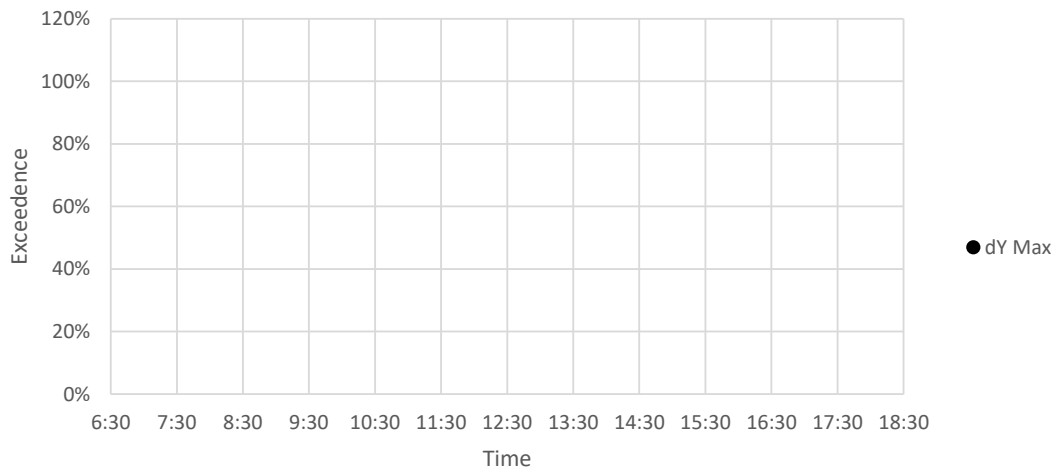
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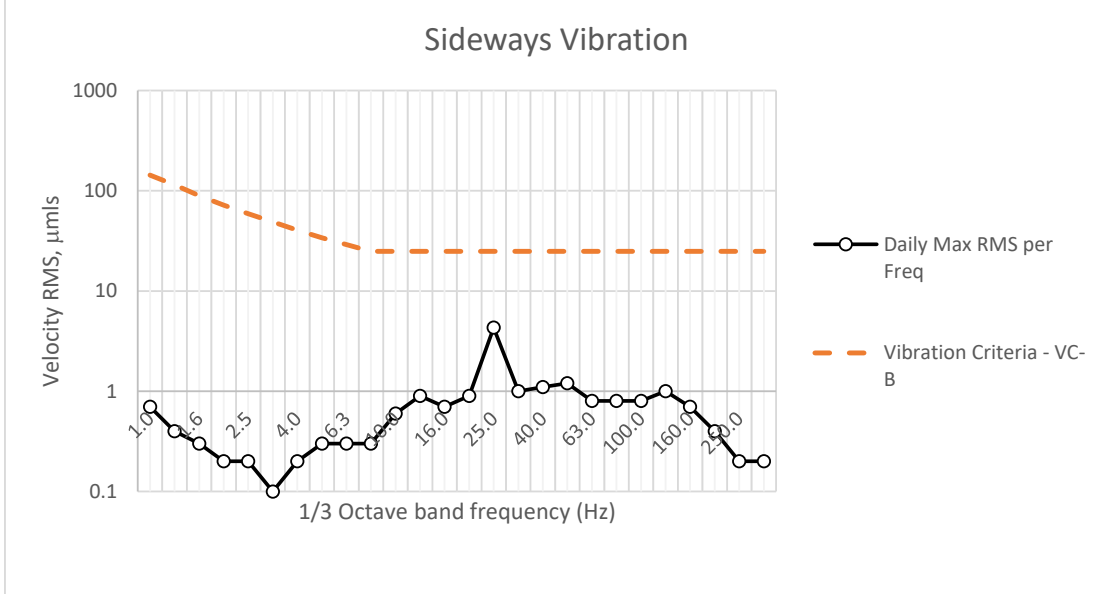
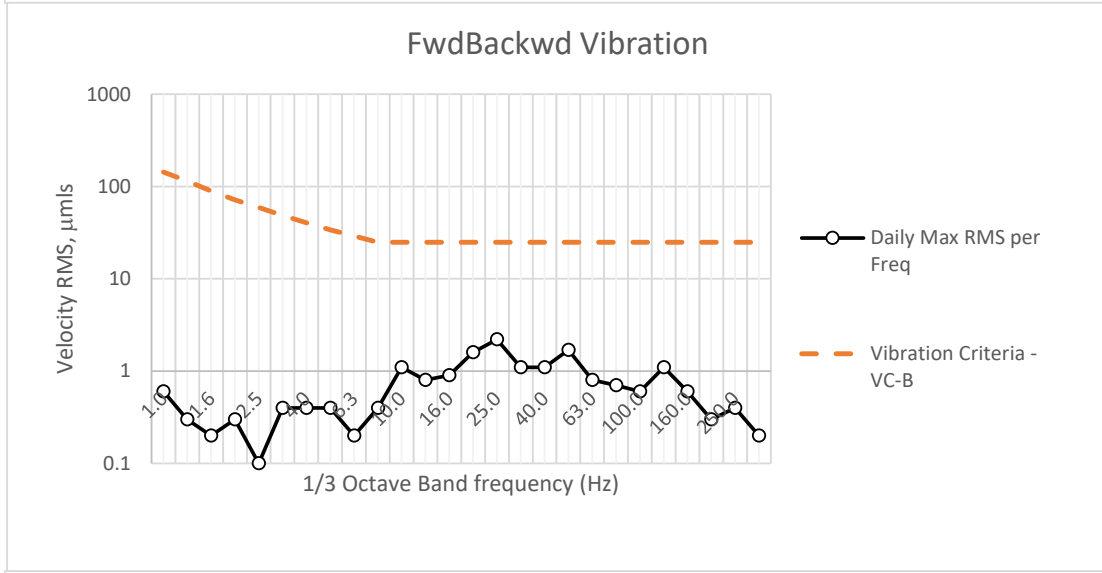
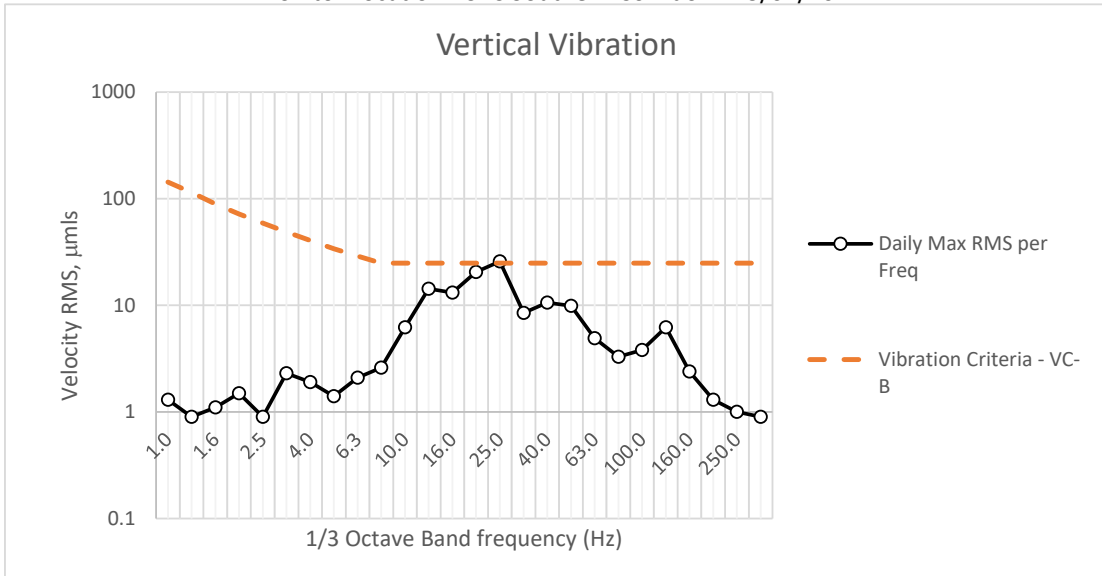


Fwd/Backwards

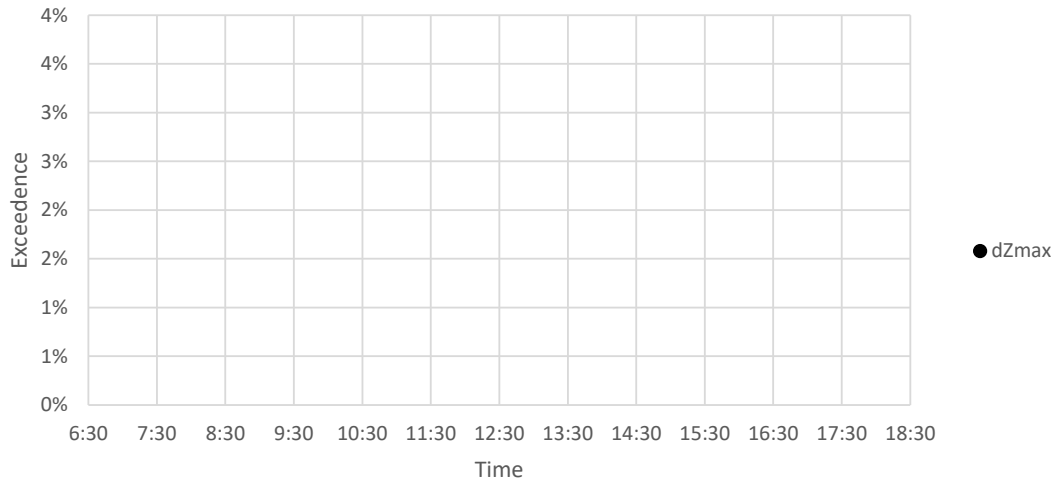


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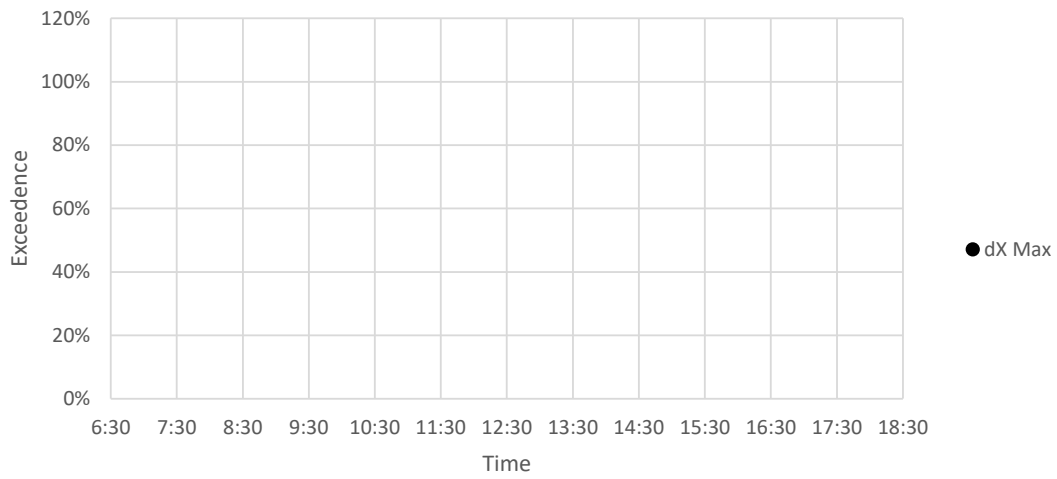




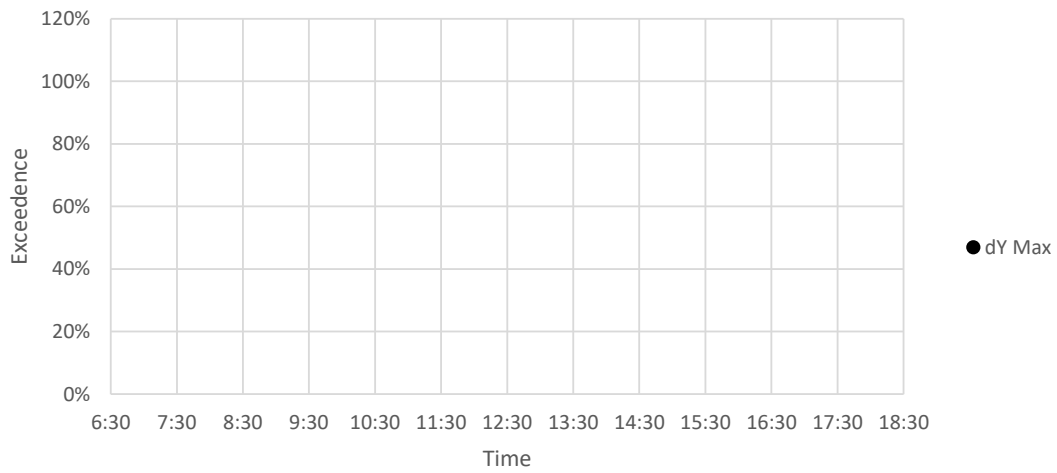
Vertical

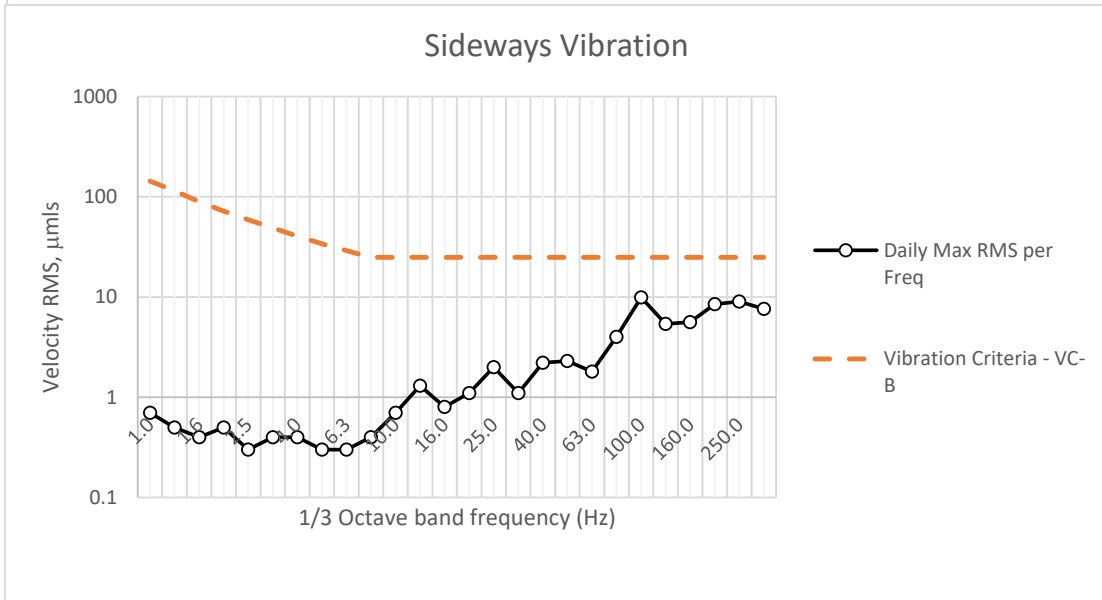
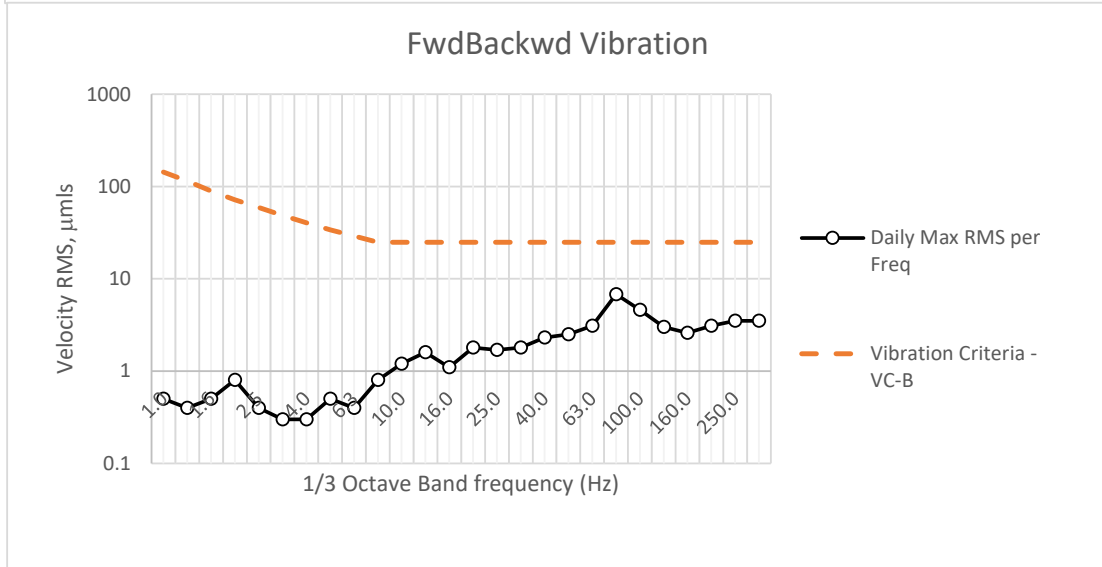
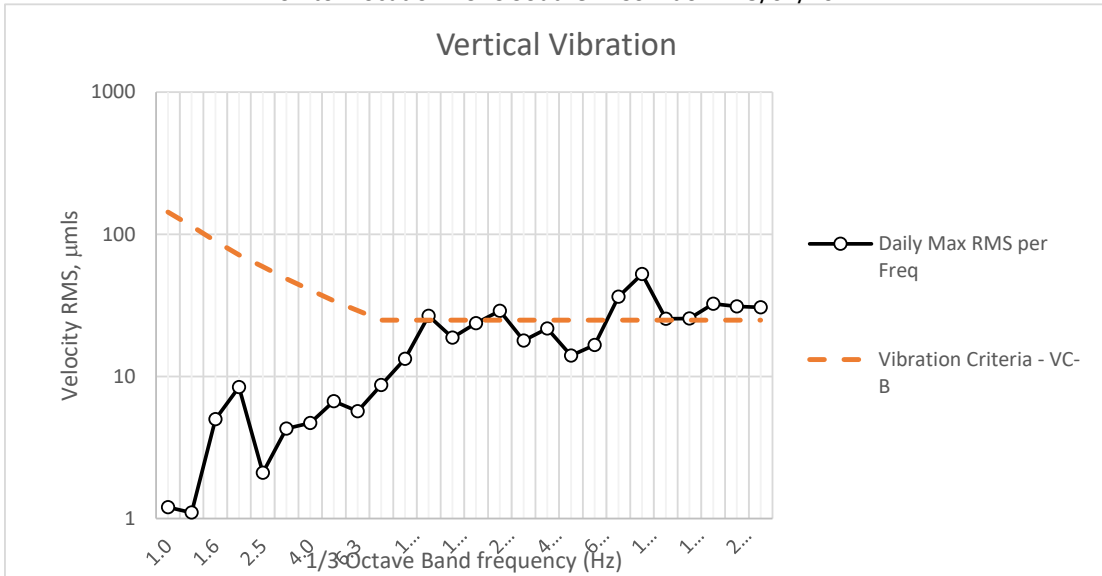


Fwd/Backwards

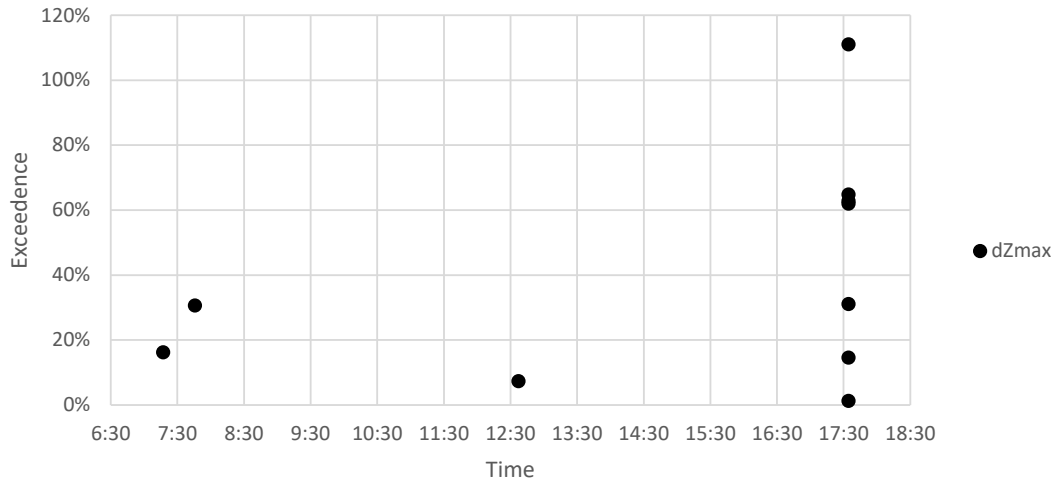


Sideways

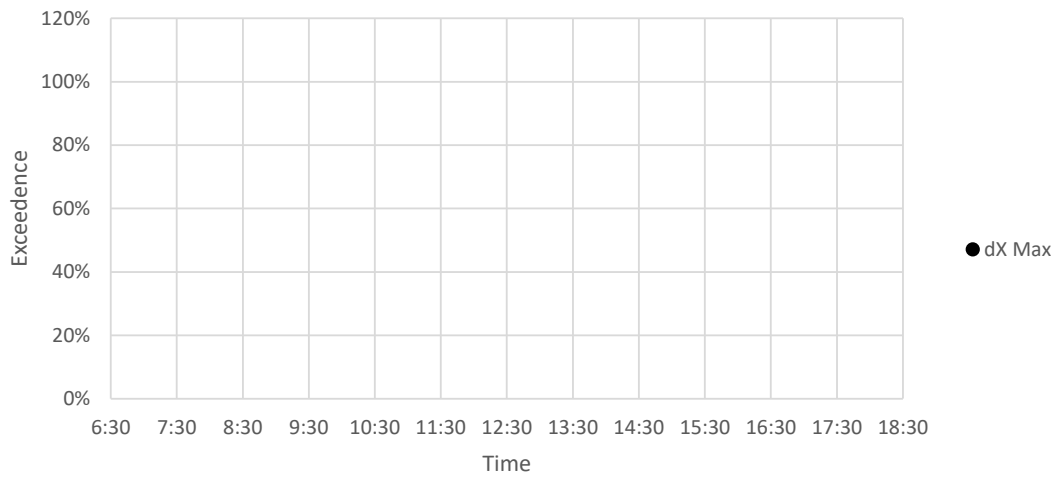




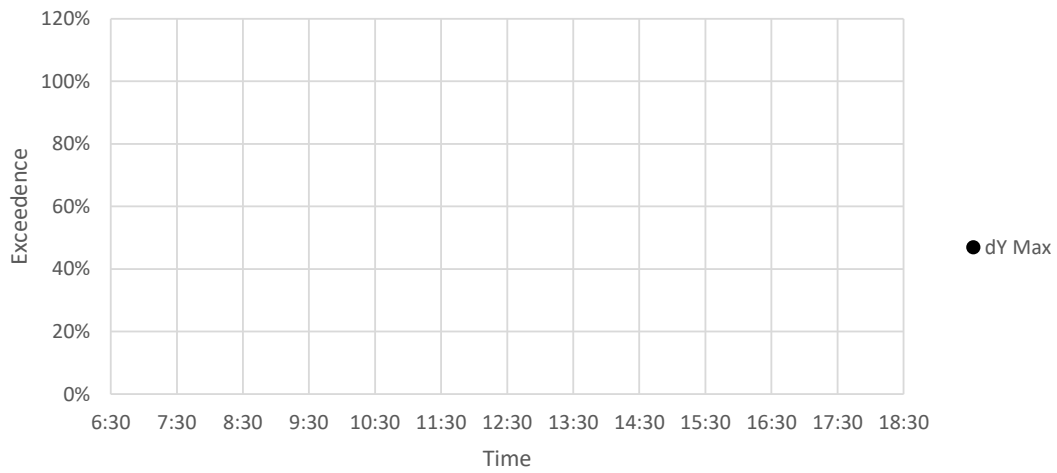
Vertical



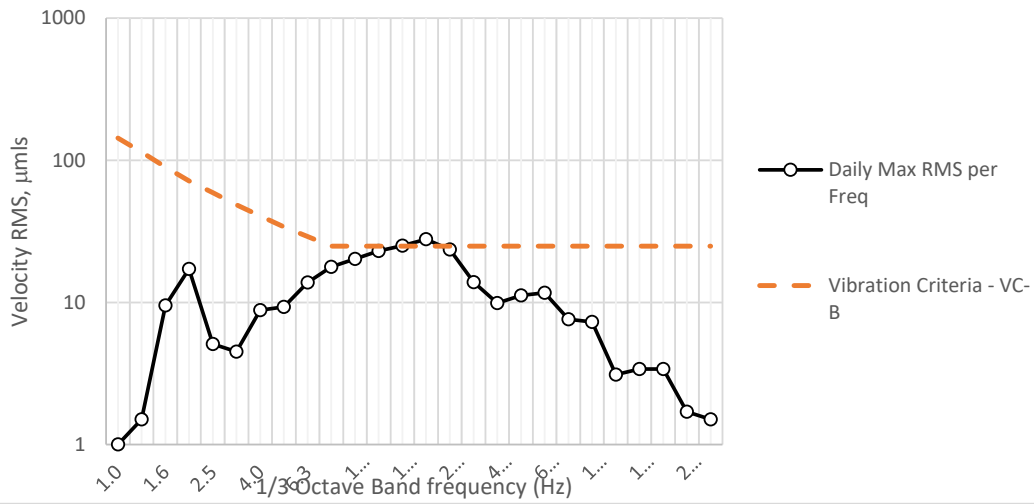
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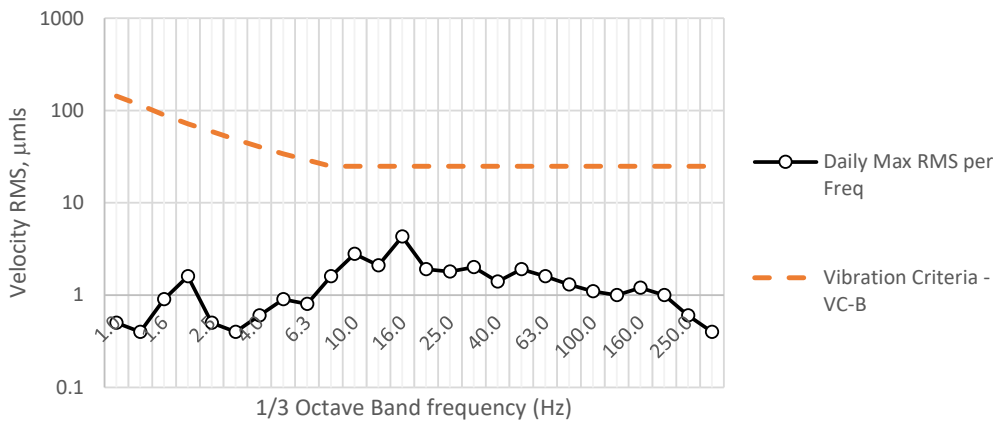
Sideways



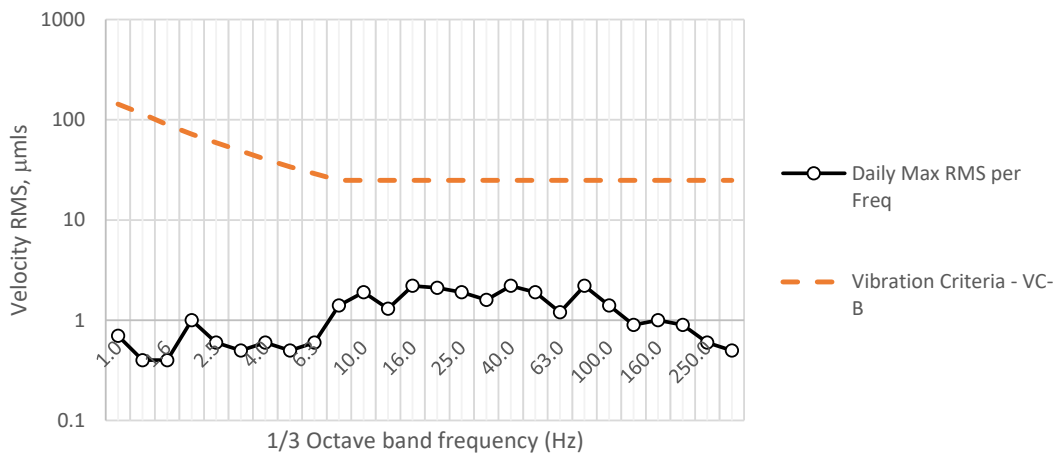
Vertical Vibration



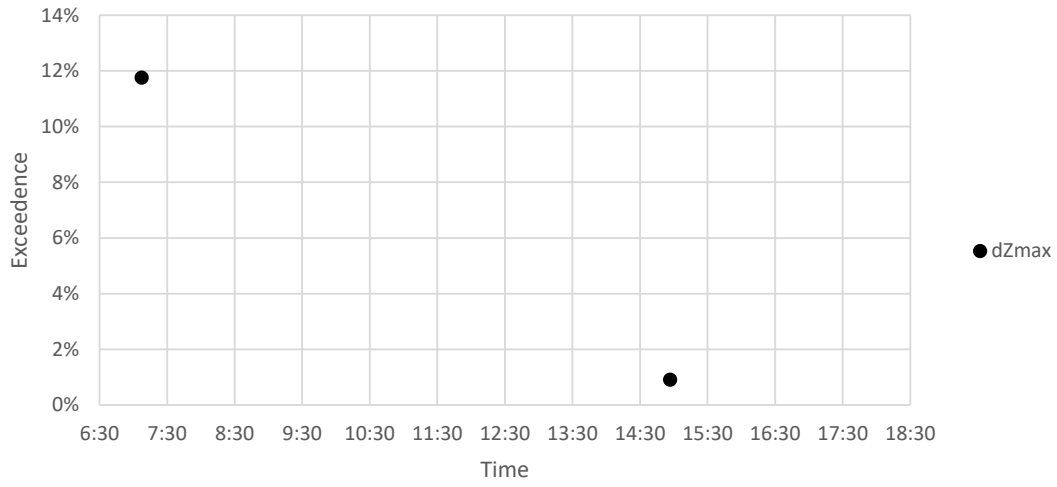
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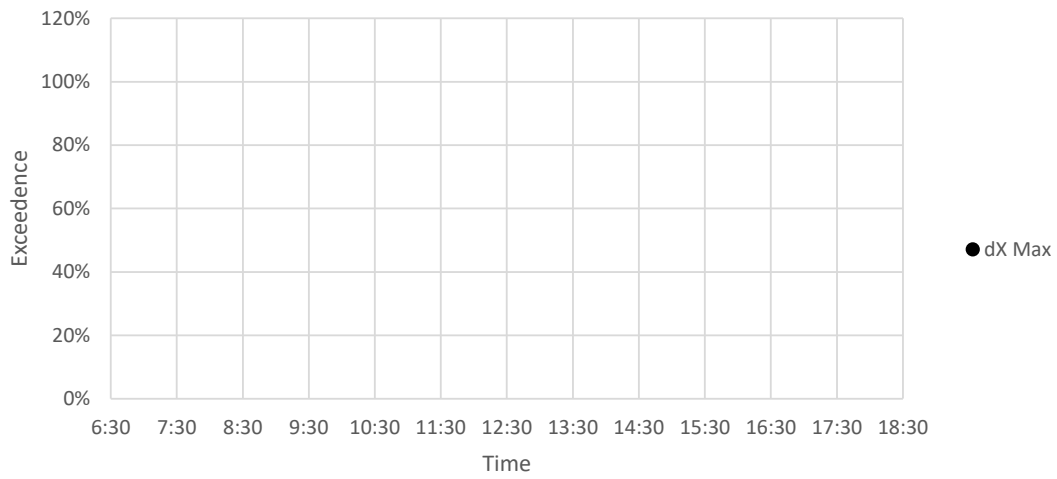
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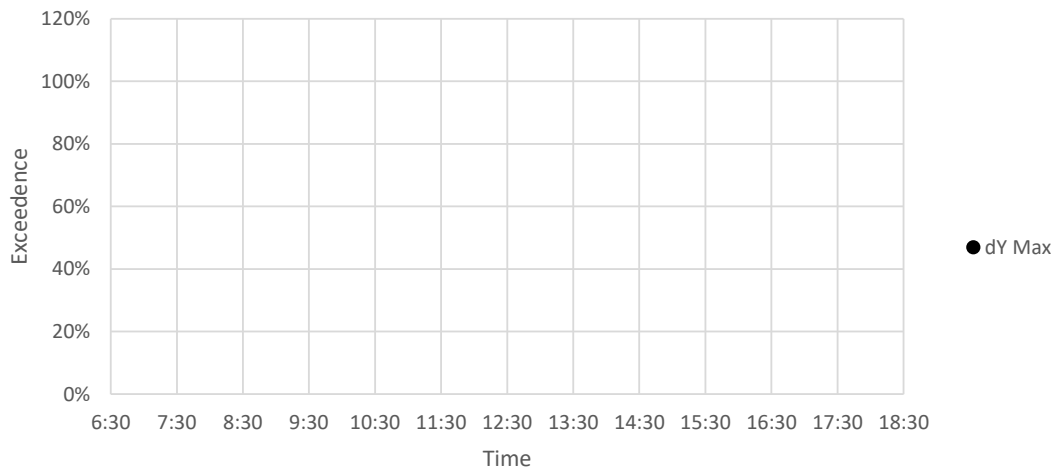
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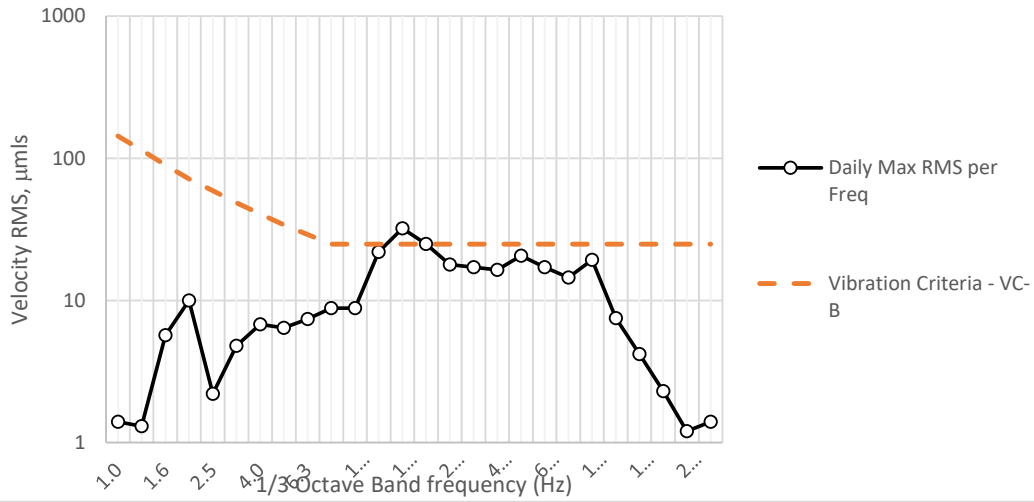
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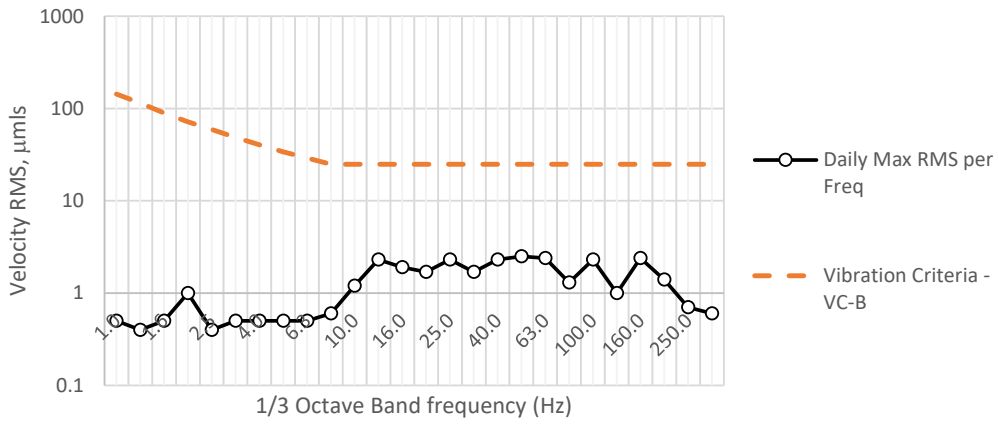
Sideways



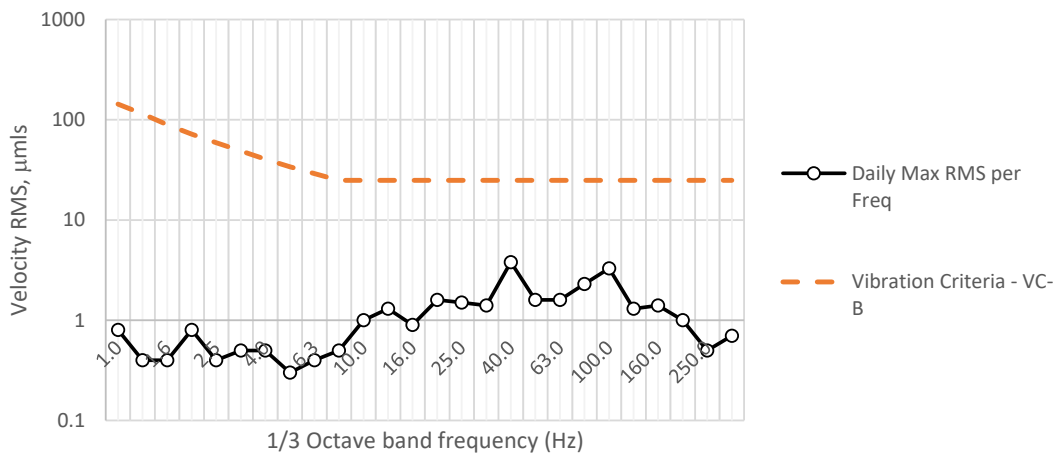
Vertical Vibration



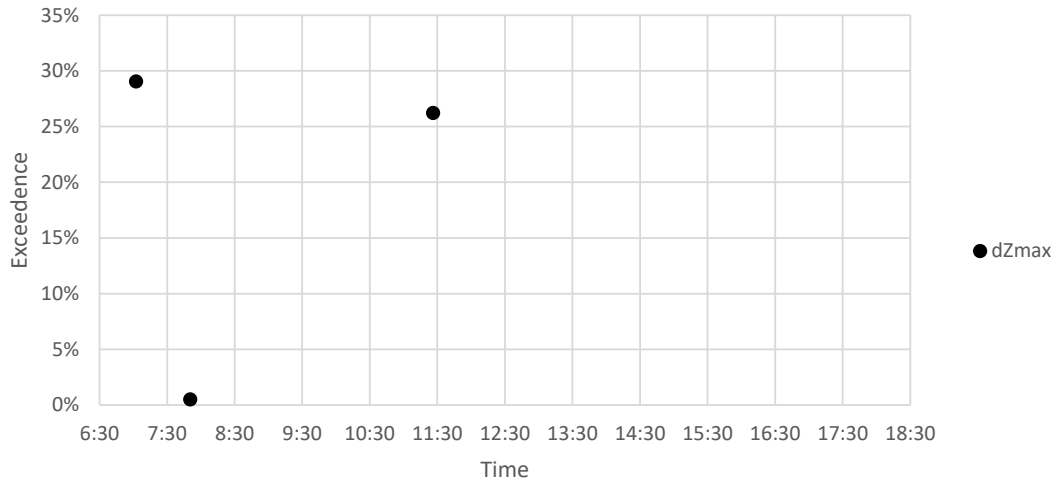
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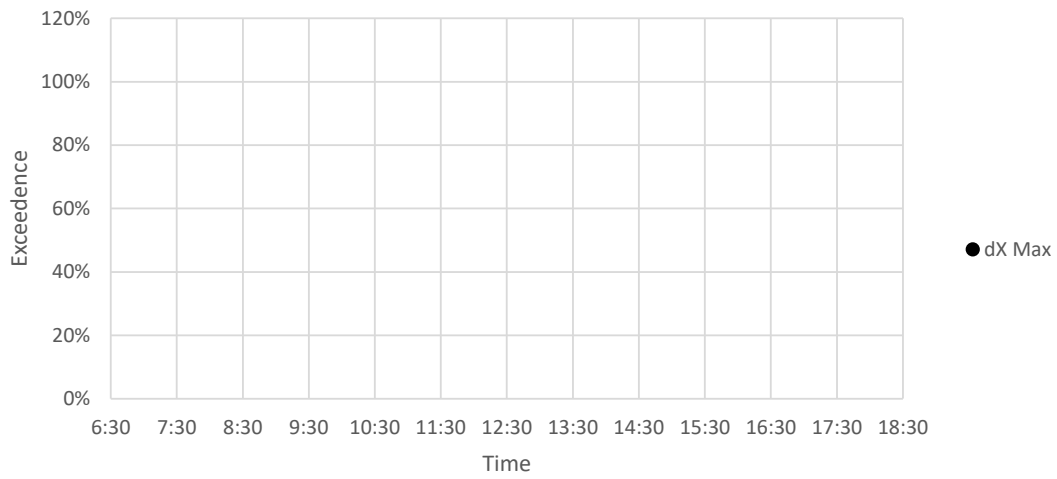
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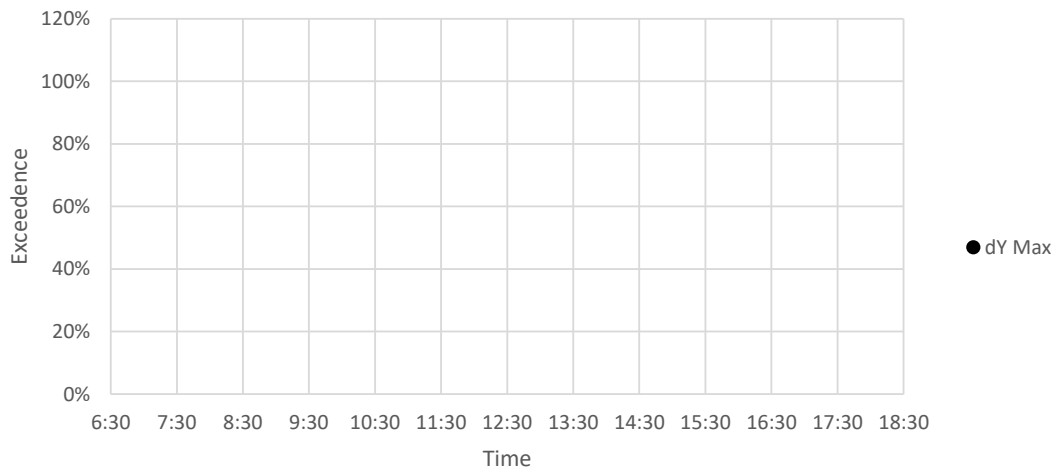
Vertical



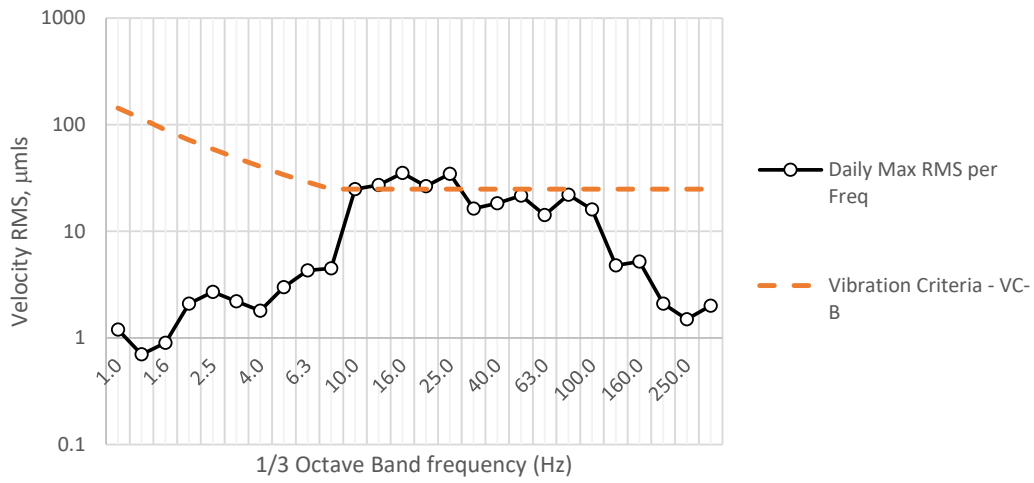
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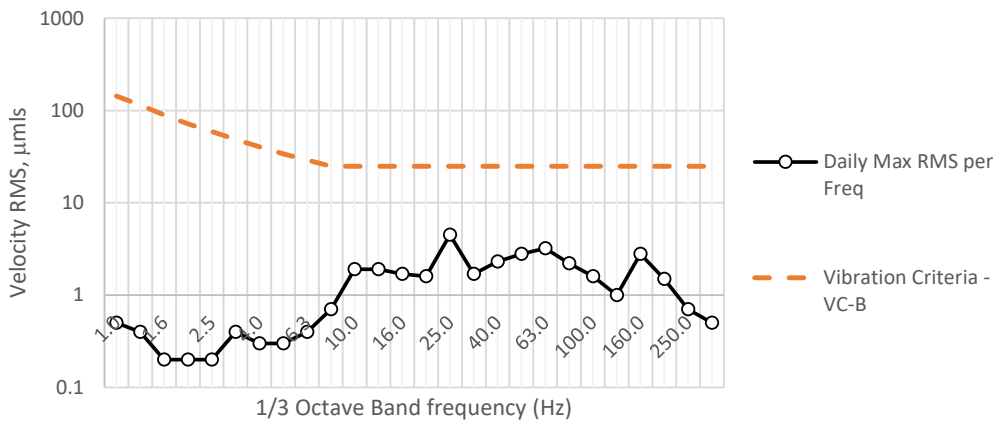
Sideways



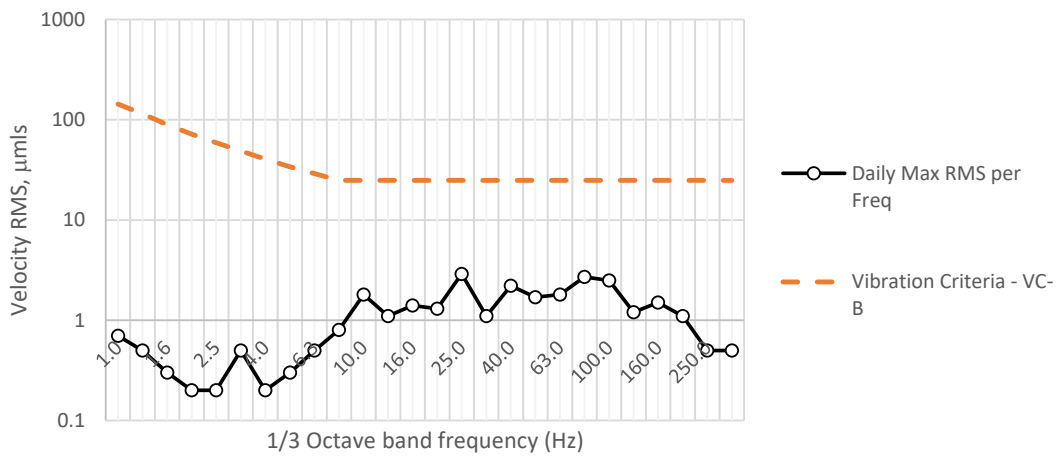
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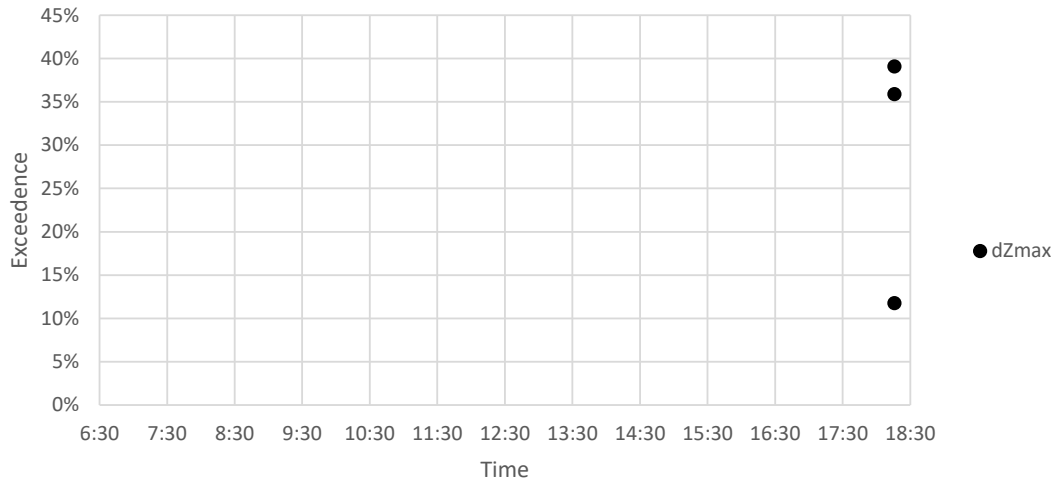
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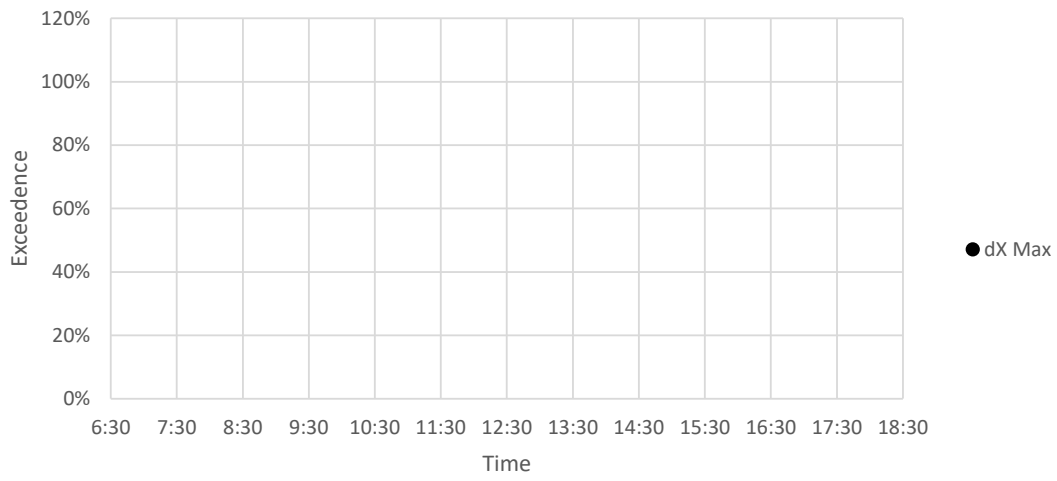
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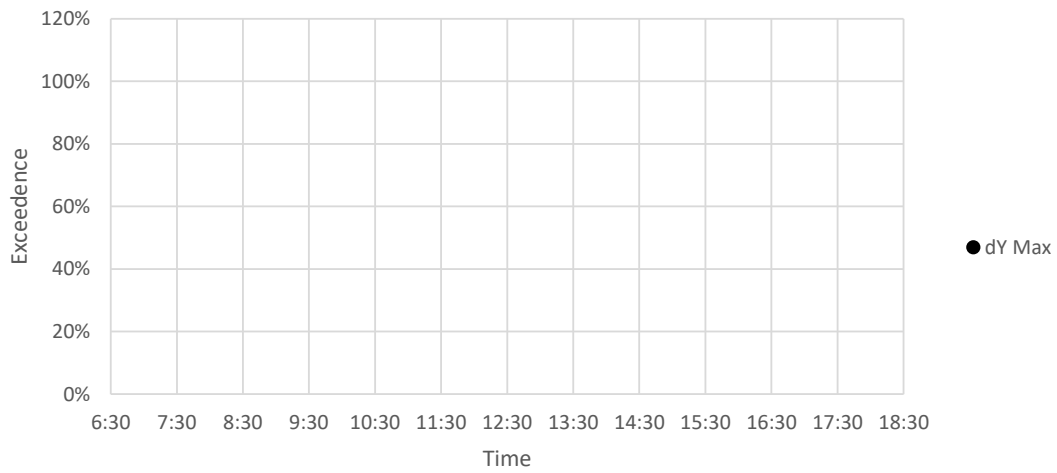
Vertical



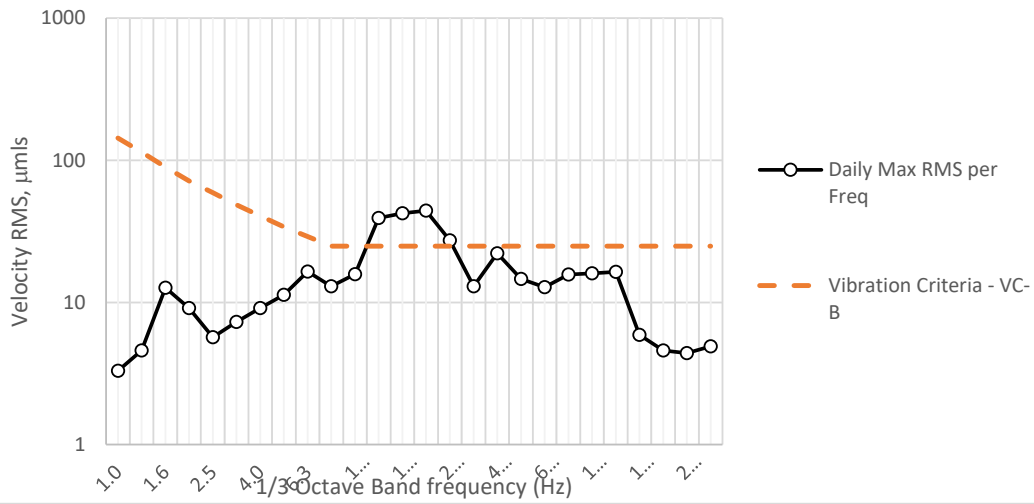
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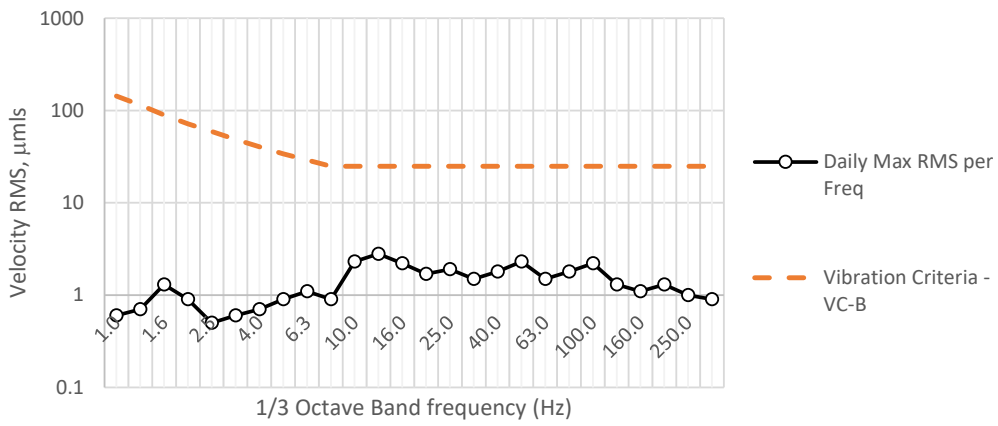
Sideways



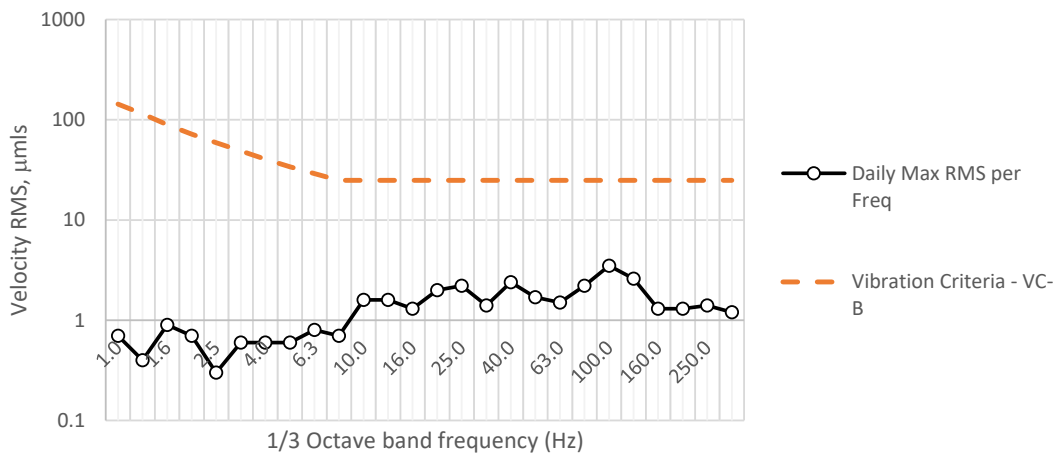
Vertical Vibration



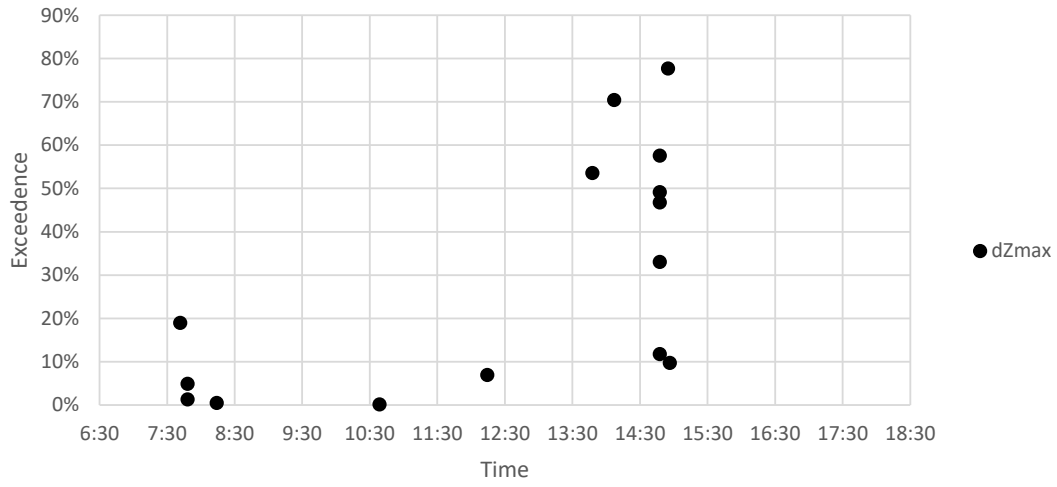
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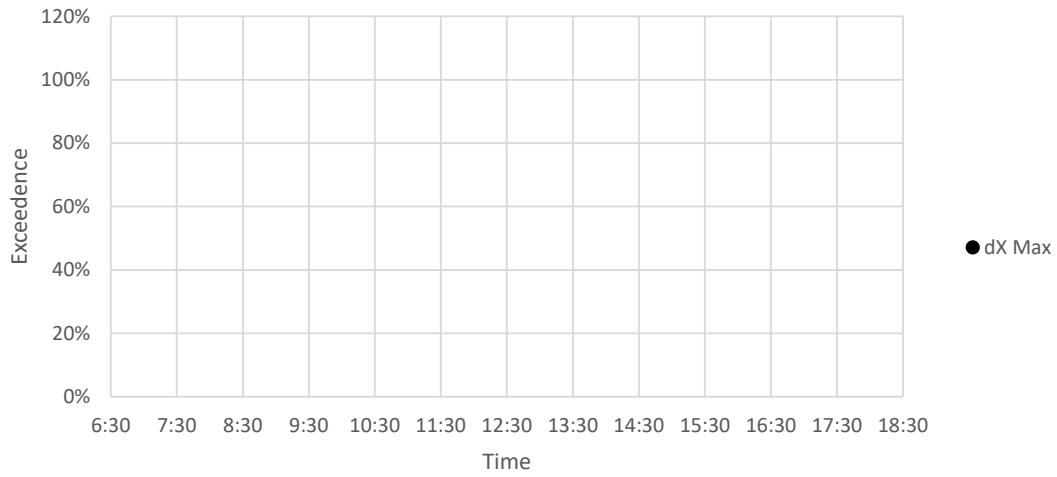
Sideways Vibration



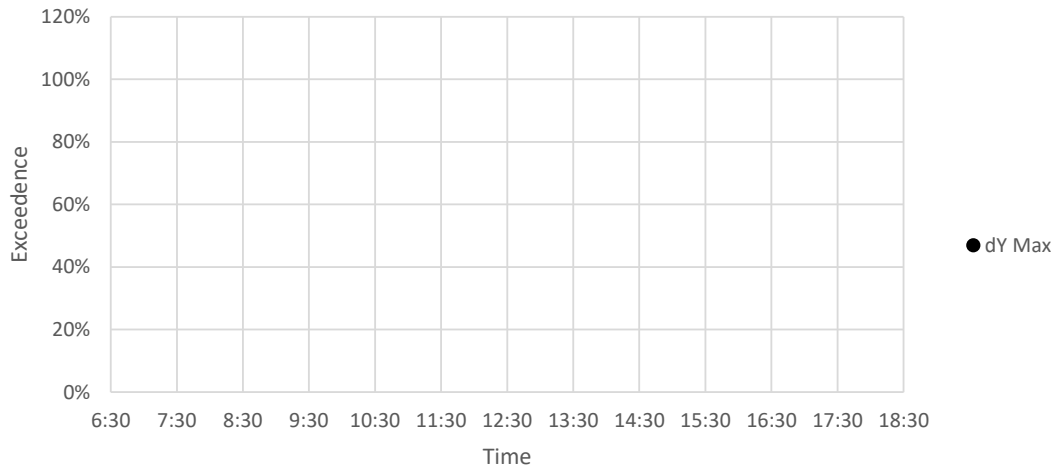
Vertical



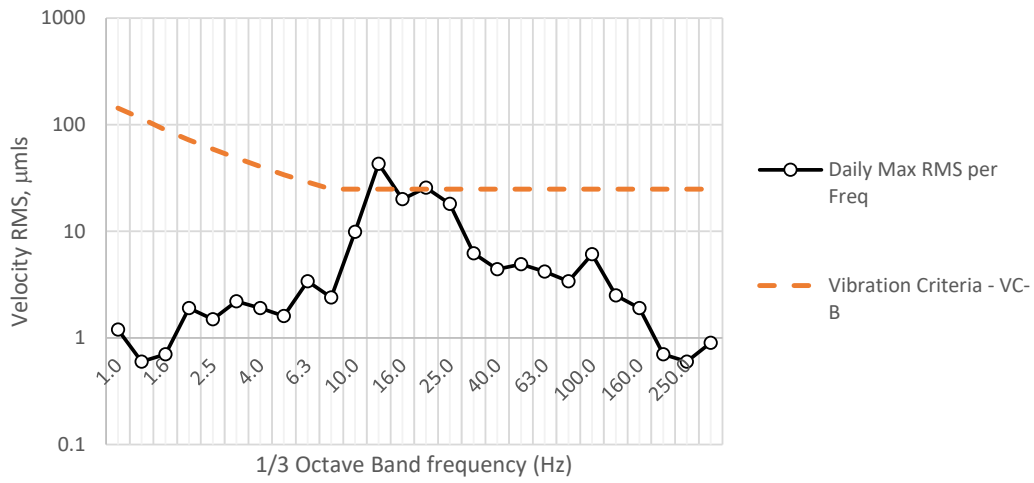
Fwd/Backwards



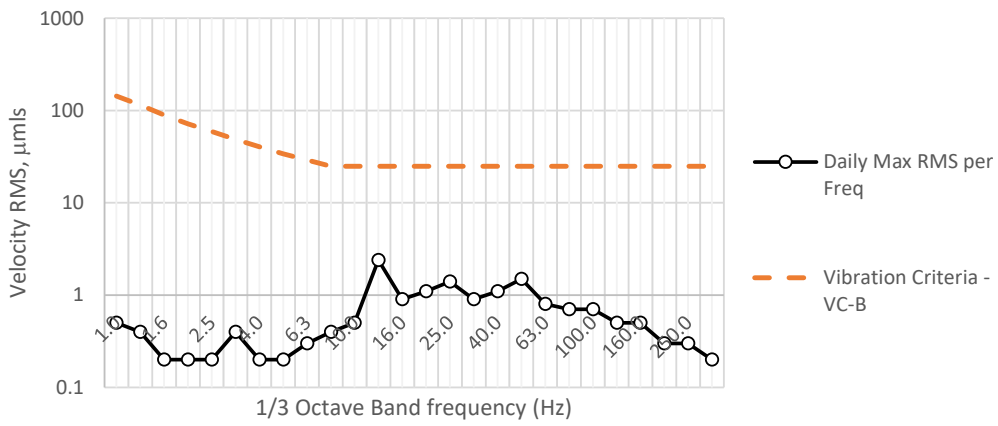
Sideways



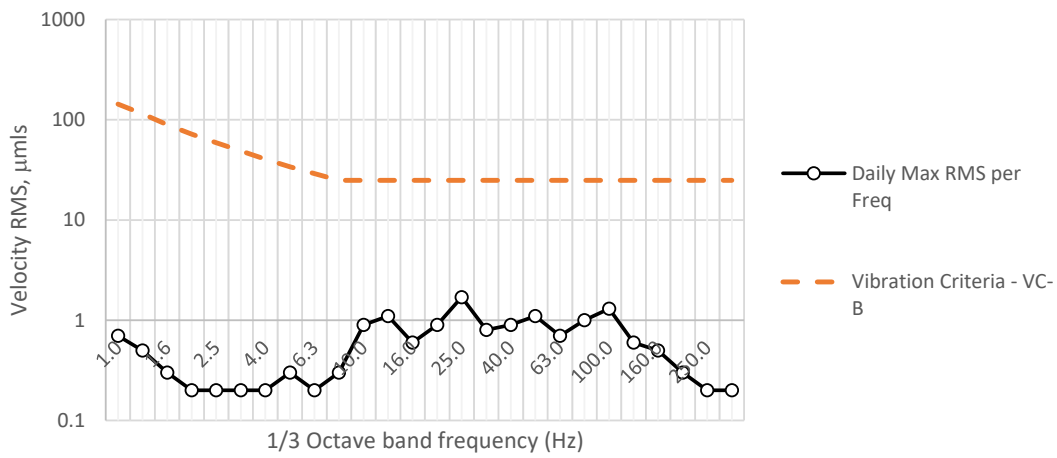
Vertical Vibration



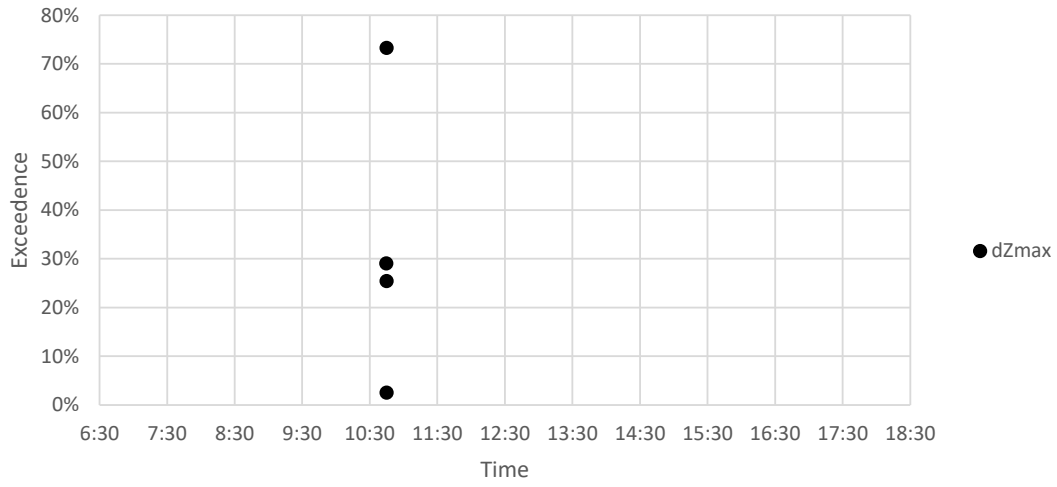
FwdBackwd Vibration



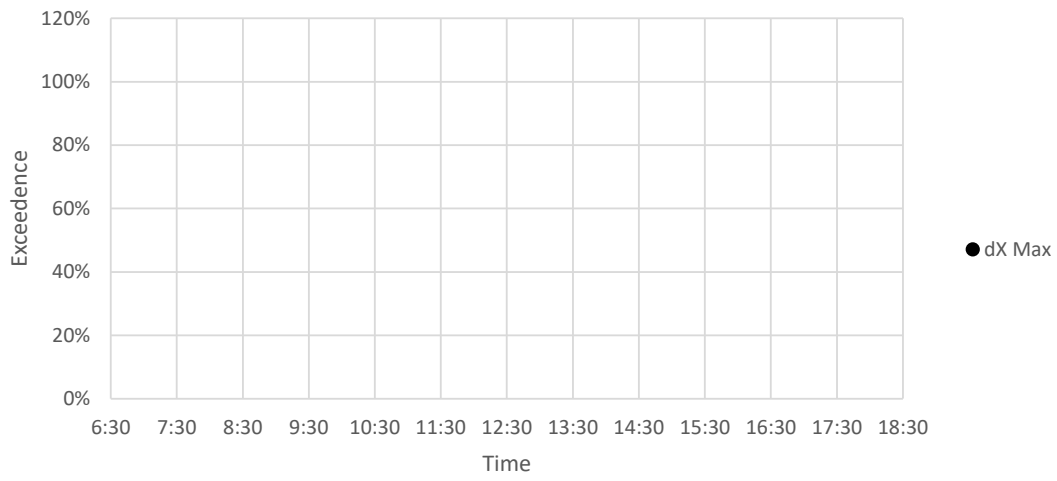
Sideways Vibration



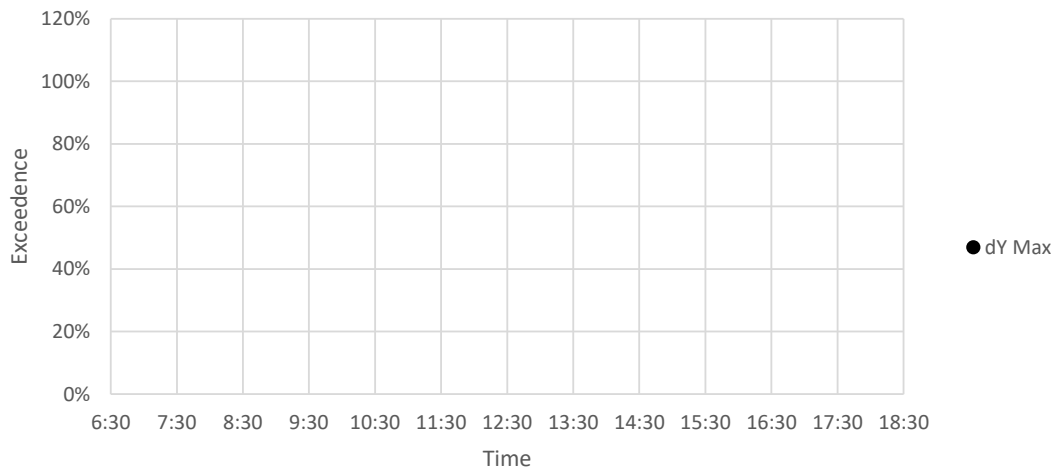
Vertical



Fwd/Backwards

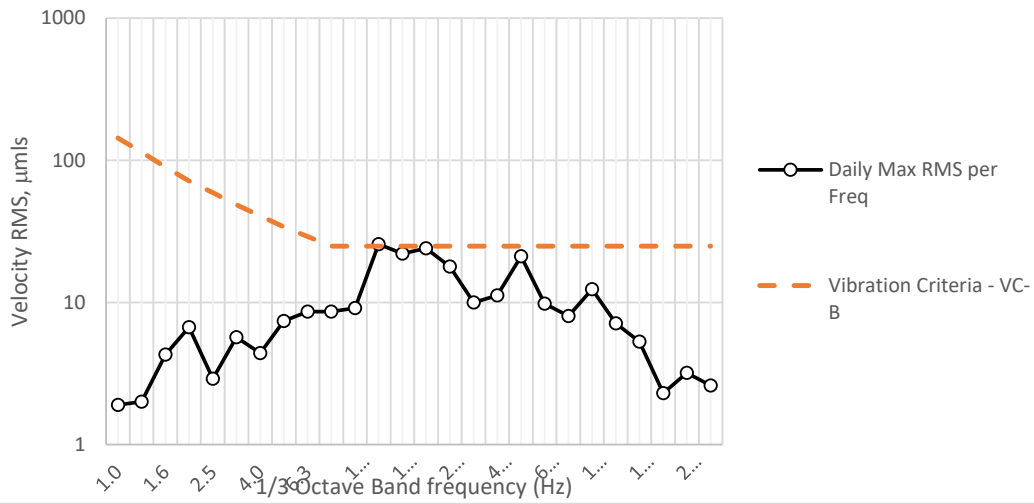


Sideways

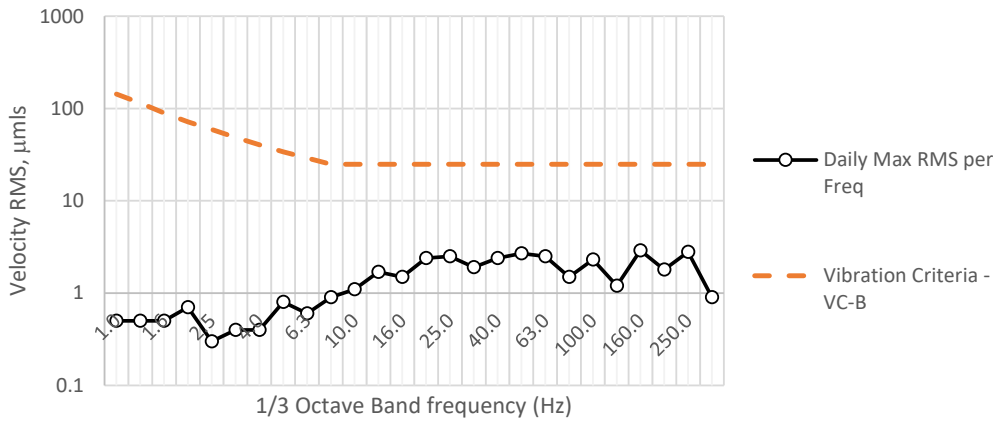


CHARLES PERKINS CENTRE – LEVEL B1 SOUTHERN CORRIDOR

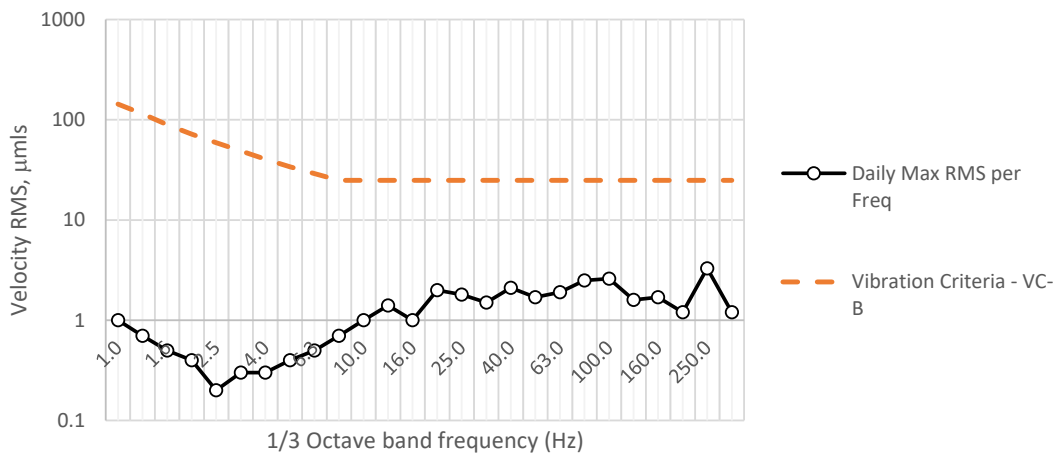
Vertical Vibration



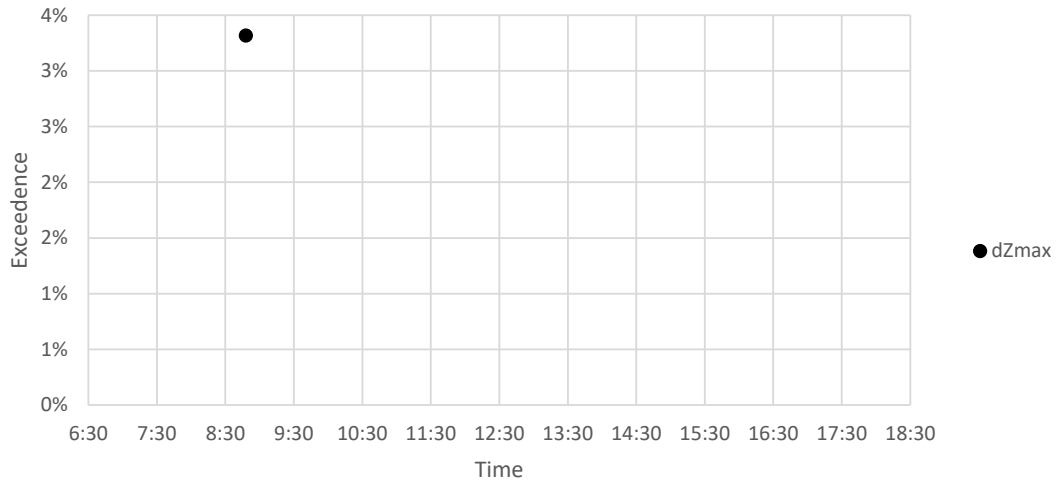
FwdBackwd Vibration



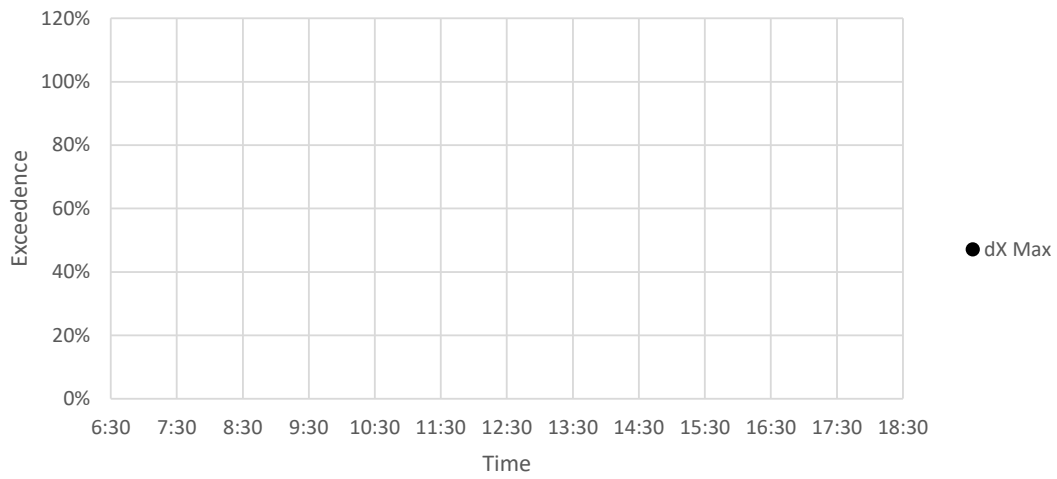
Sideways Vibration



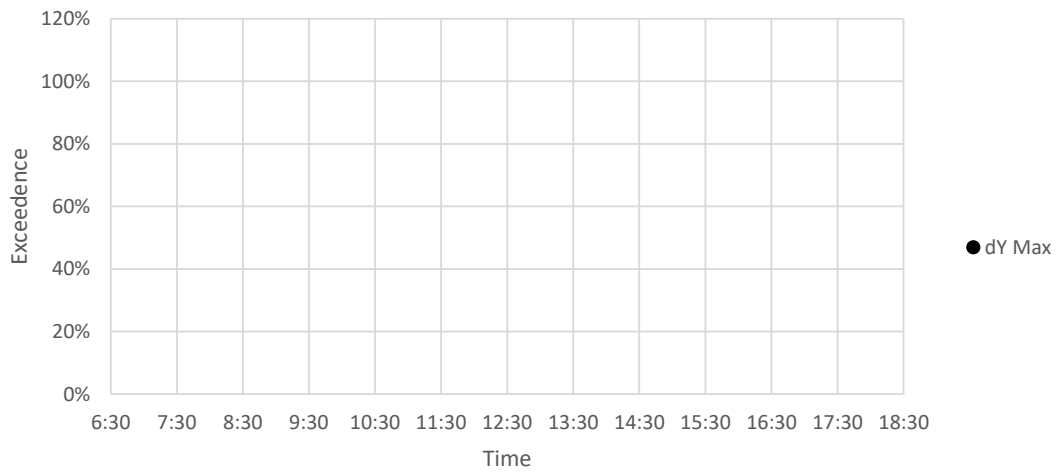
Vertical



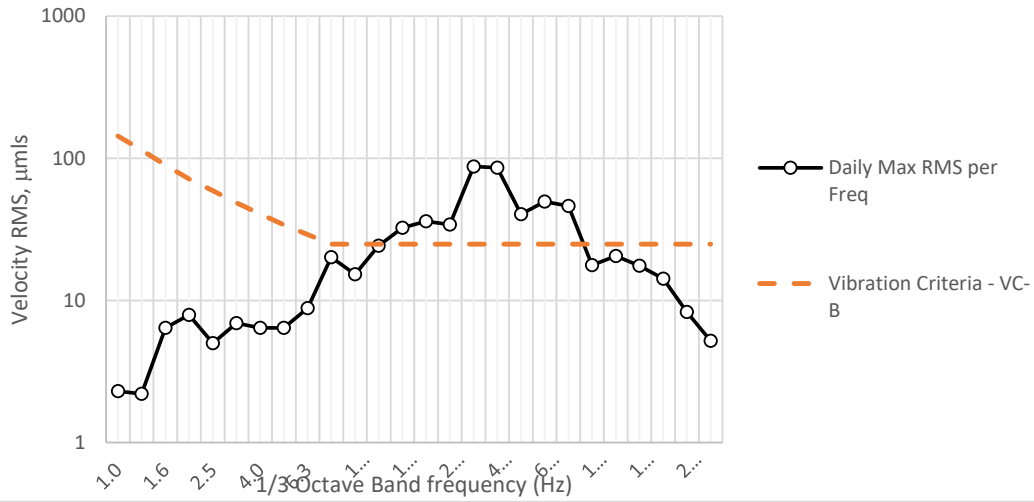
Fwd/Backwards



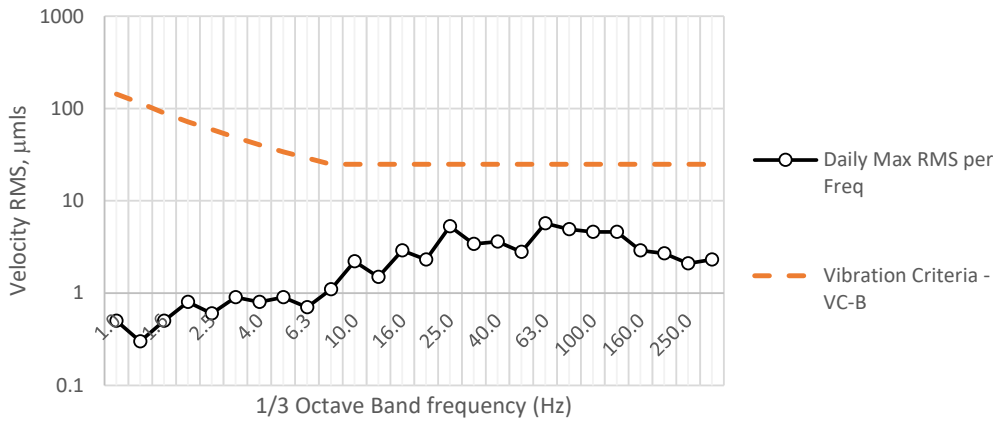
Sideways



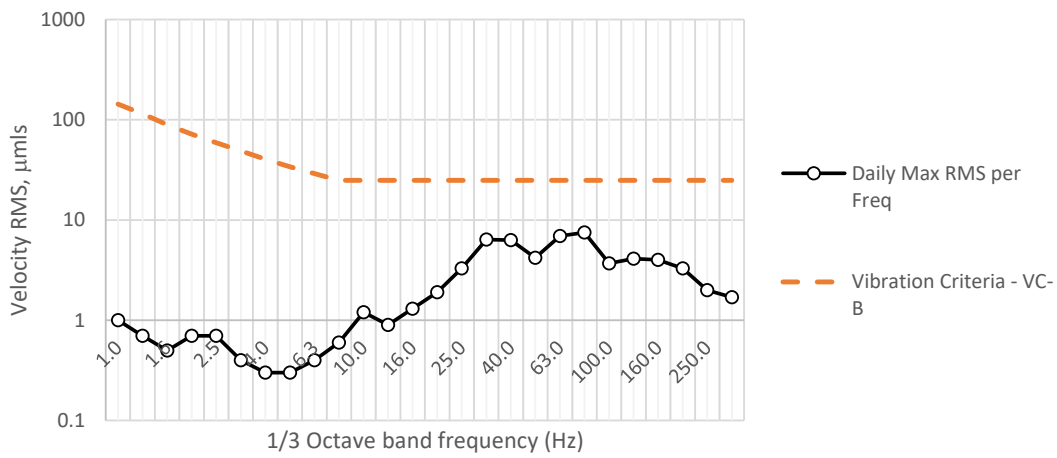
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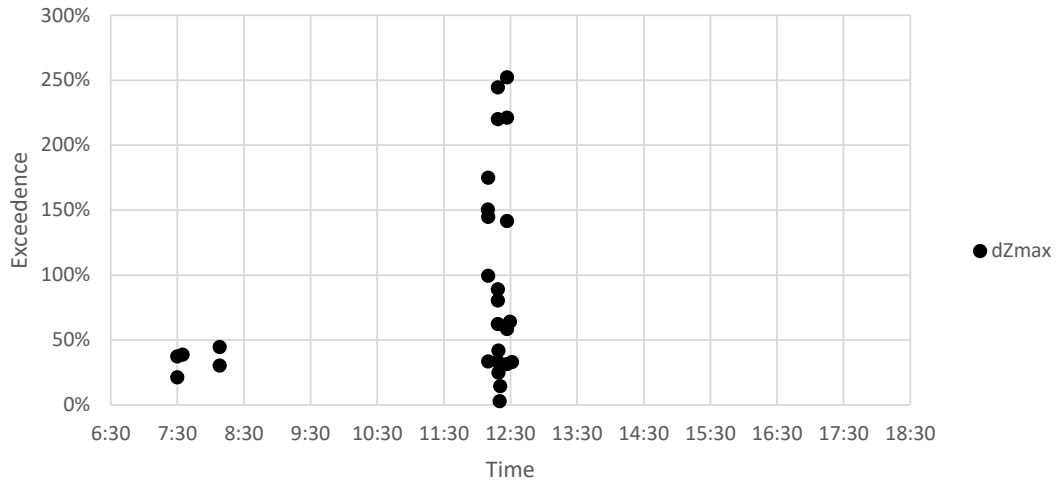
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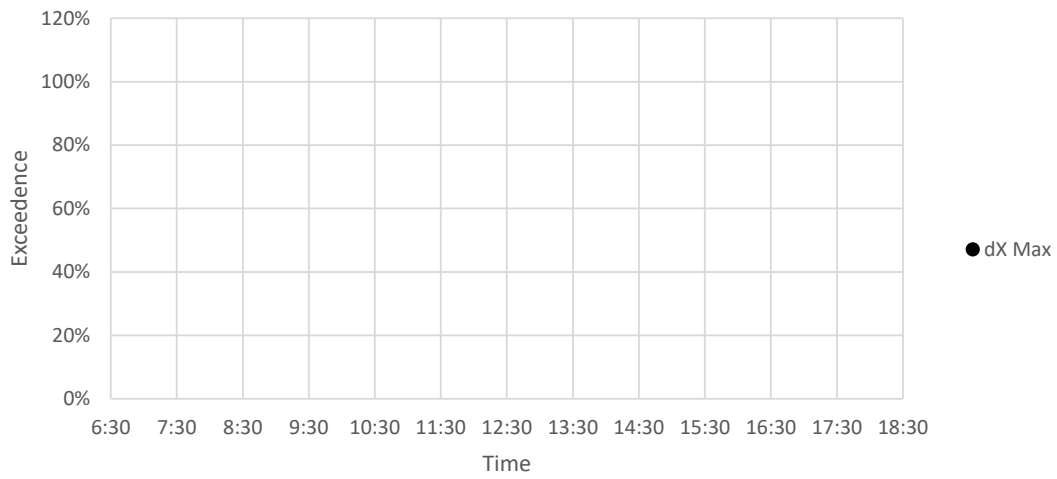
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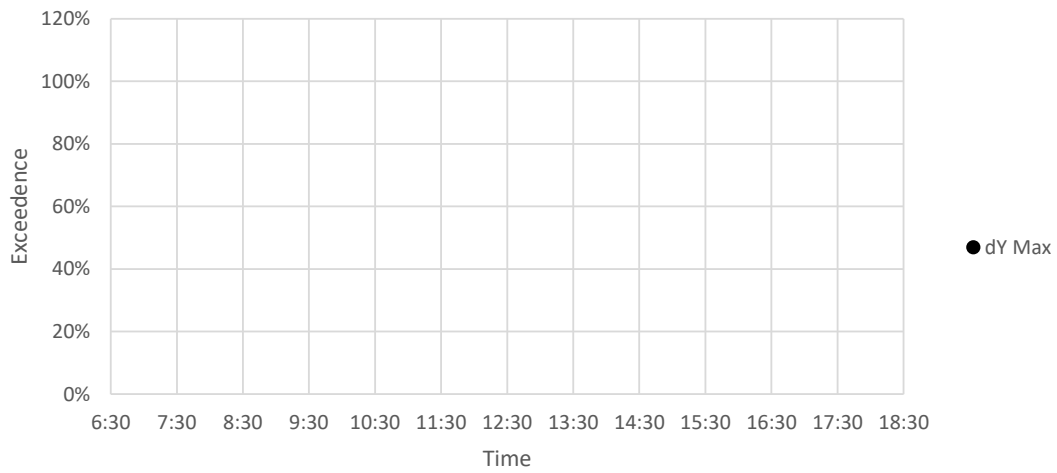
Vertical



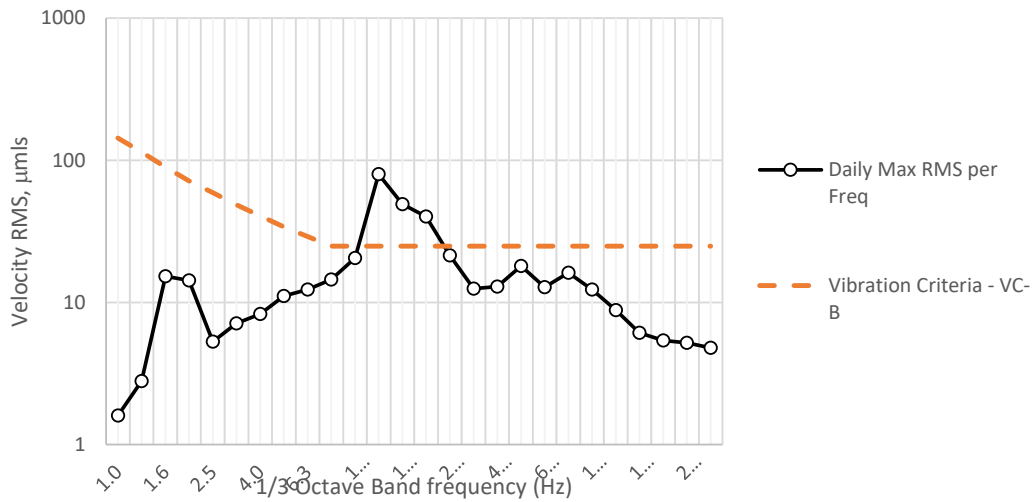
Fwd/Backwards



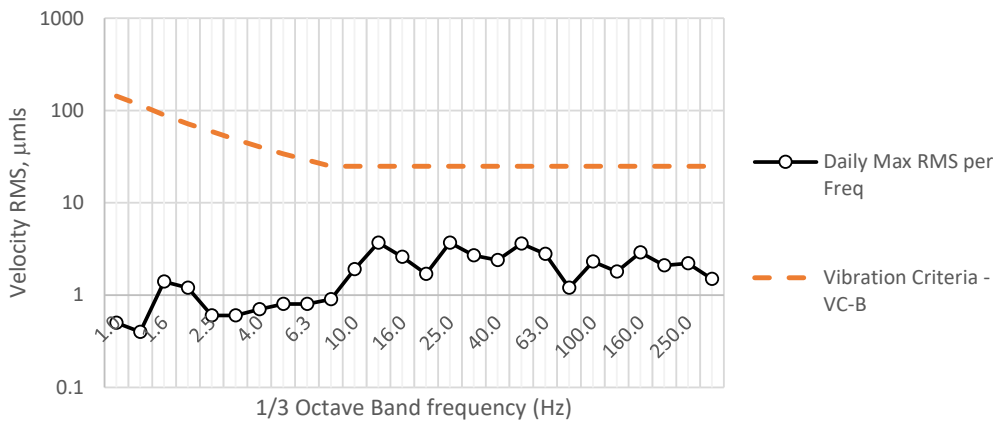
Sideways



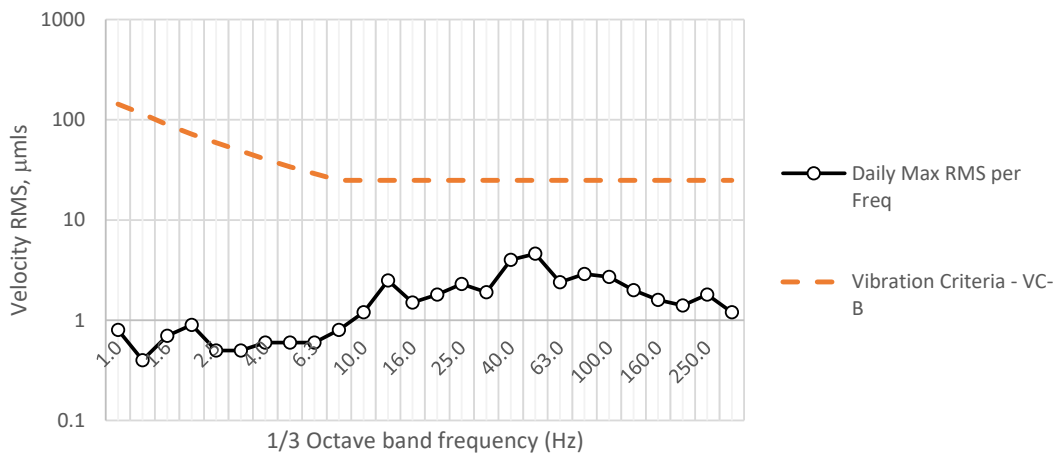
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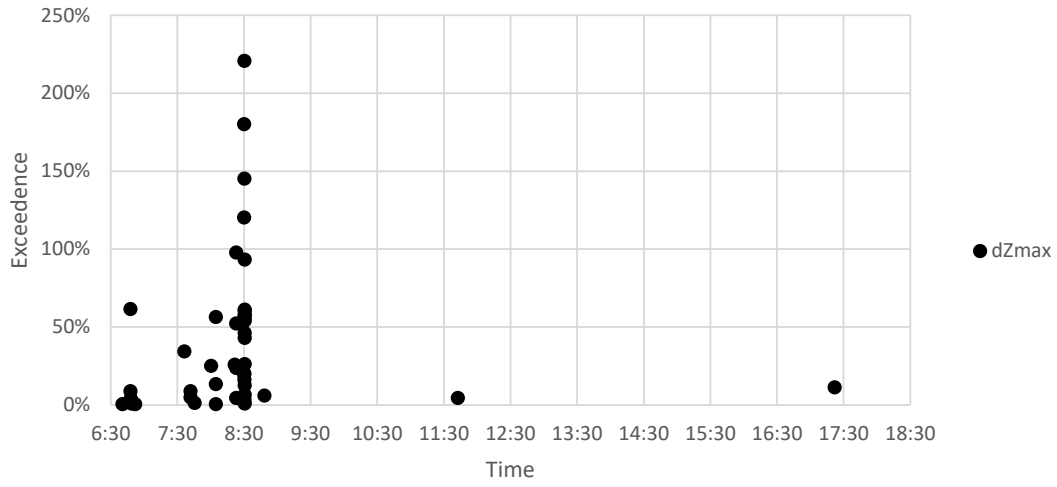
FwdBackwd Vibration



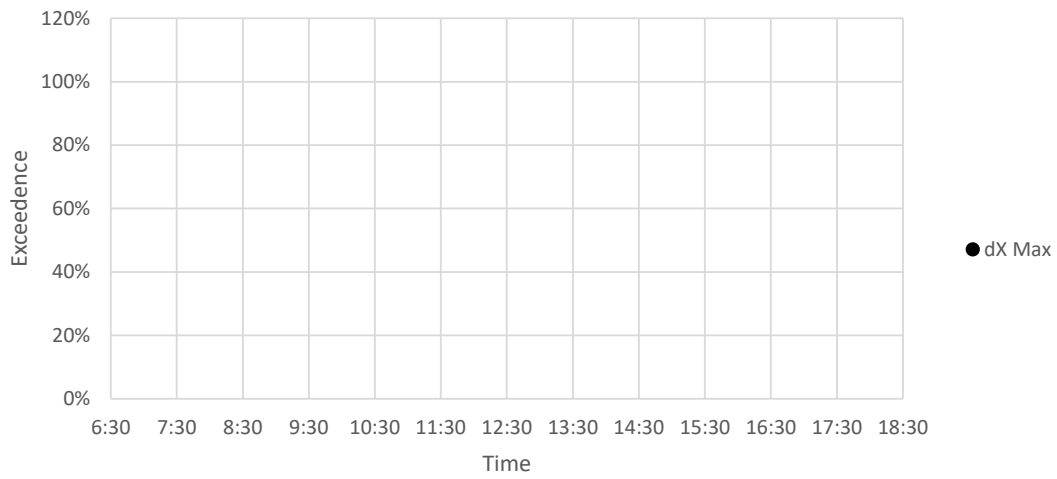
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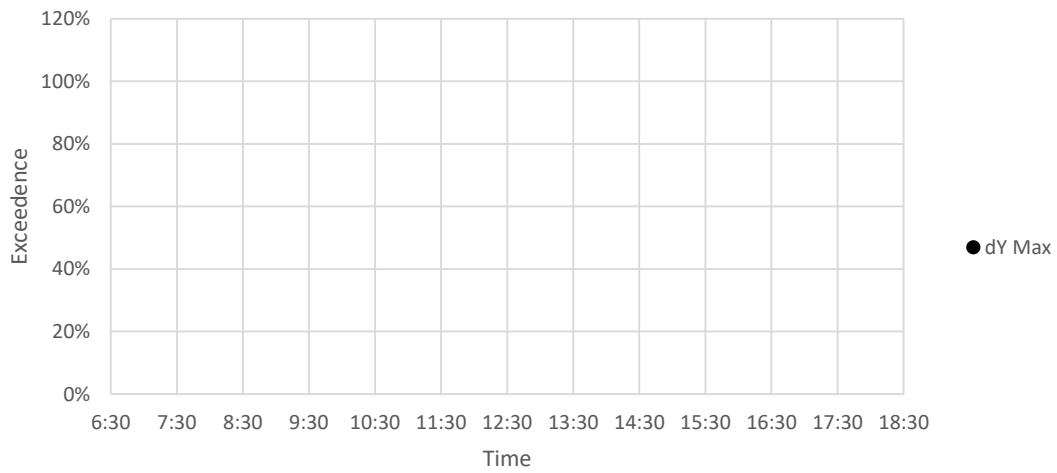
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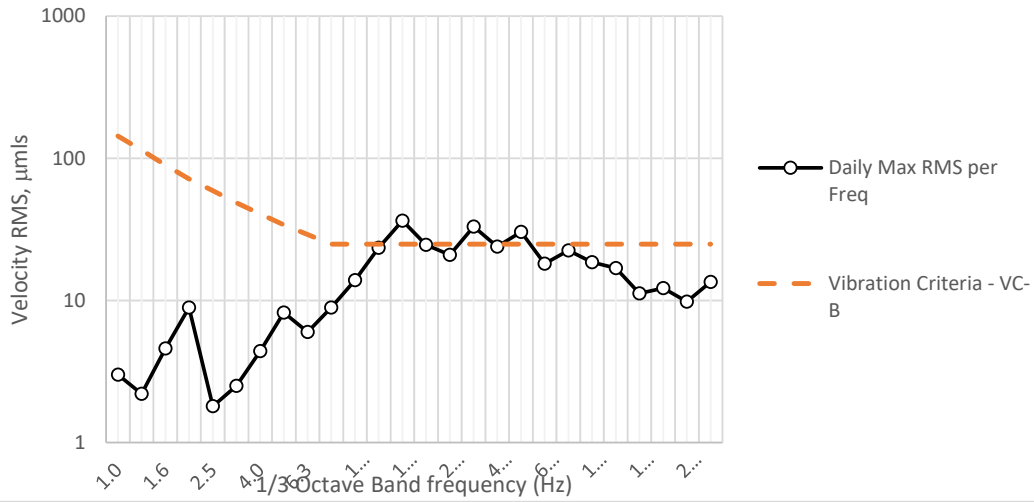
Fwd/Backwards



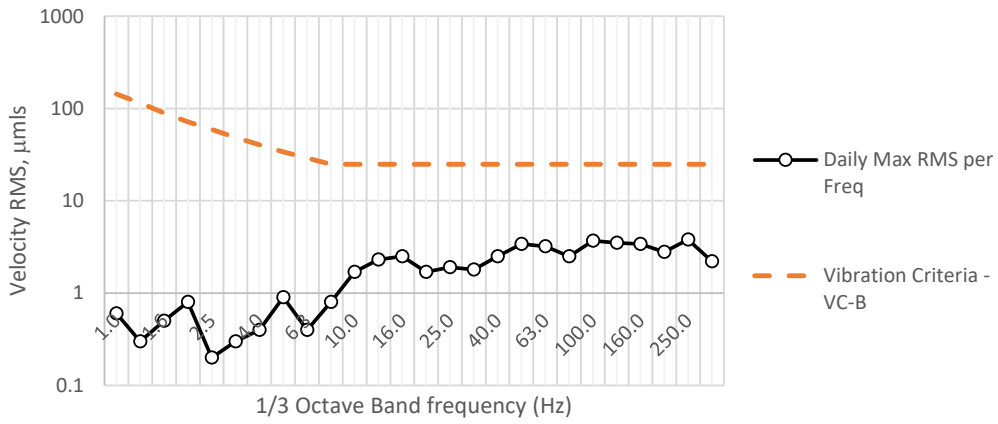
Sideways



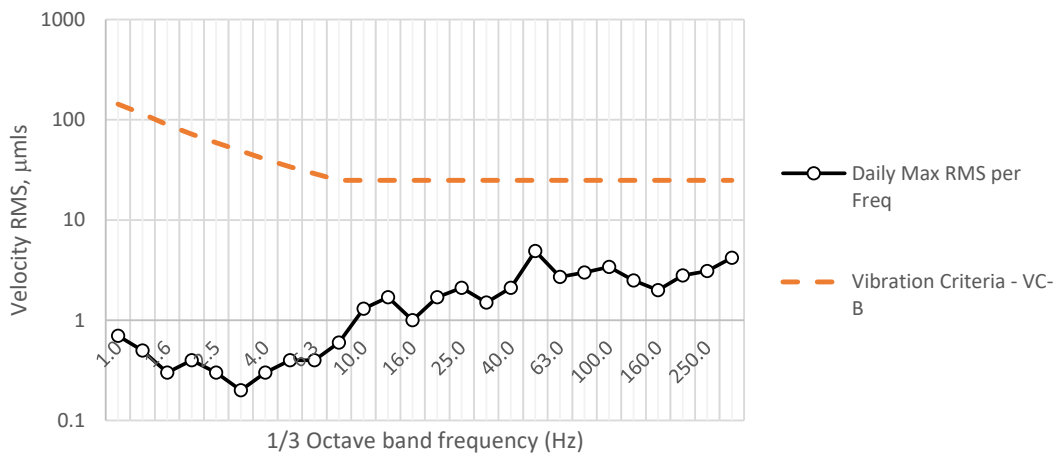
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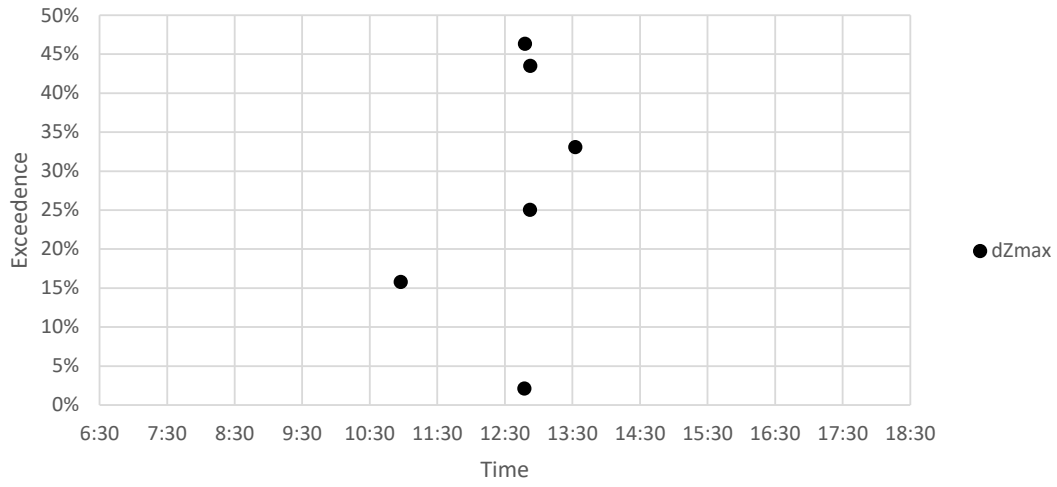
FwdBackwd Vibration



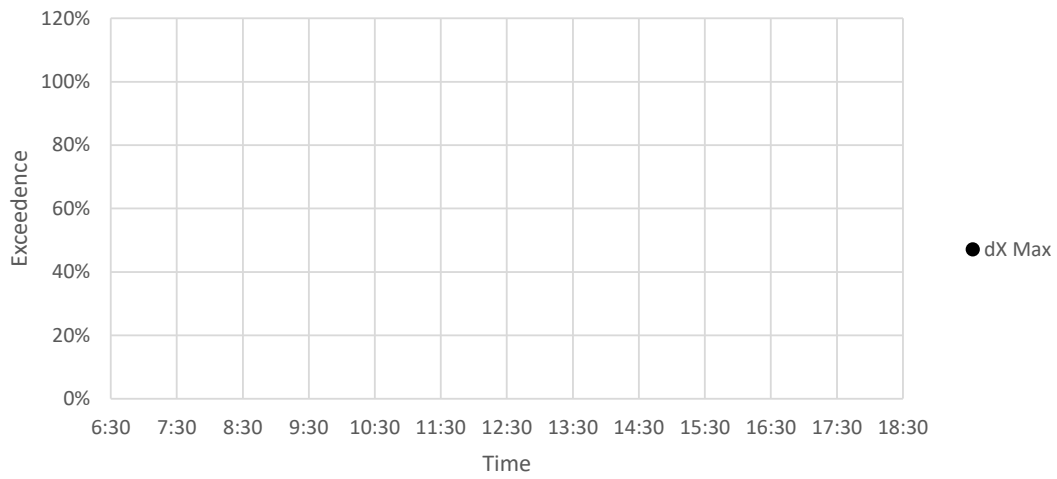
Sideways Vibration



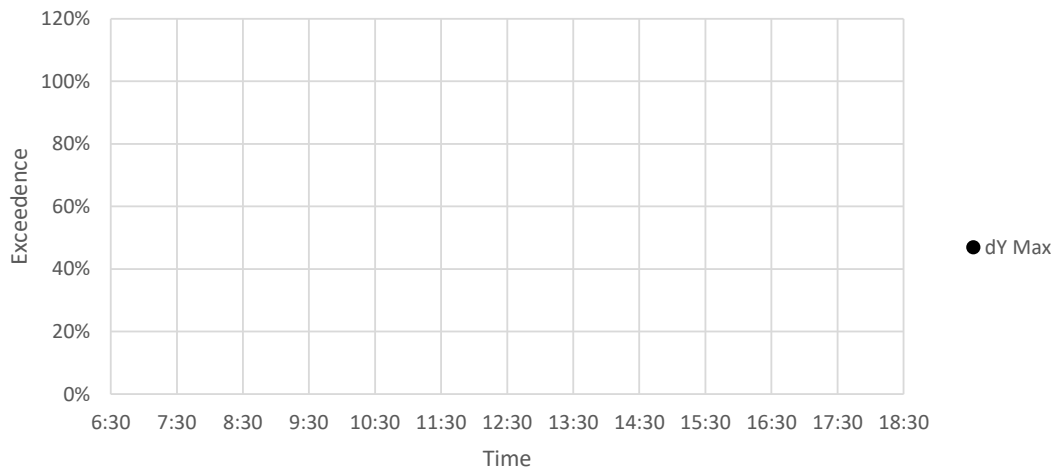
Vertical



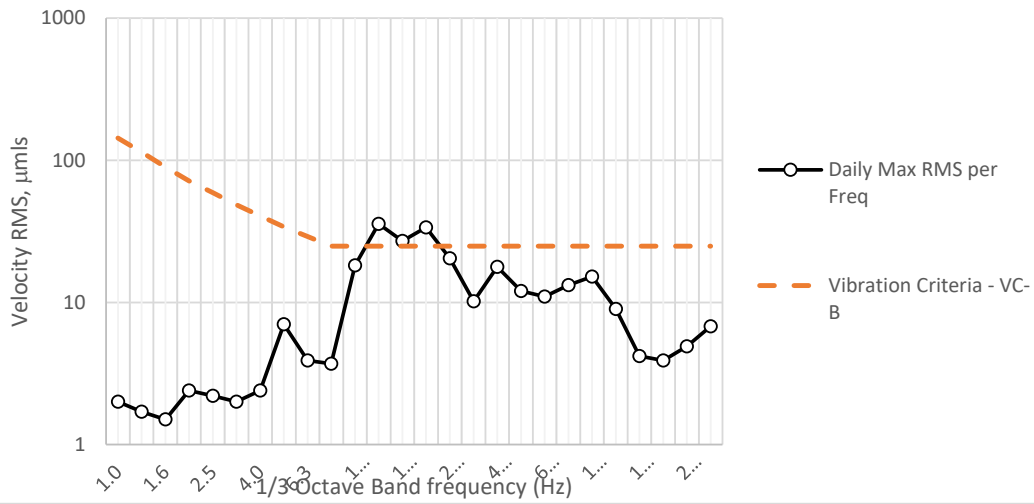
Fwd/Backwards



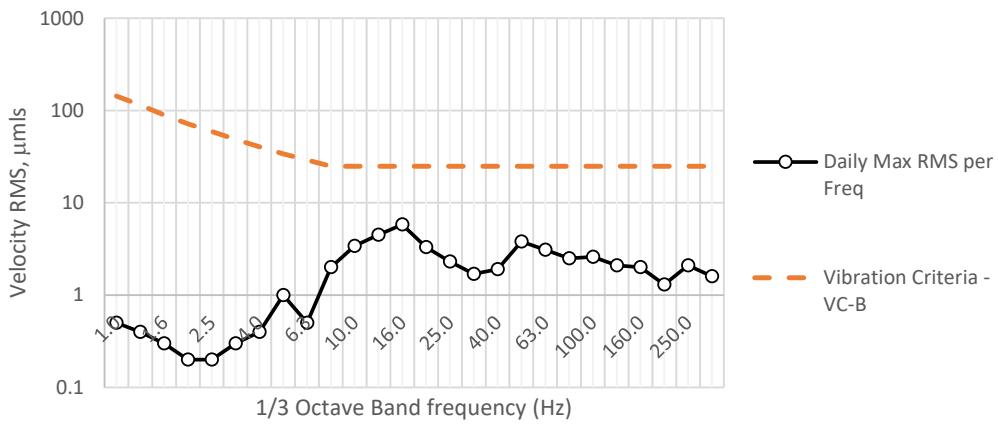
Sideways



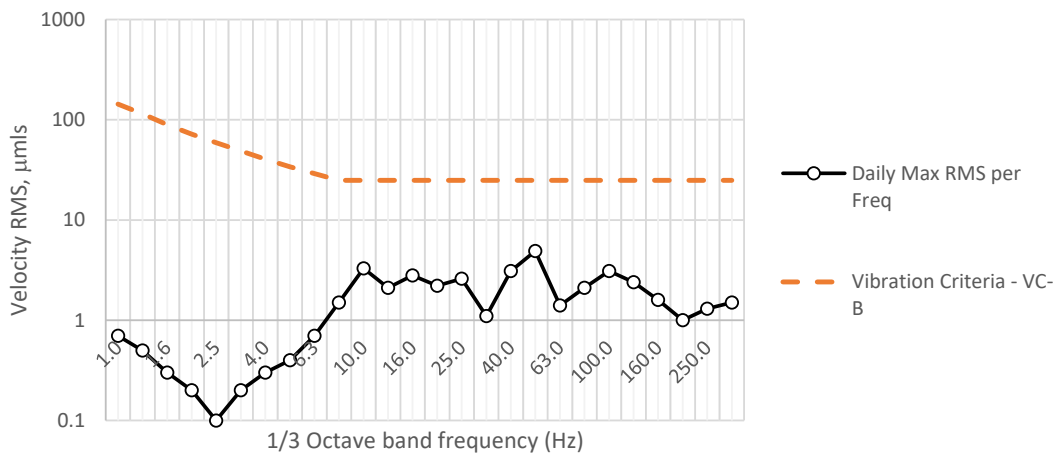
Vertical Vibration



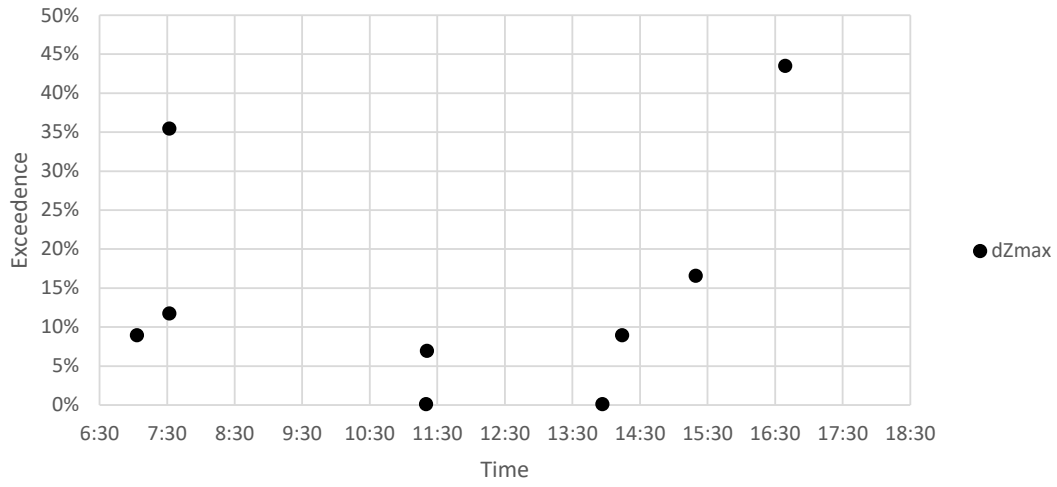
FwdBackwd Vibration



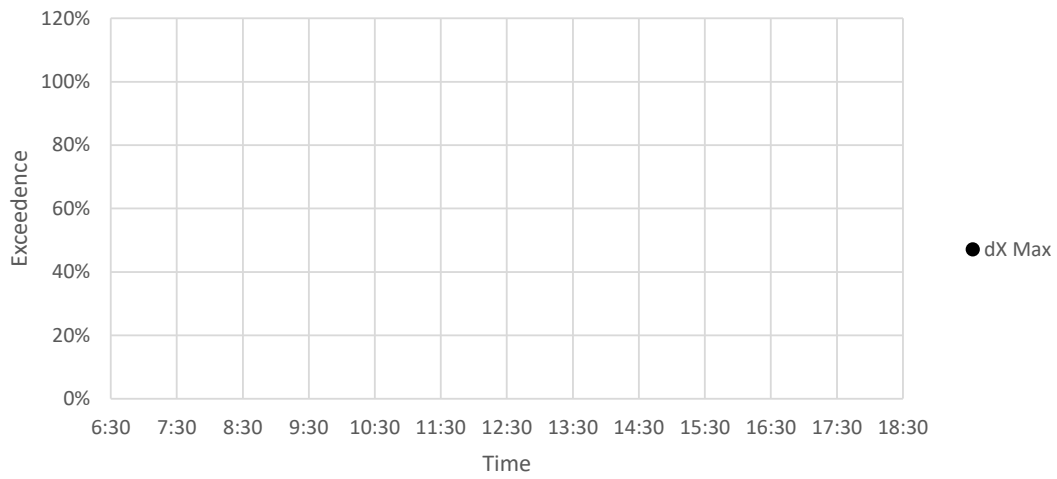
Sideways Vibration



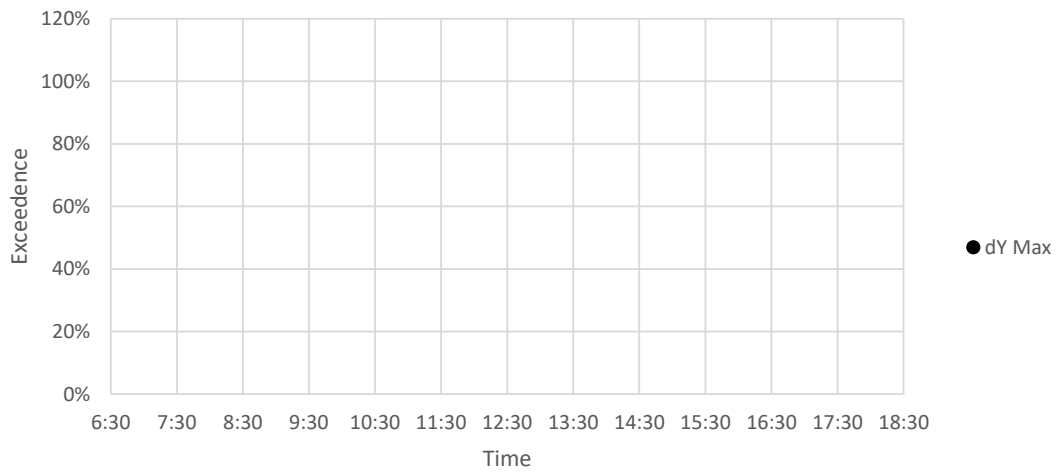
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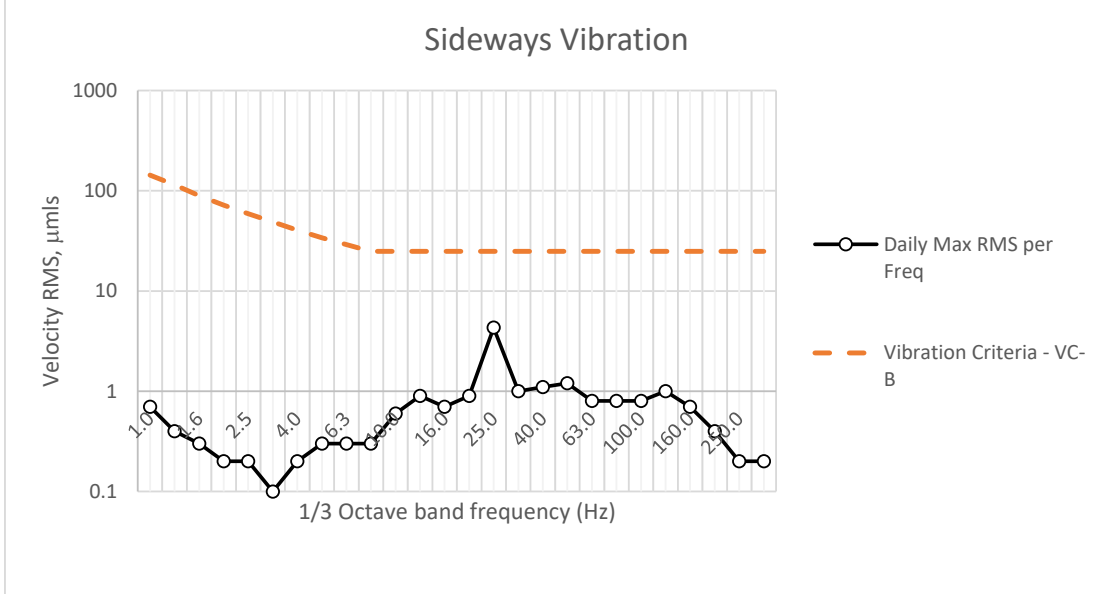
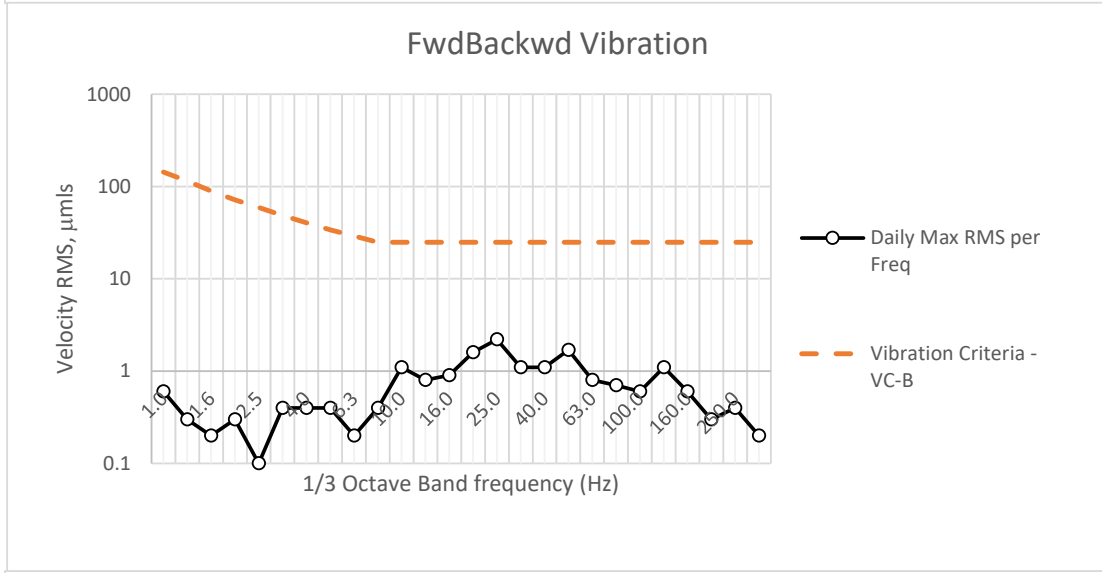
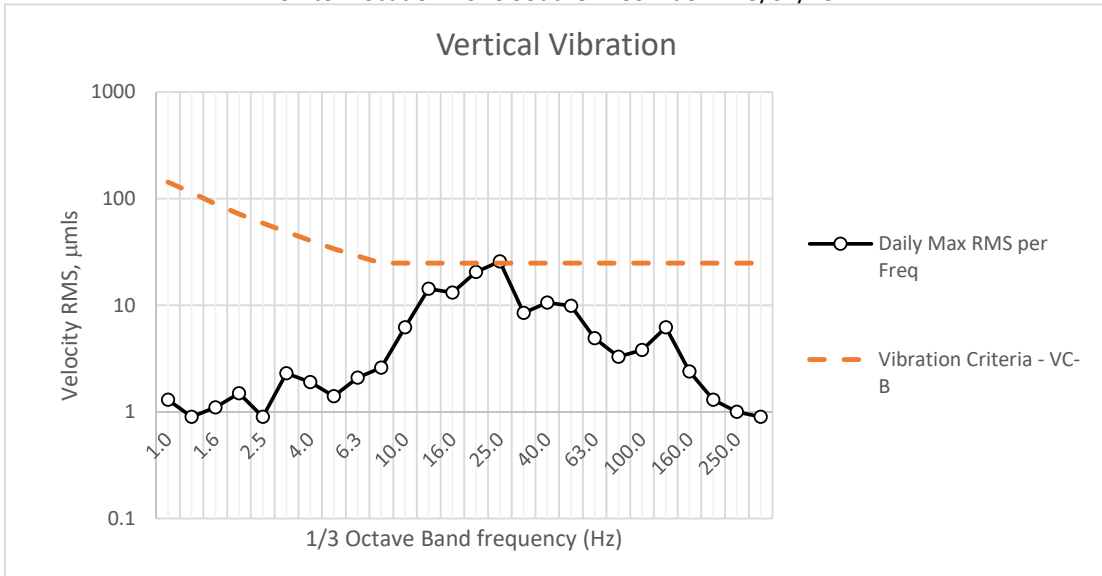


Fwd/Backwards

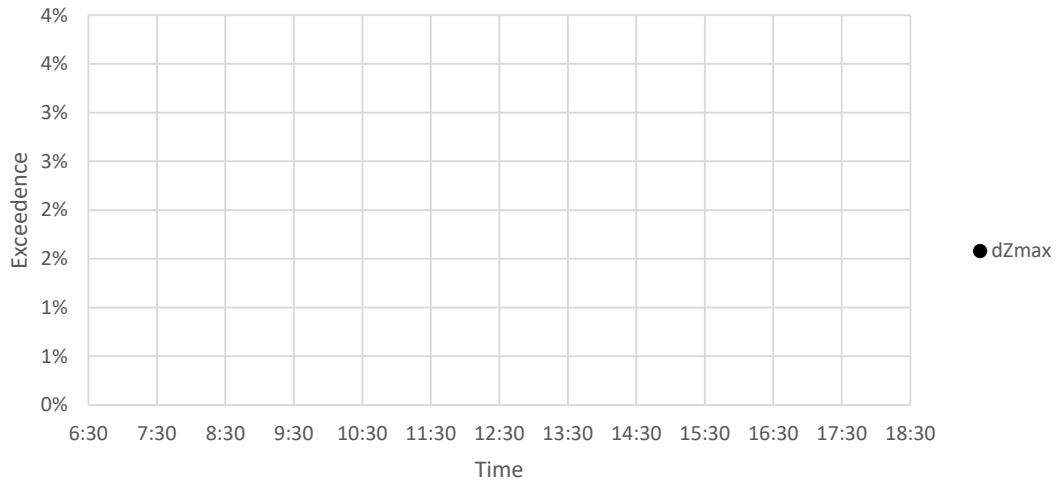


Sideways

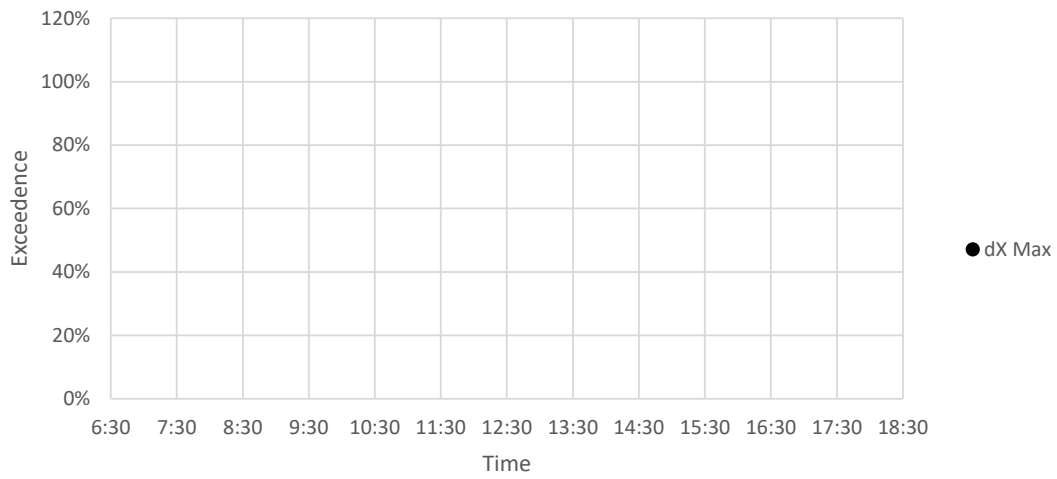




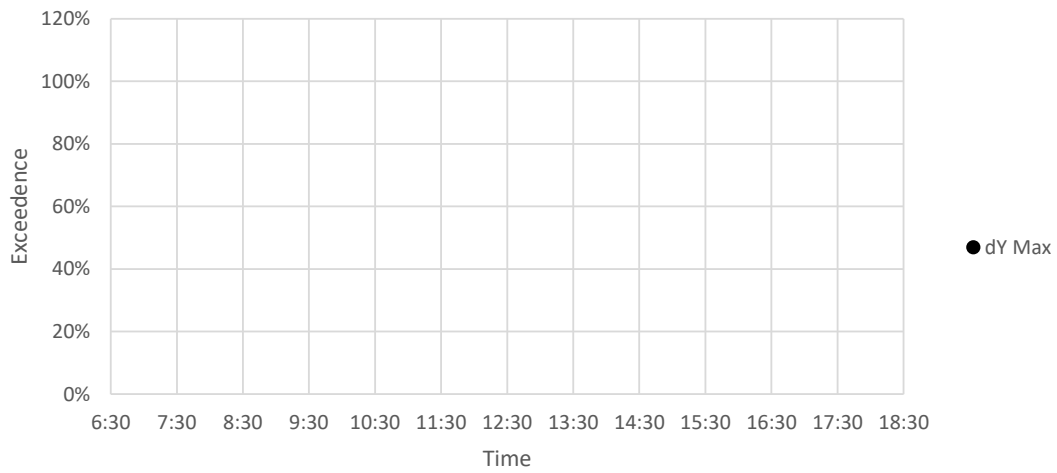
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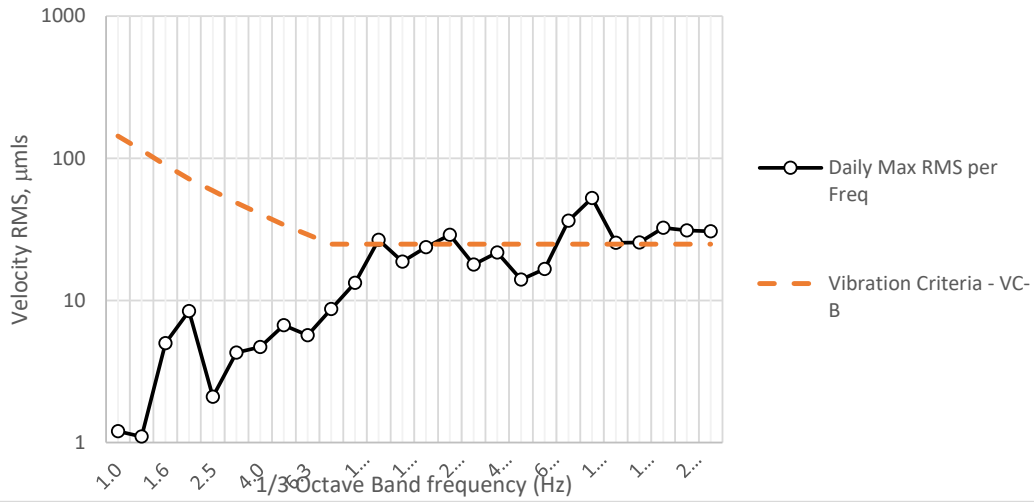
Fwd/Backwards



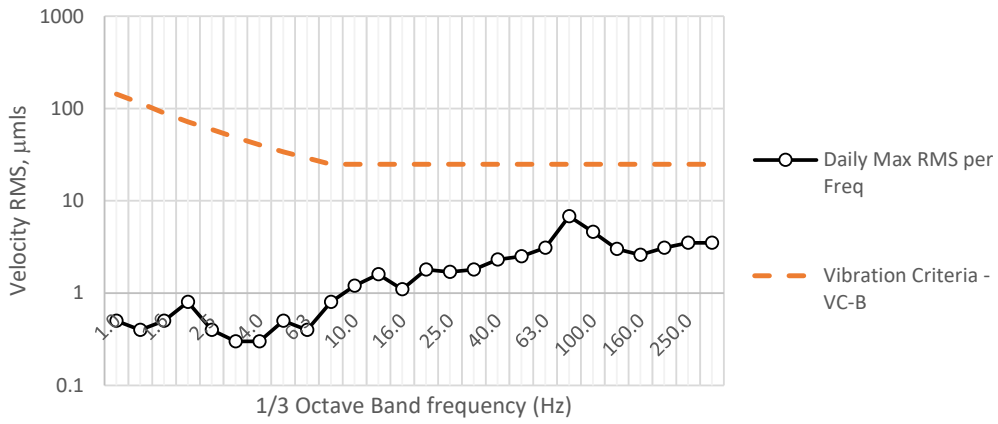
Sideways



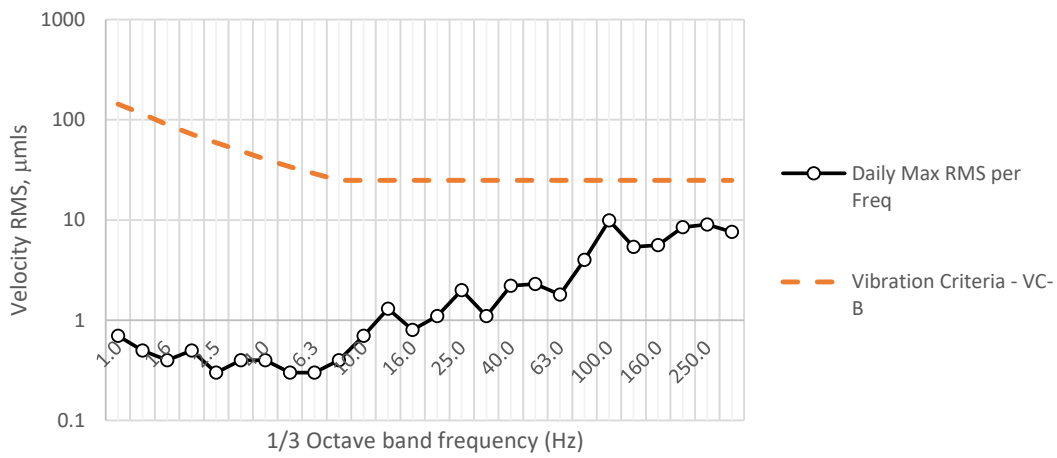
Vertical Vibration



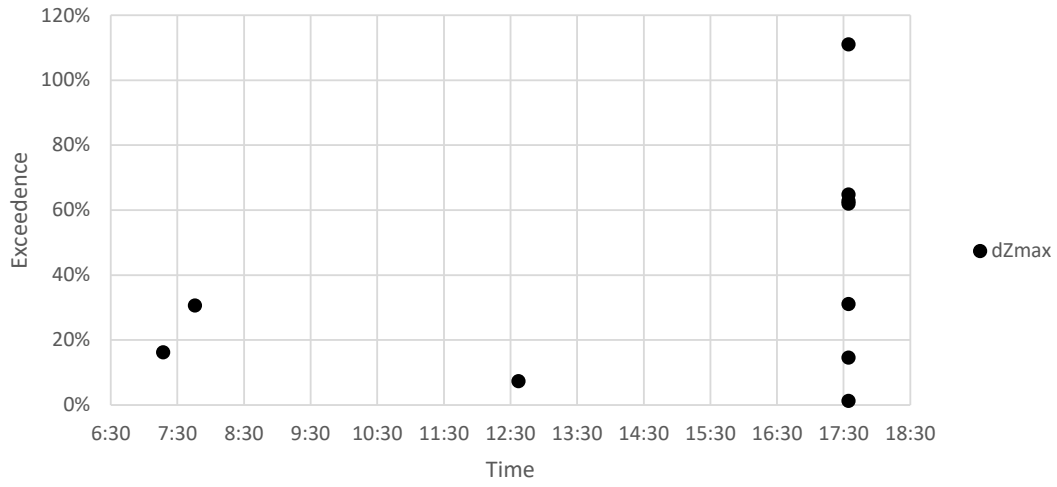
FwdBackwd Vibration



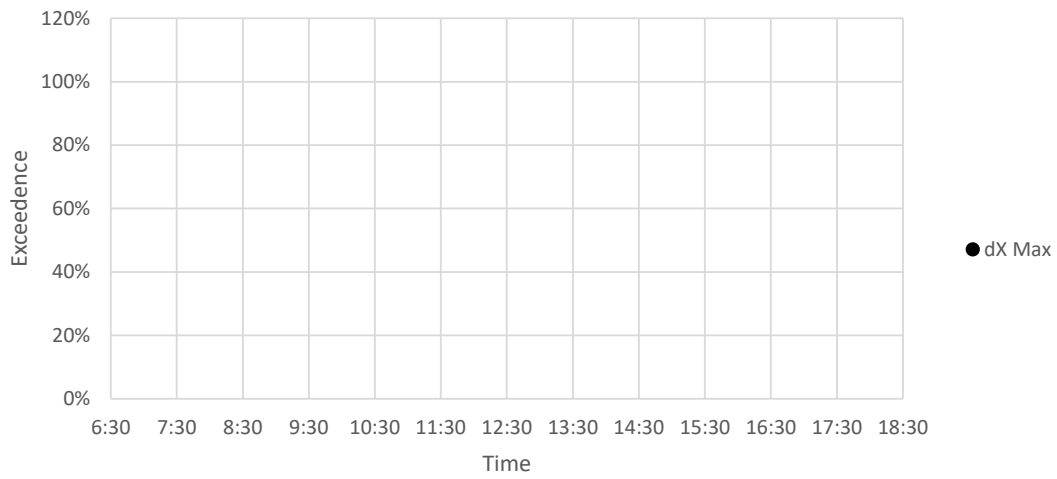
Sideways Vibration



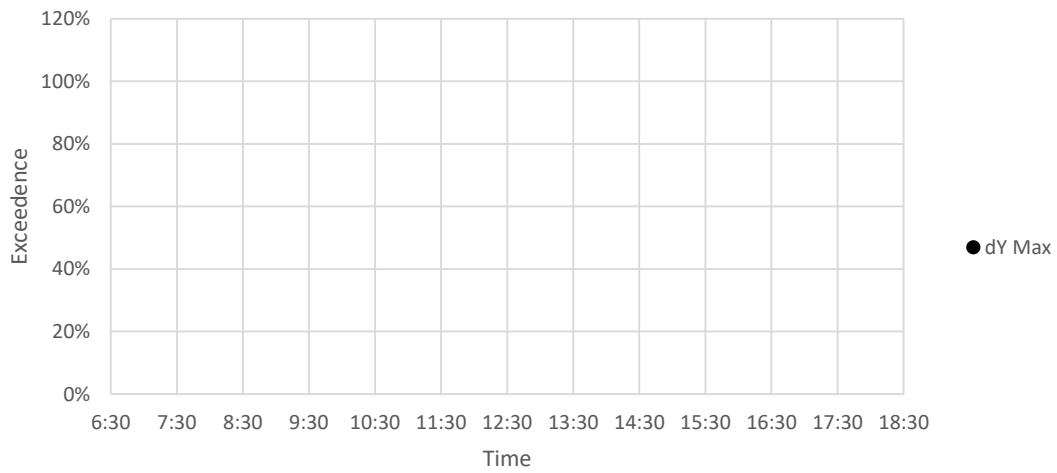
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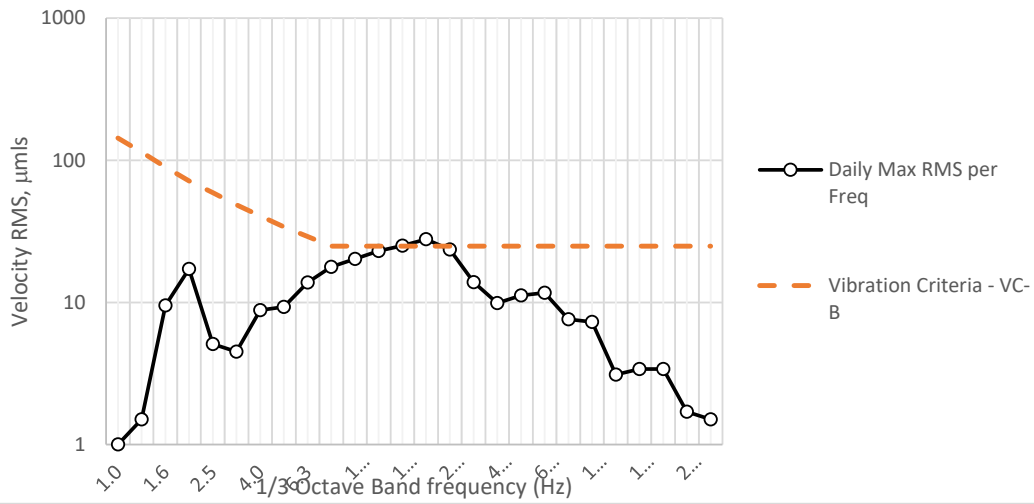
Fwd/Backwards



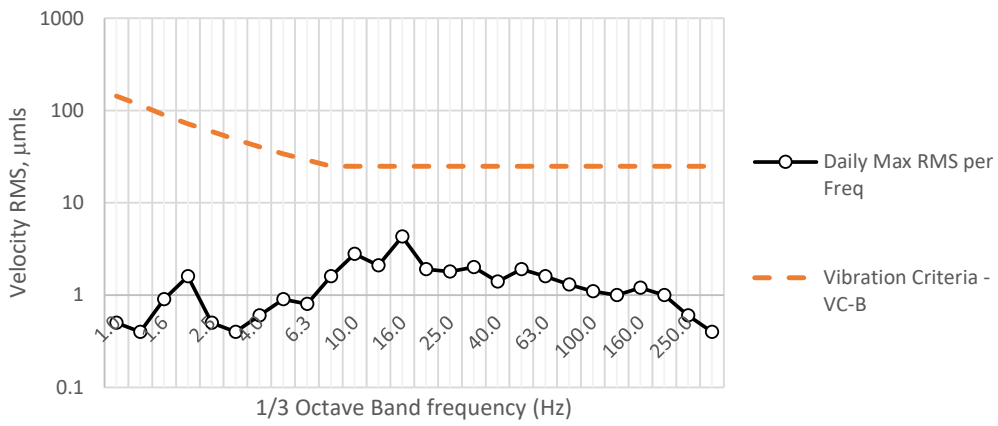
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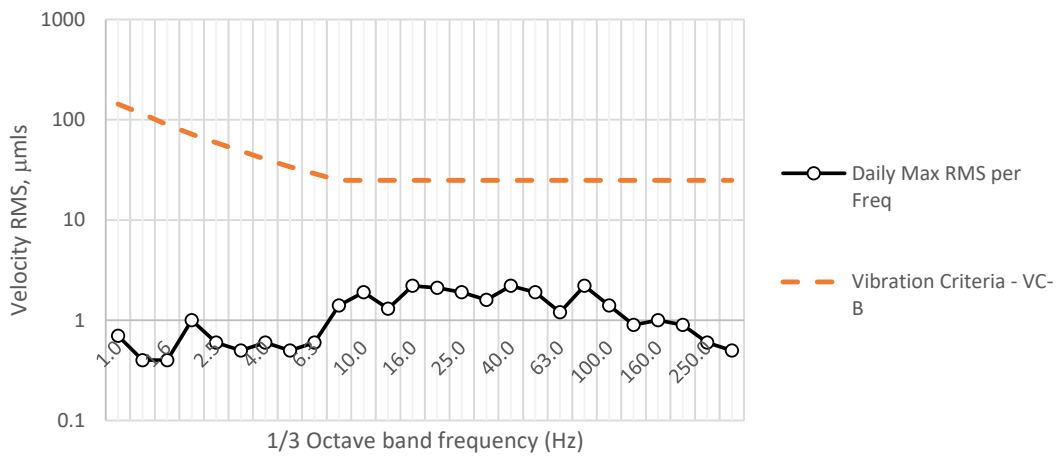
Vertical Vibration



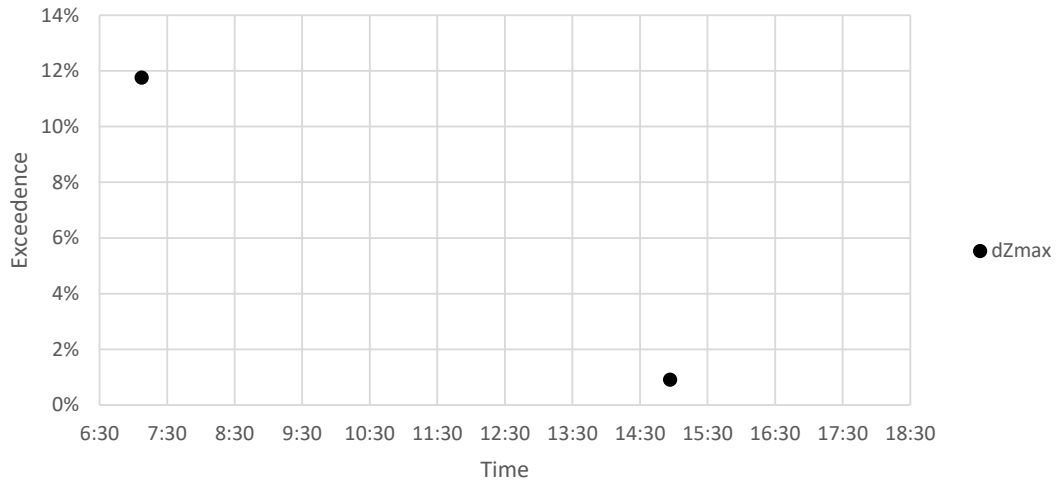
FwdBackwd Vibration



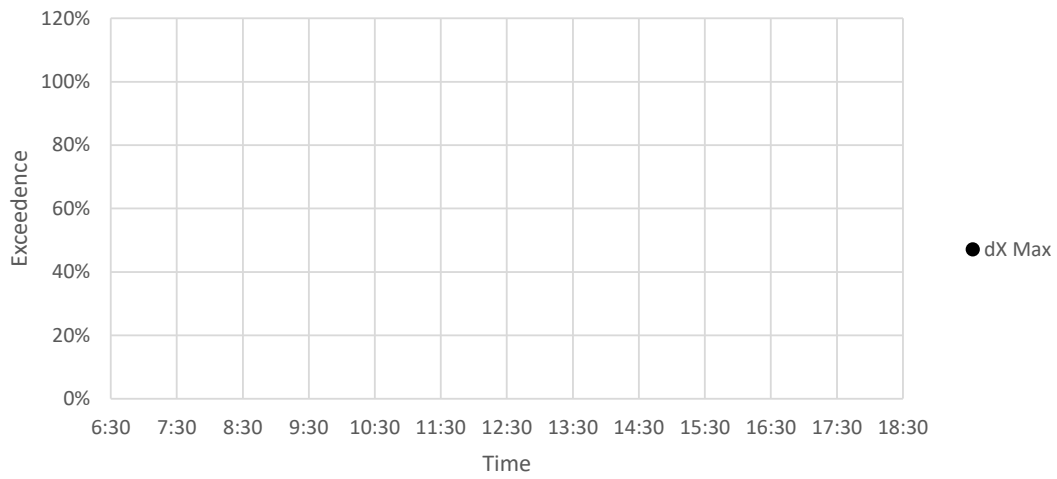
Sideways Vibration



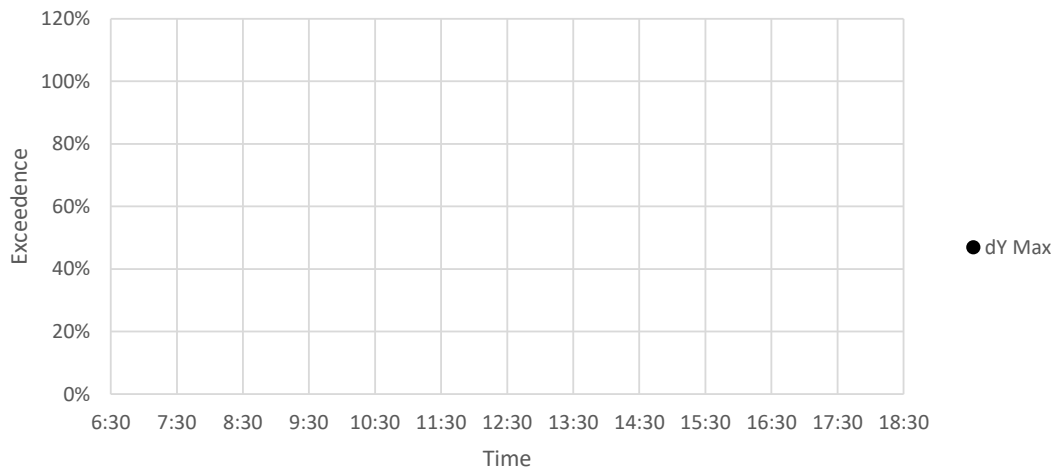
Vertical



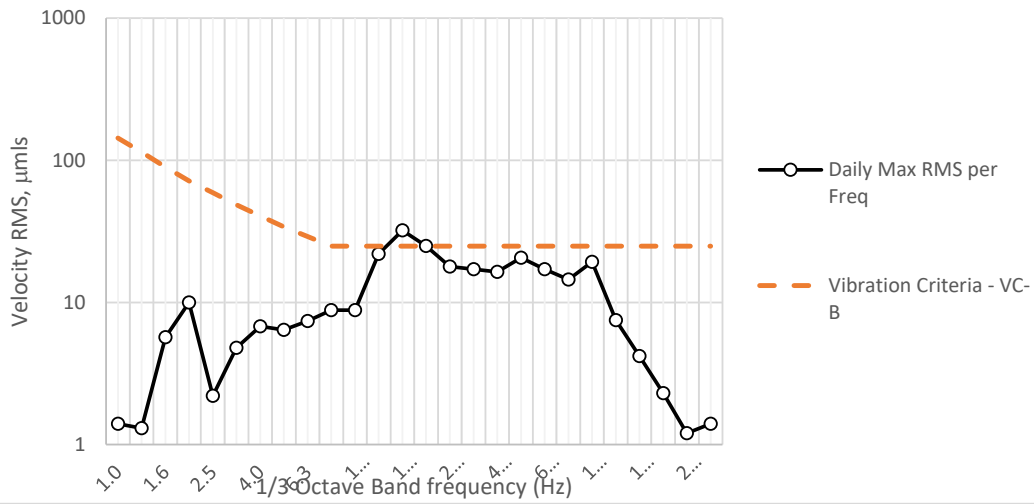
Fwd/Backwards



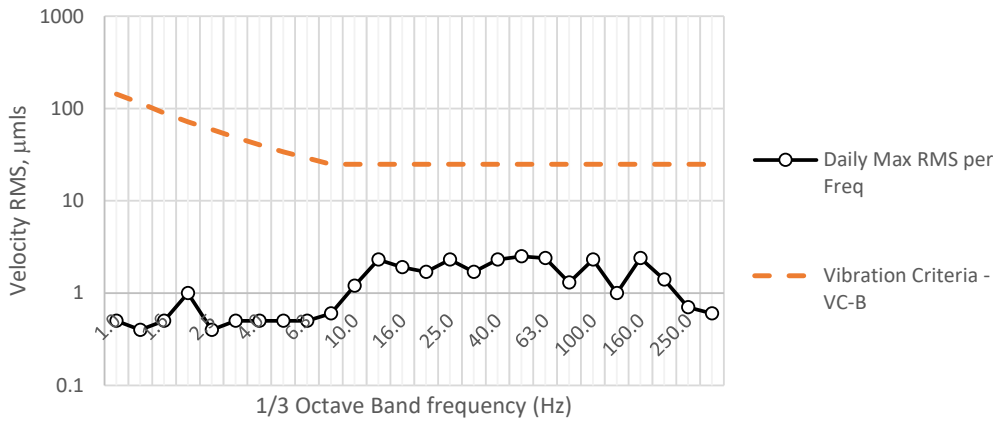
Sideways



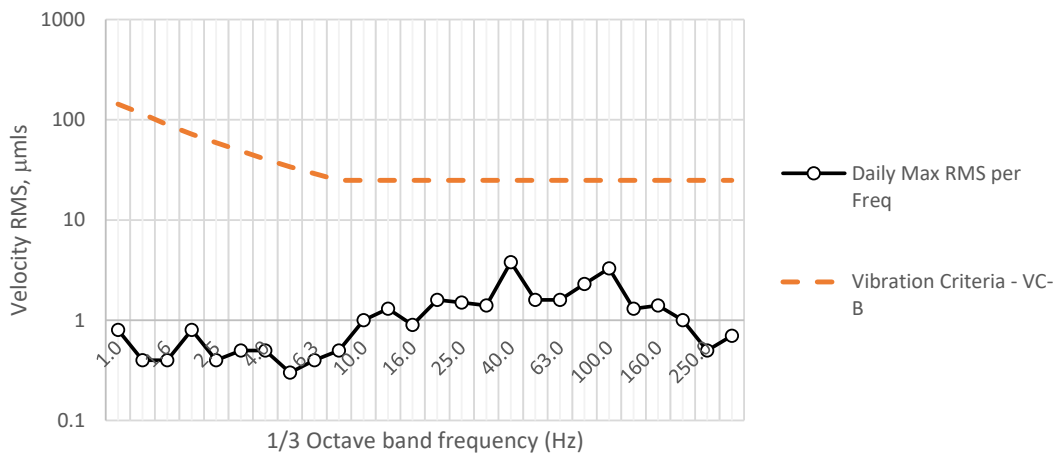
Vertical Vibration



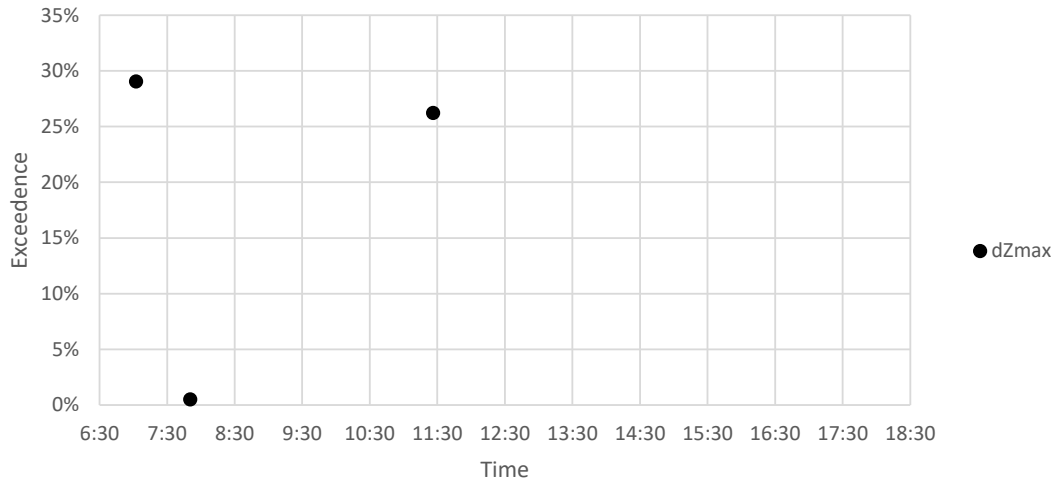
FwdBackwd Vibration



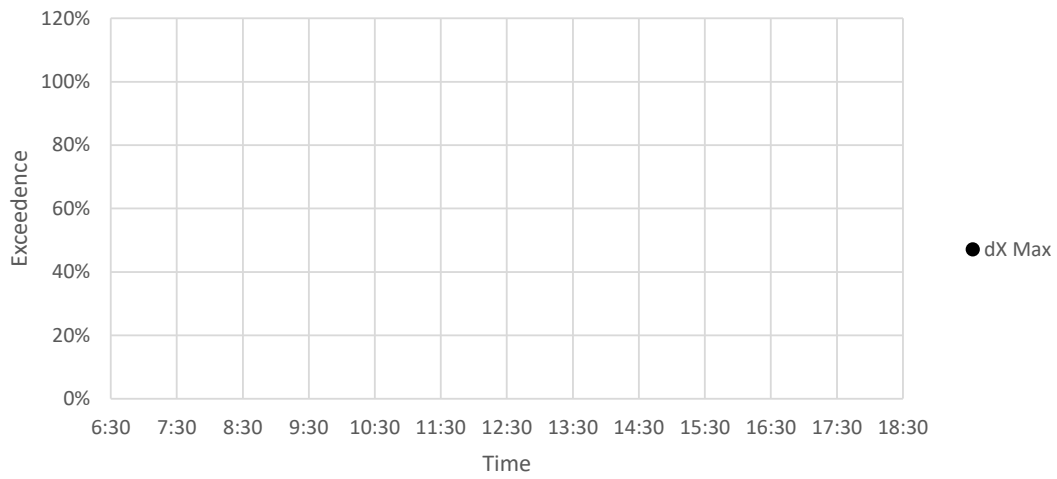
Sideways Vibration



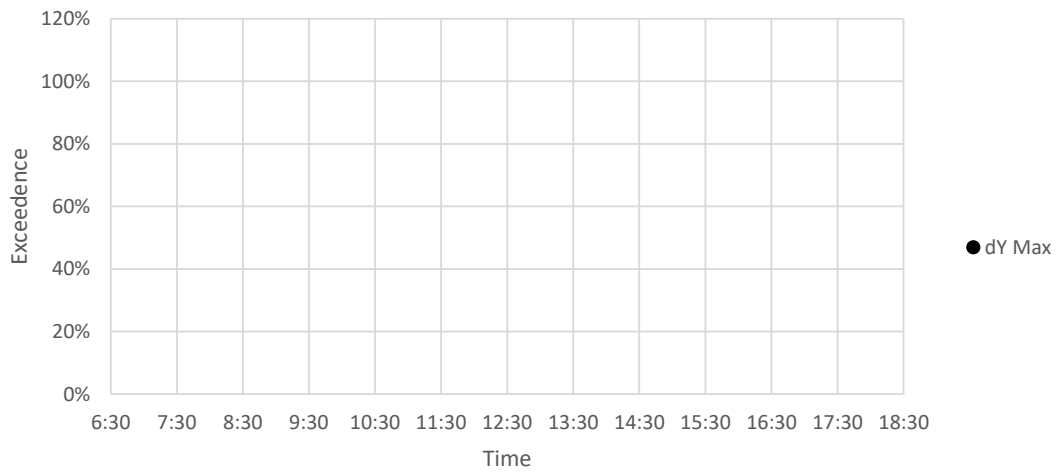
Vertical

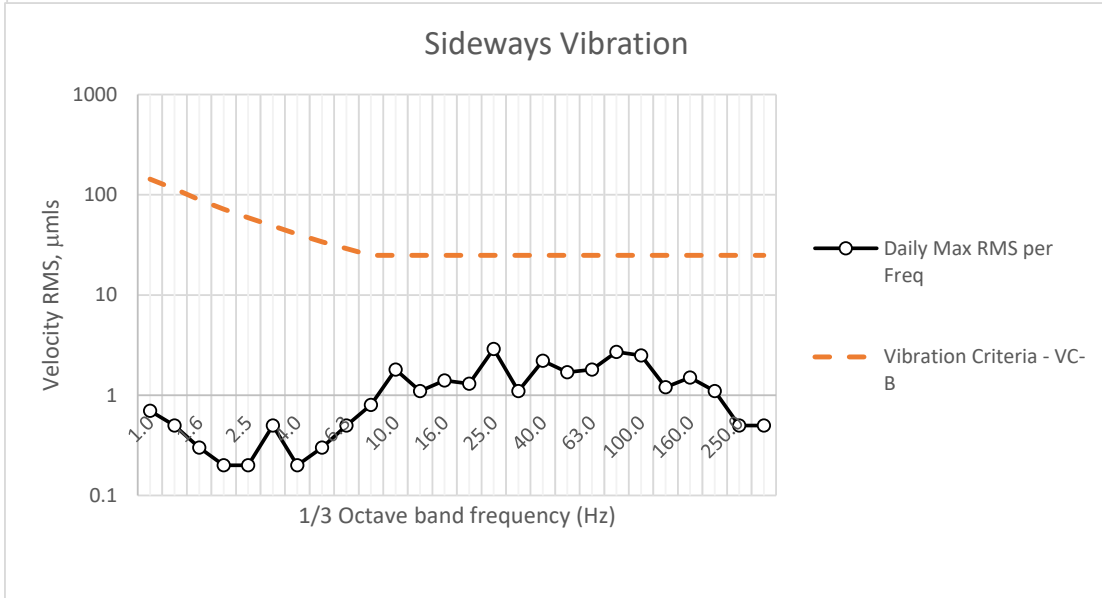
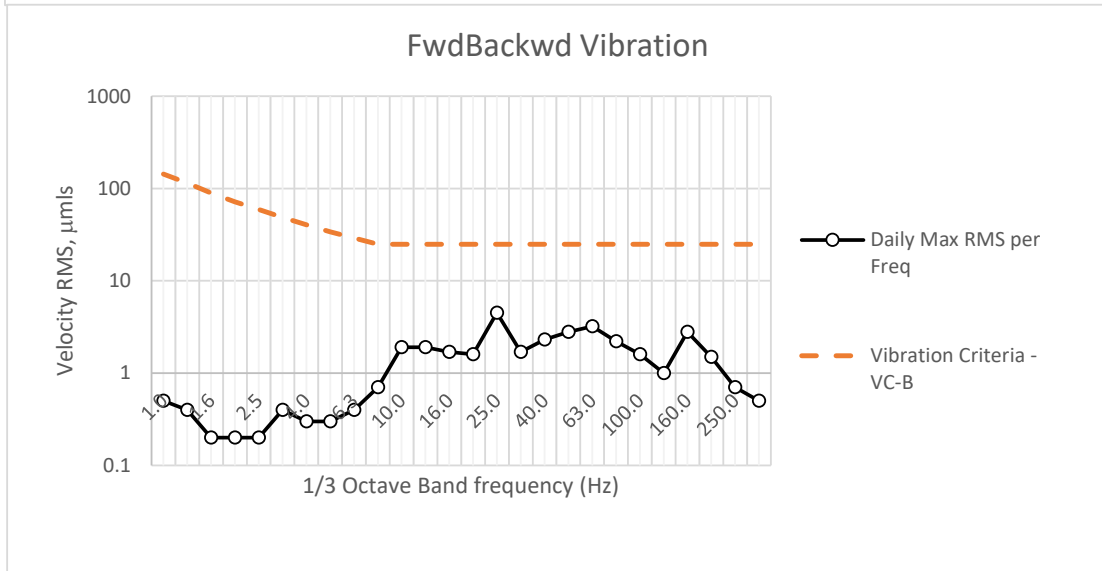
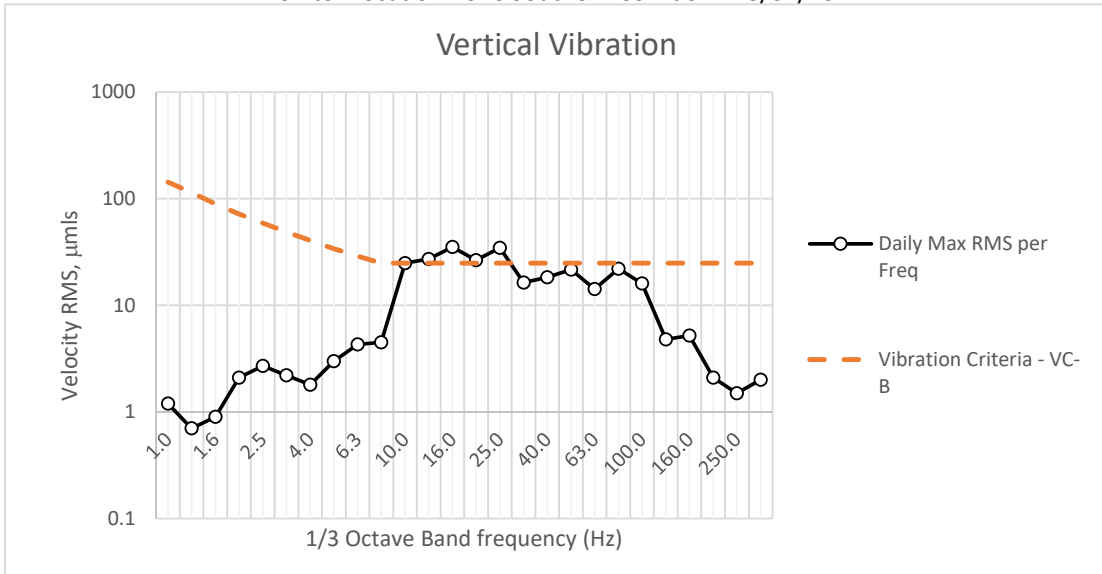


Fwd/Backwards

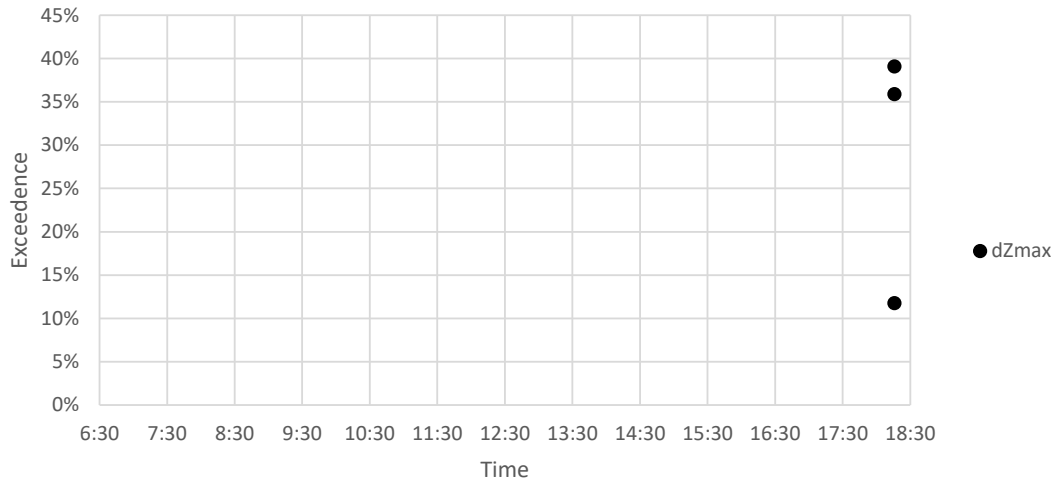


Sideways

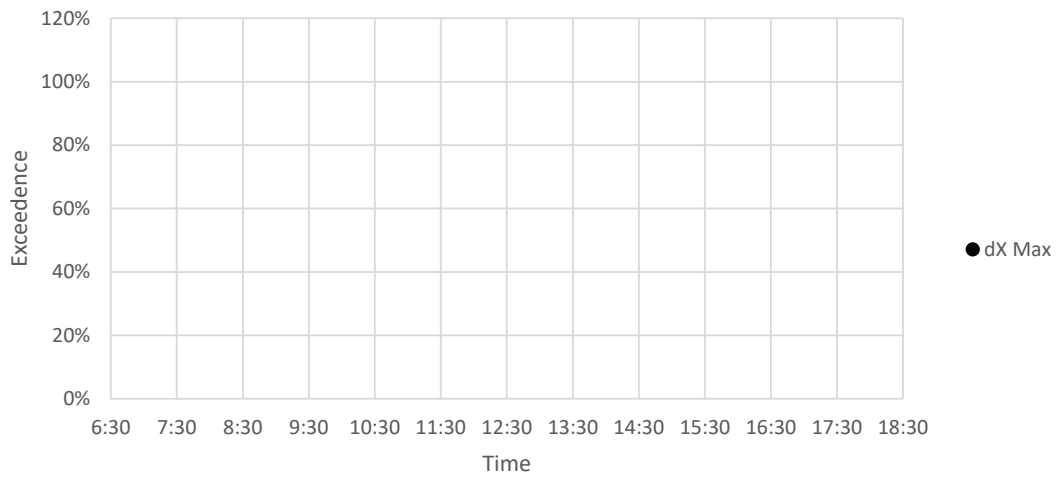




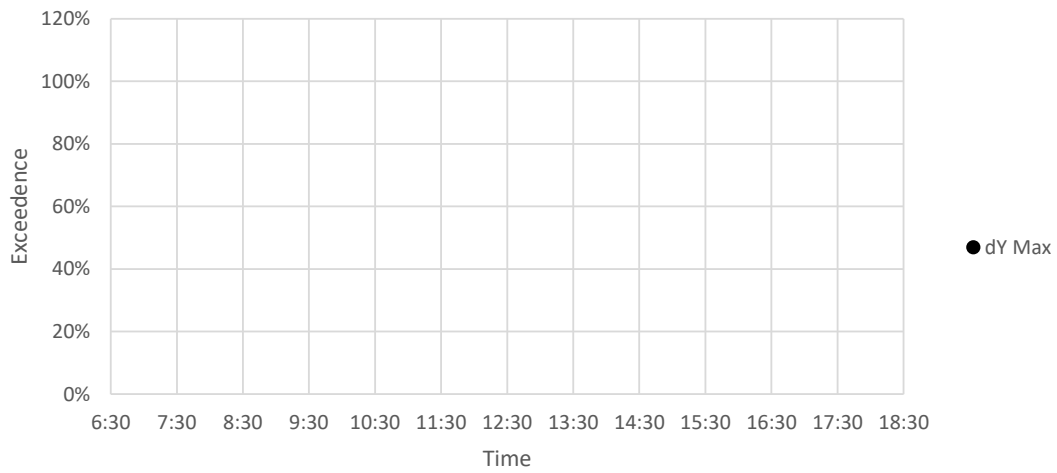
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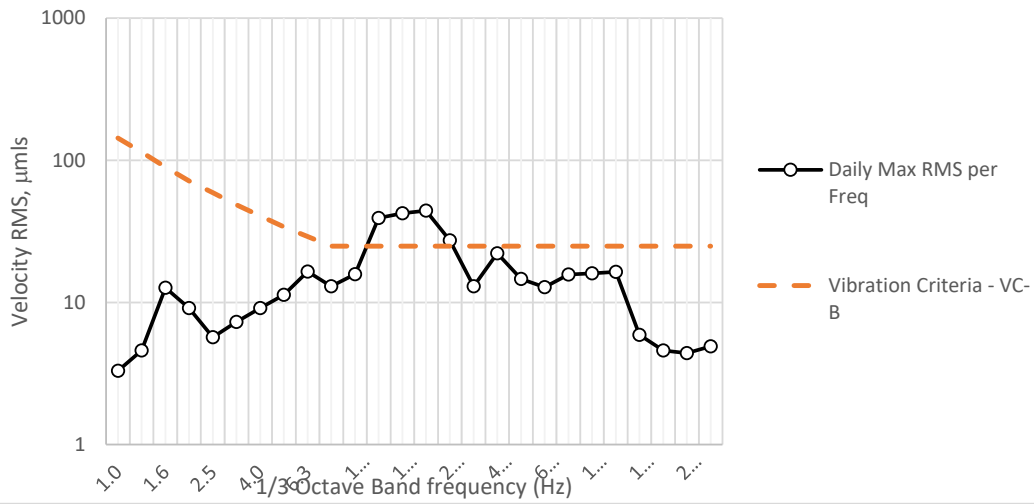
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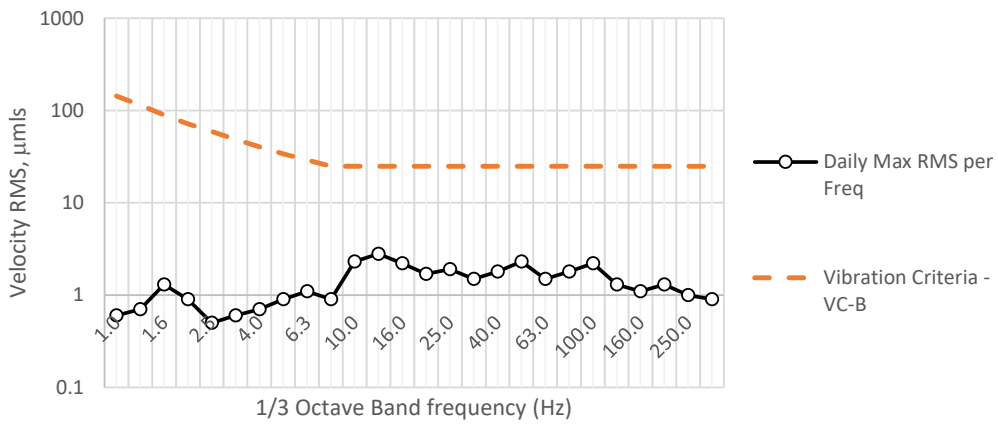
Sideways



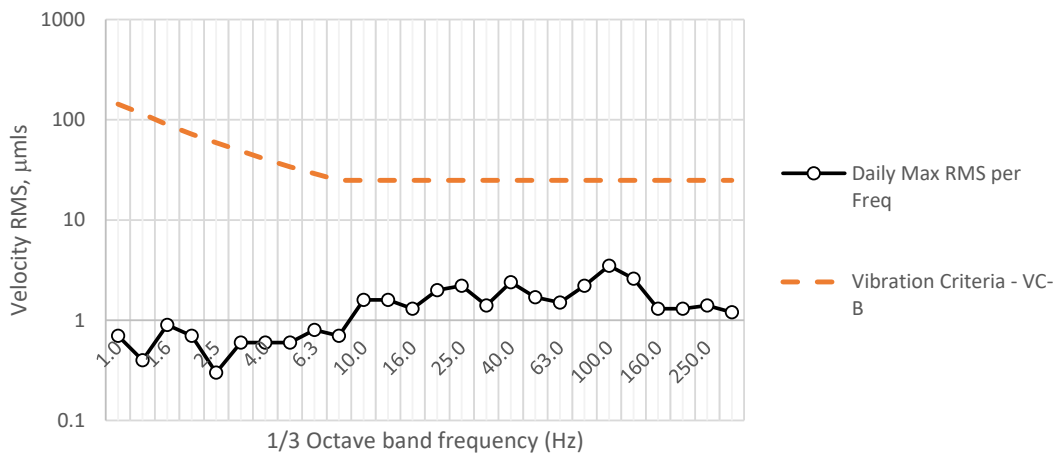
Vertical Vibration



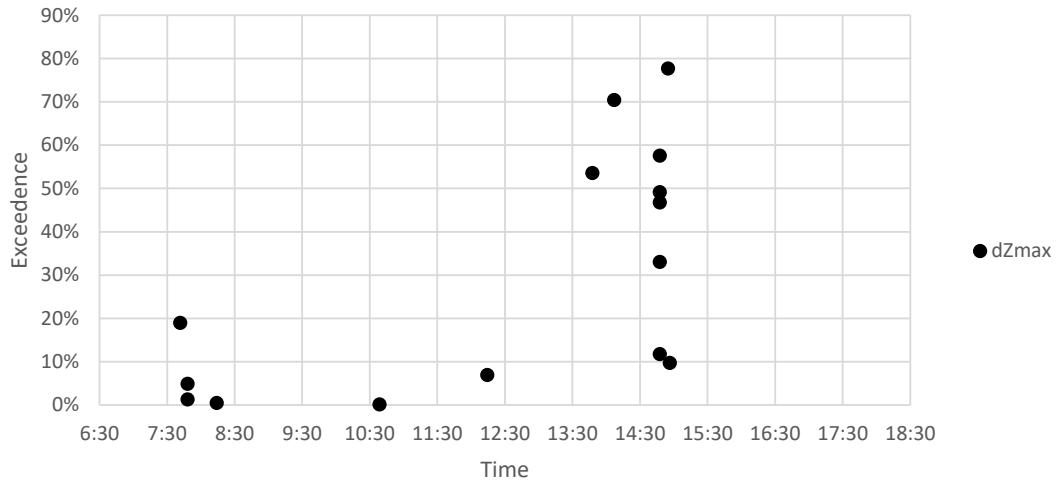
FwdBackwd Vibration



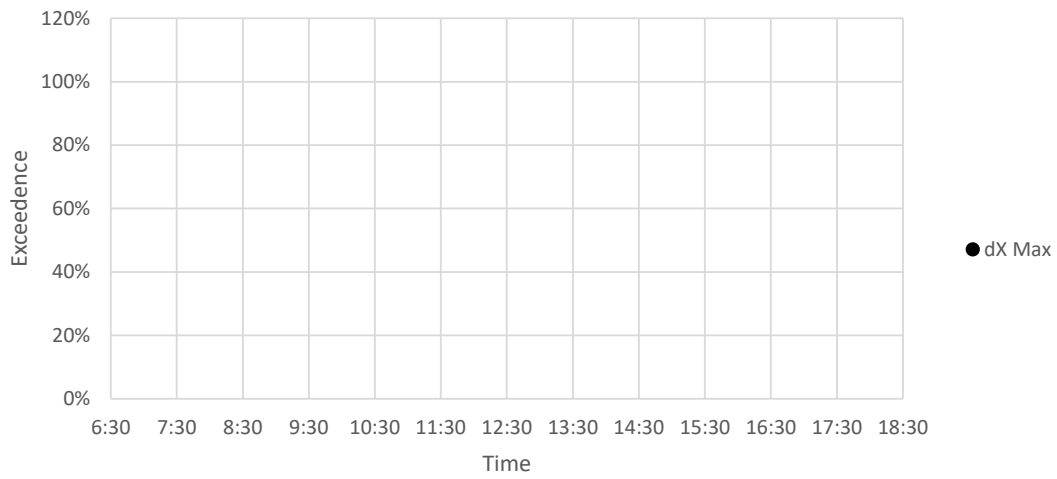
Sideways Vibration



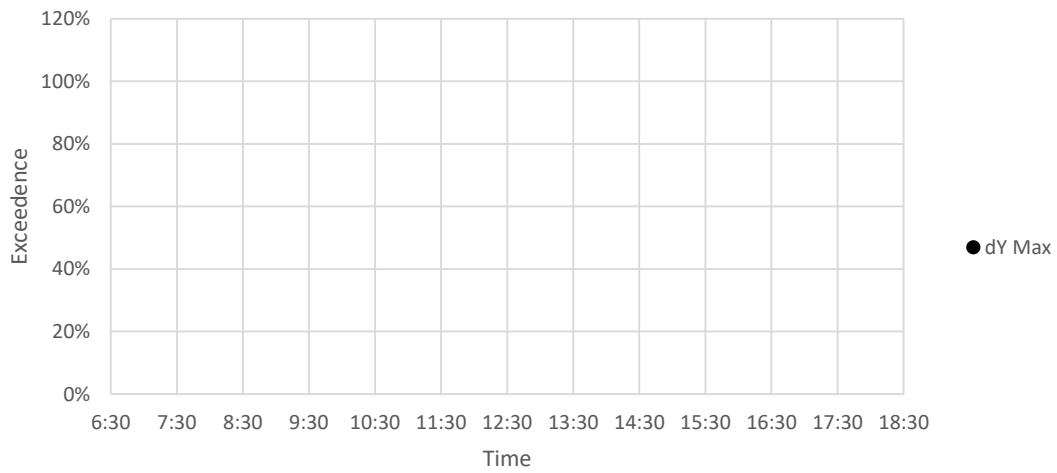
Vertical



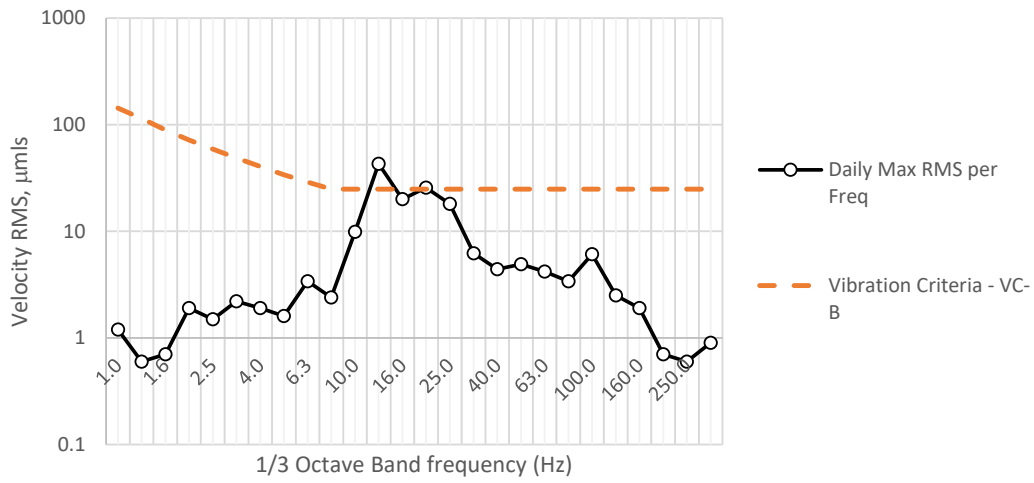
Fwd/Backwards



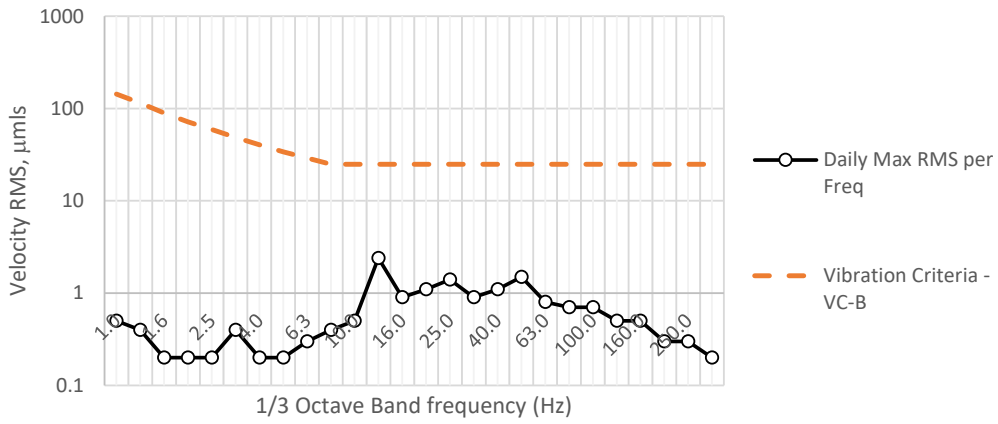
Sideways



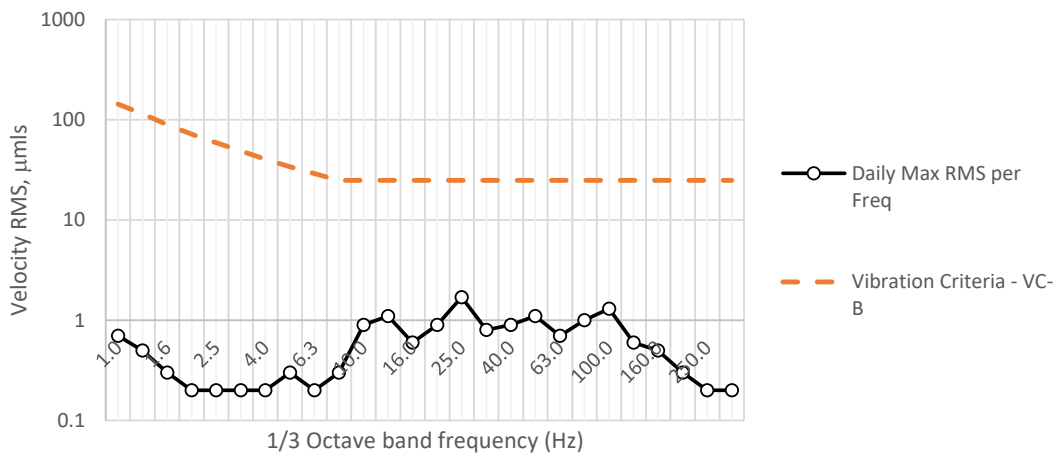
Vertical Vibration



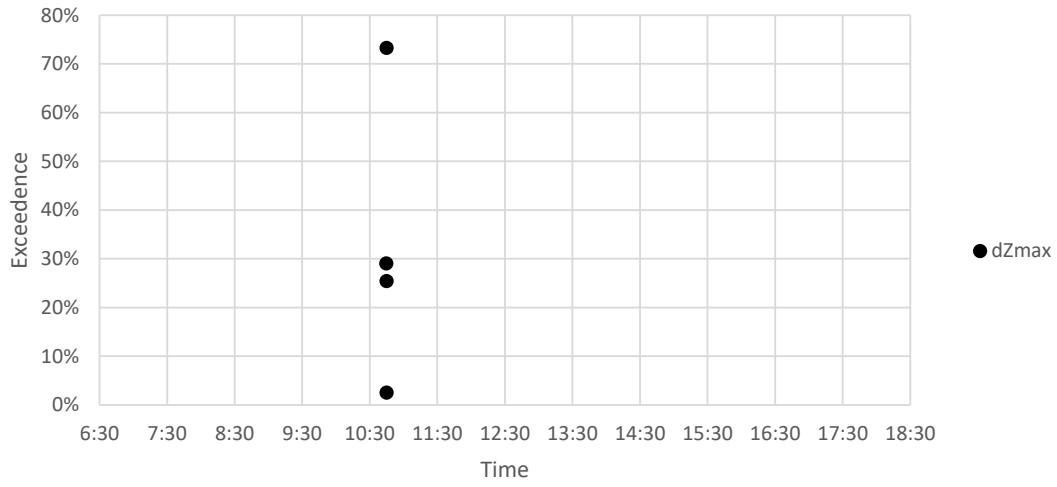
FwdBackwd Vibration



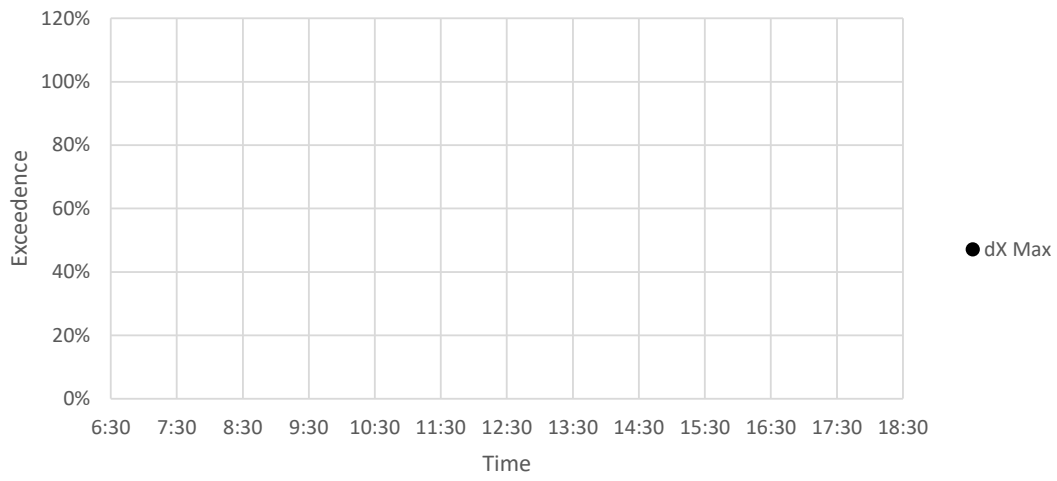
Sideways Vibration



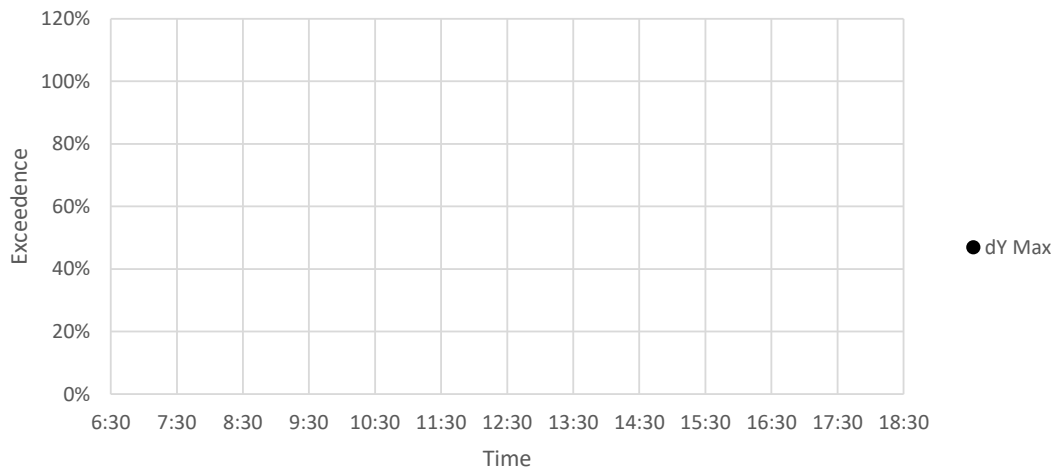
Vertical



Fwd/Backwards

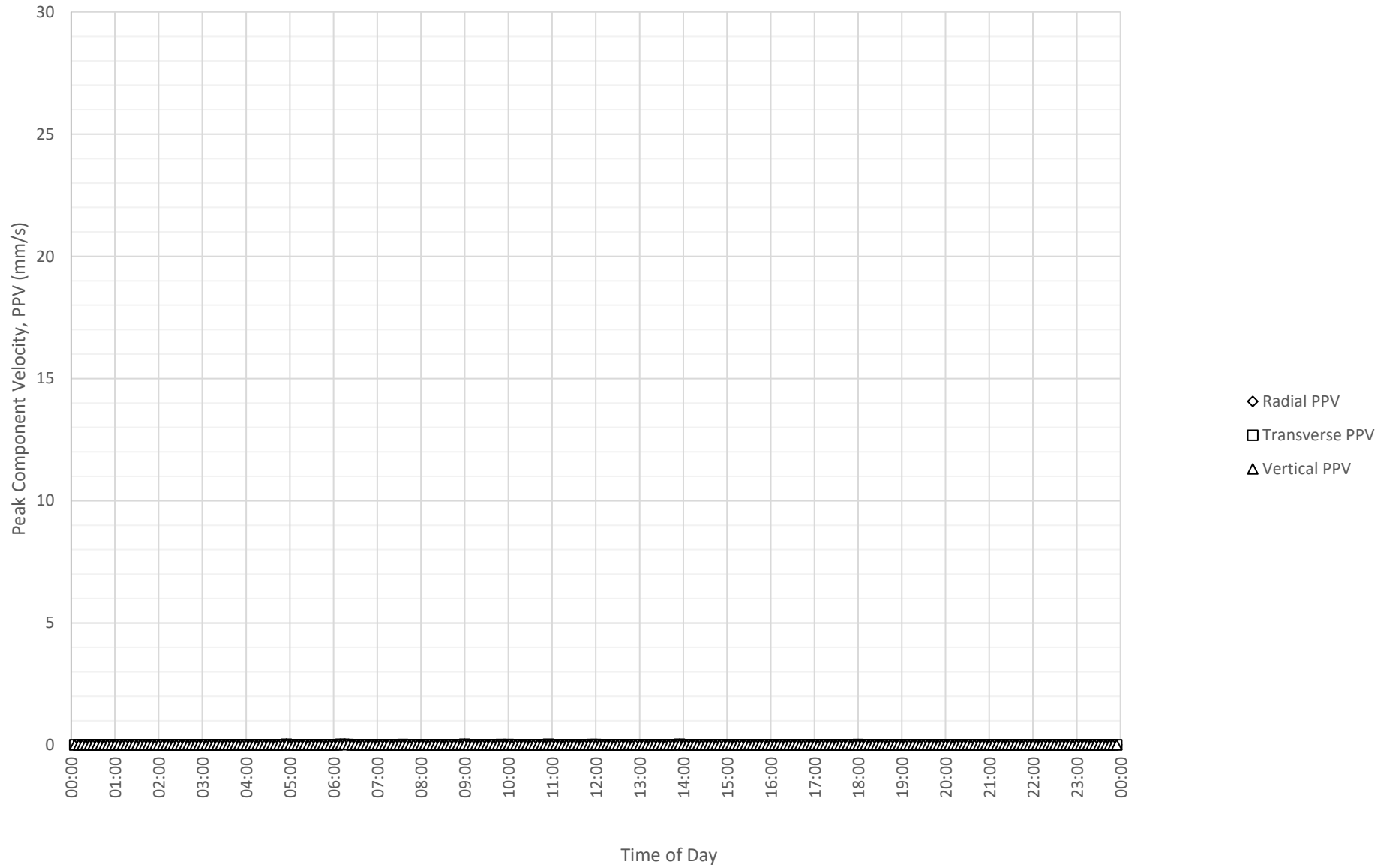


Sideways

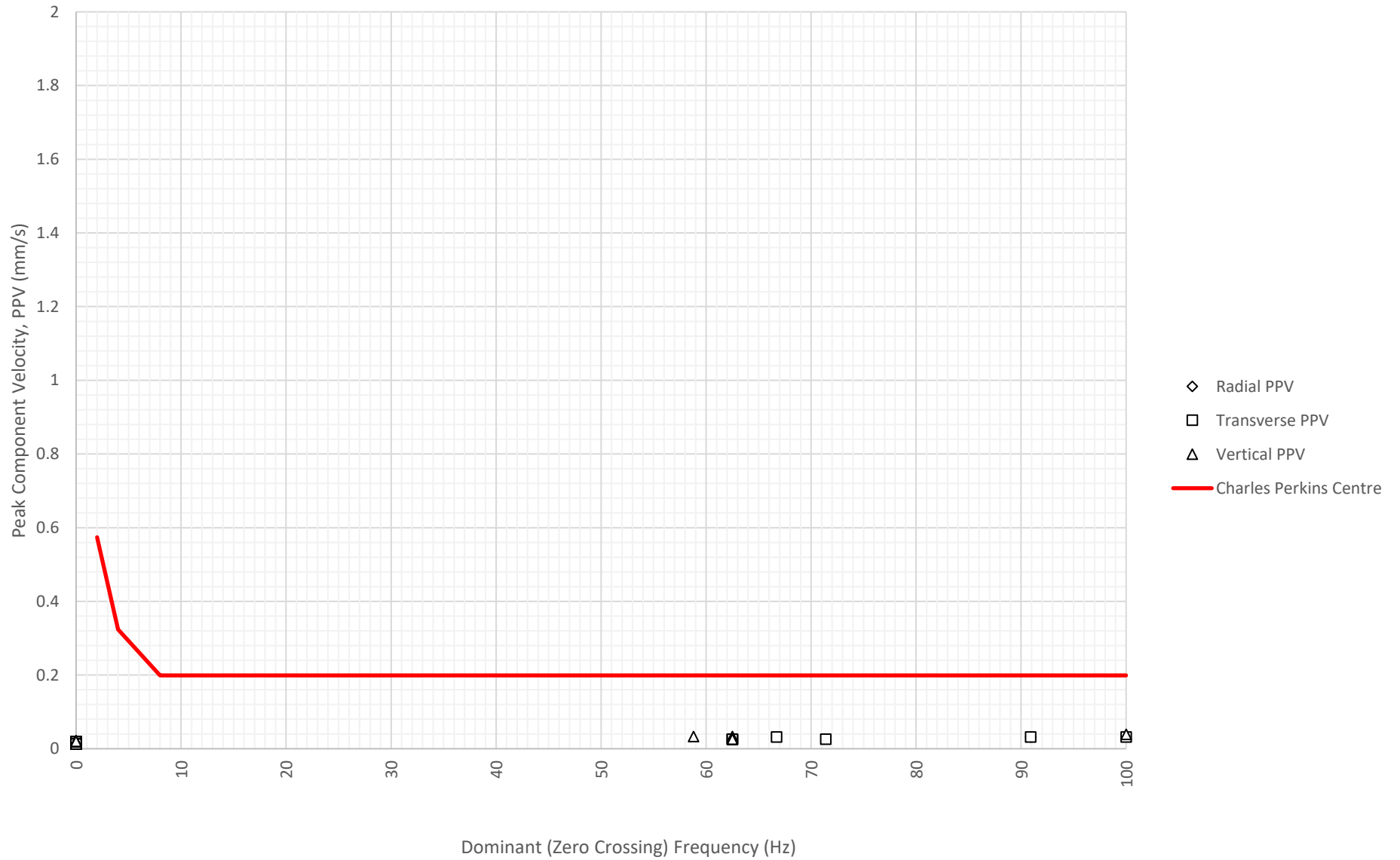


CHARLES PERKINS CENTRE – LEVEL B1 SOUTHERN WING OBSERVATION ROOM E

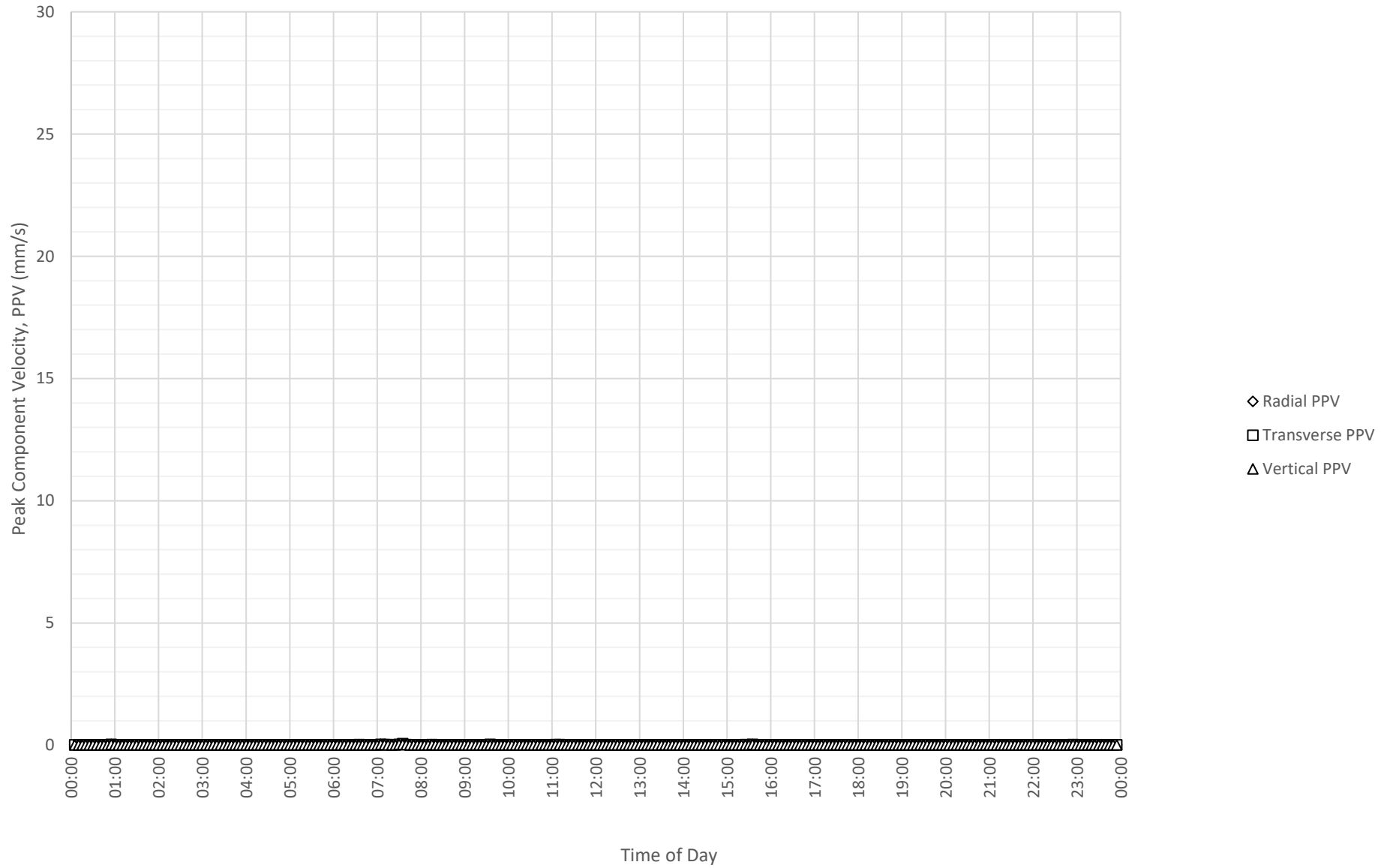
Daily Monitored Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 8-01-2024



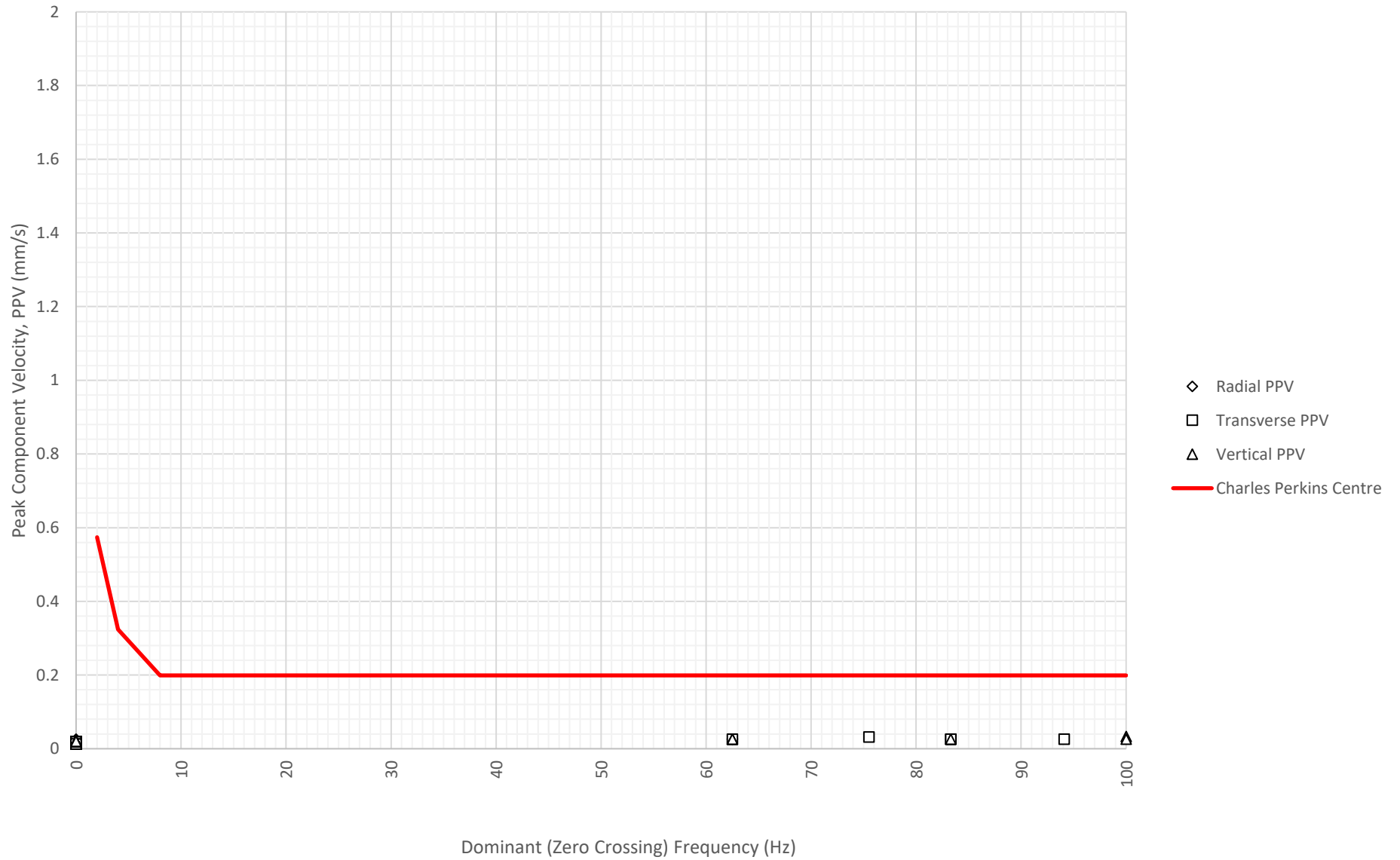
Frequency Content of Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E
on 8-01-2024



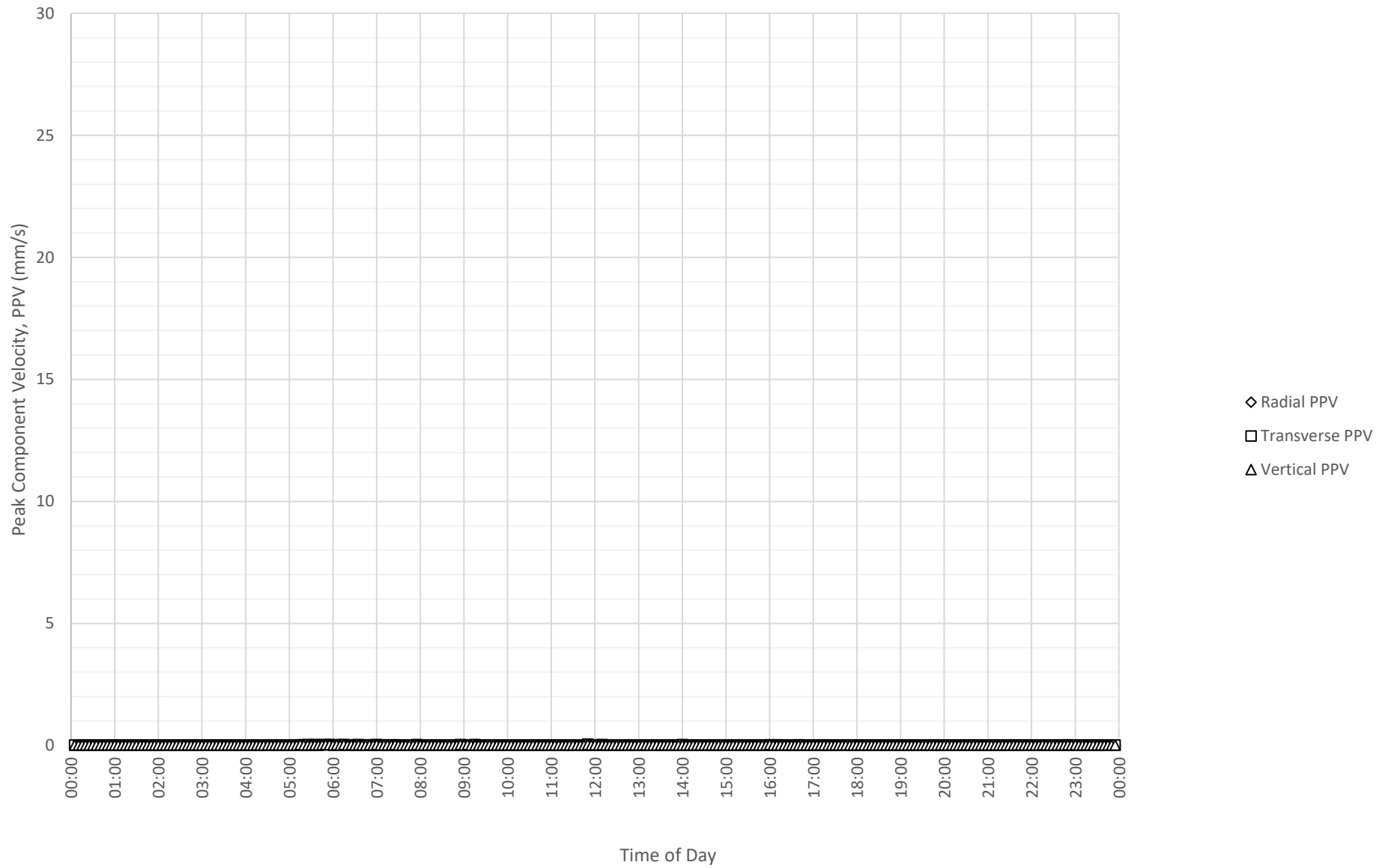
Daily Monitored Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 9-01-2024



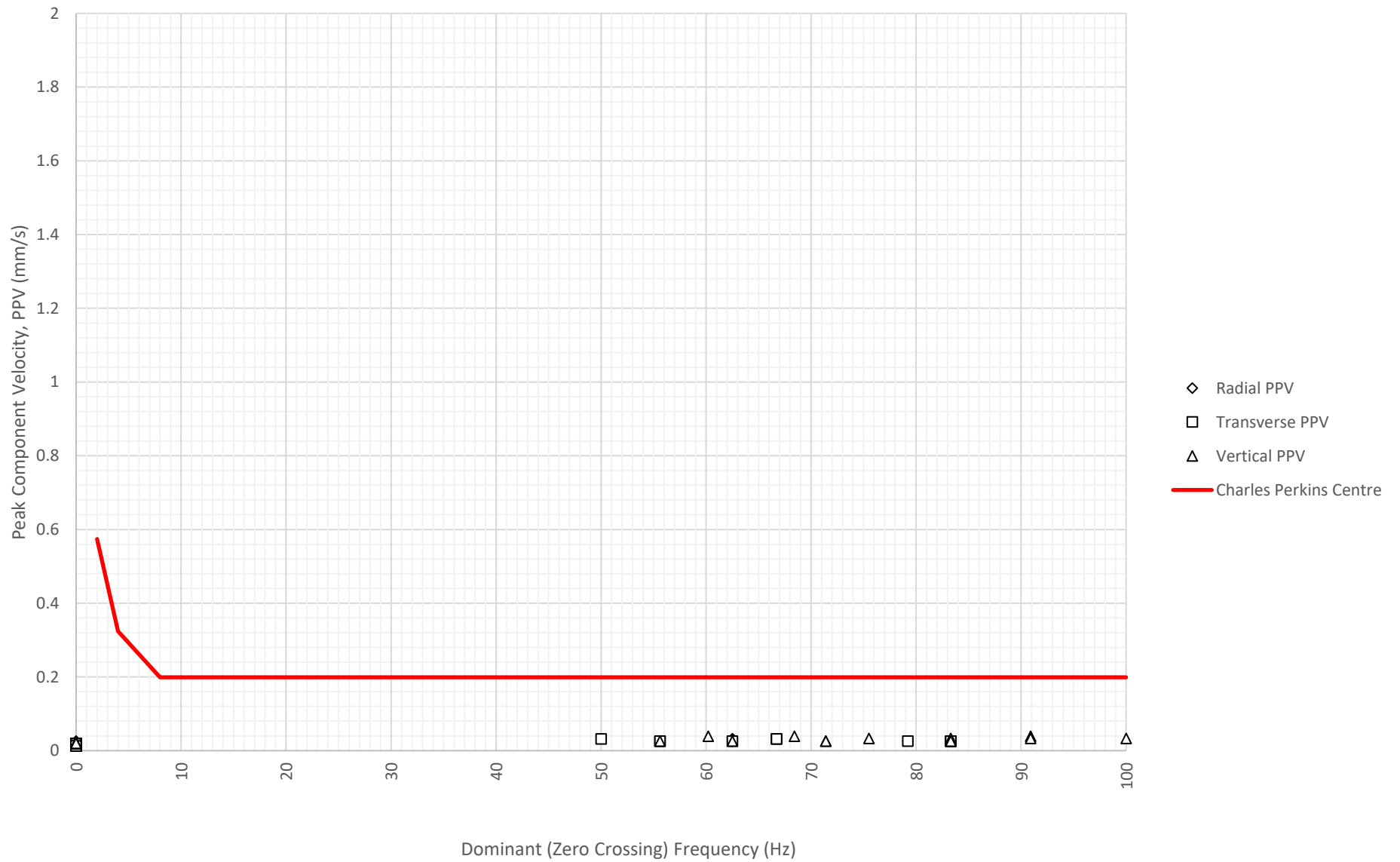
Frequency Content of Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E
on 9-01-2024



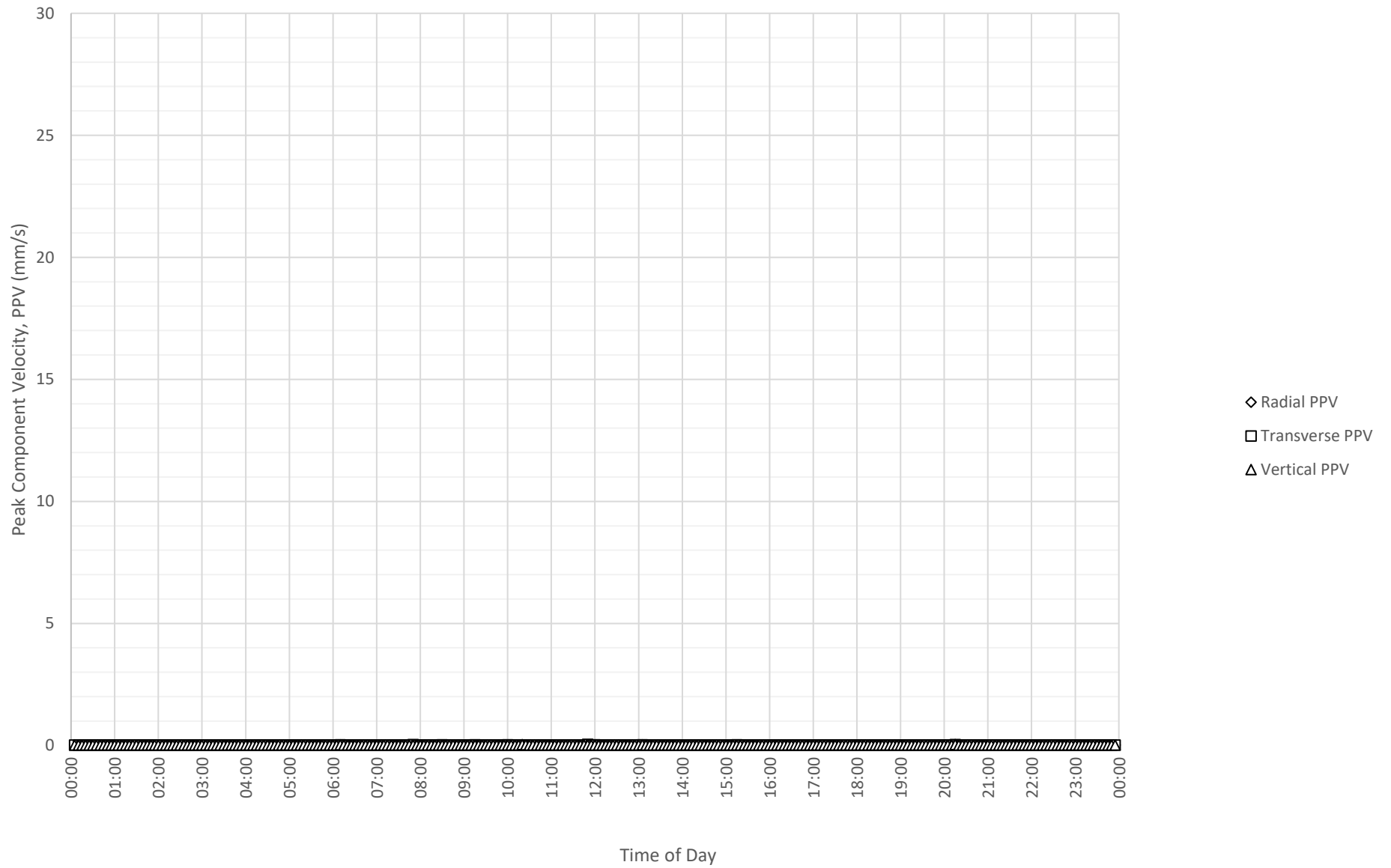
Daily Monitored Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 10-01-2024



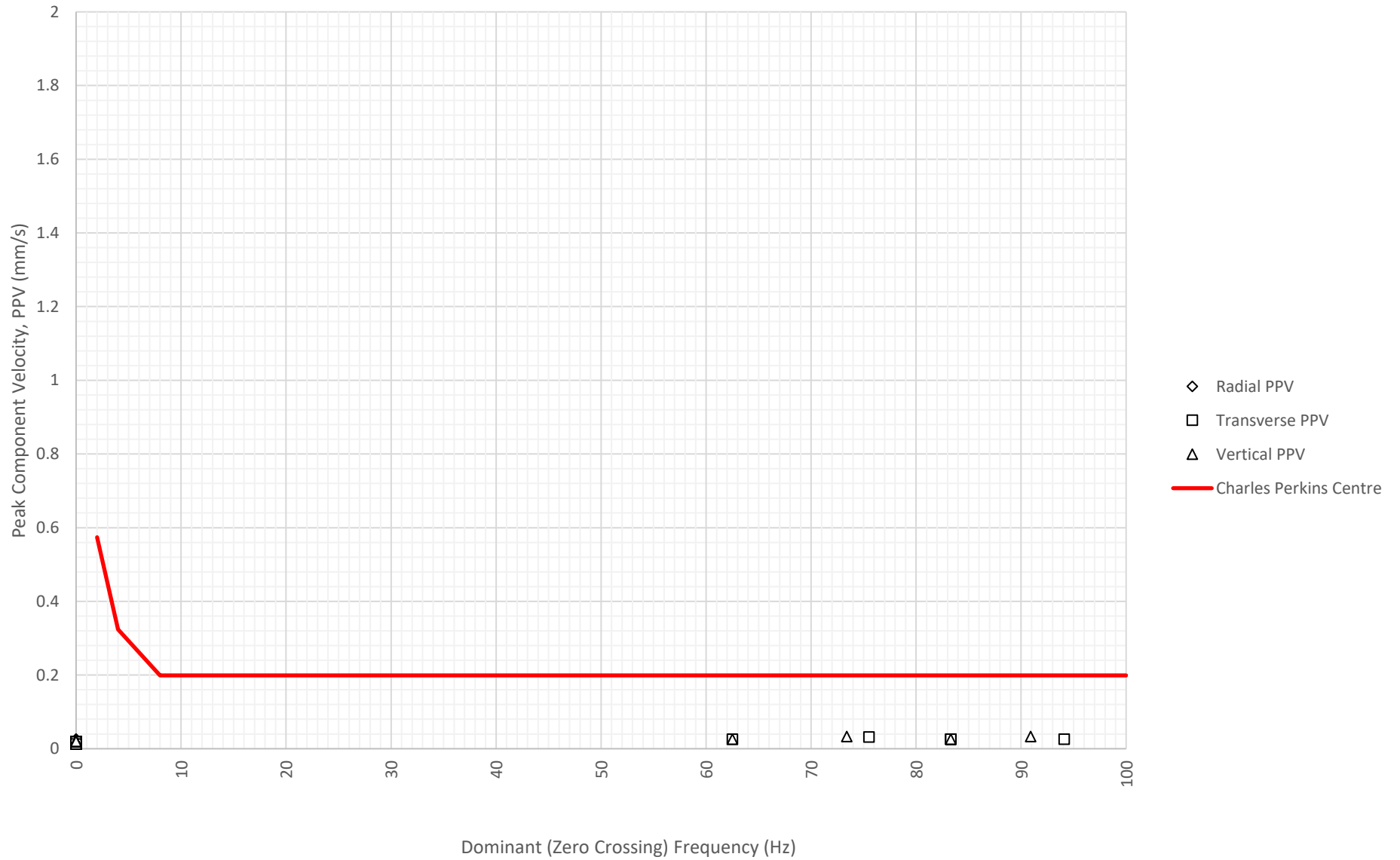
Frequency Content of Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 10-01-2024



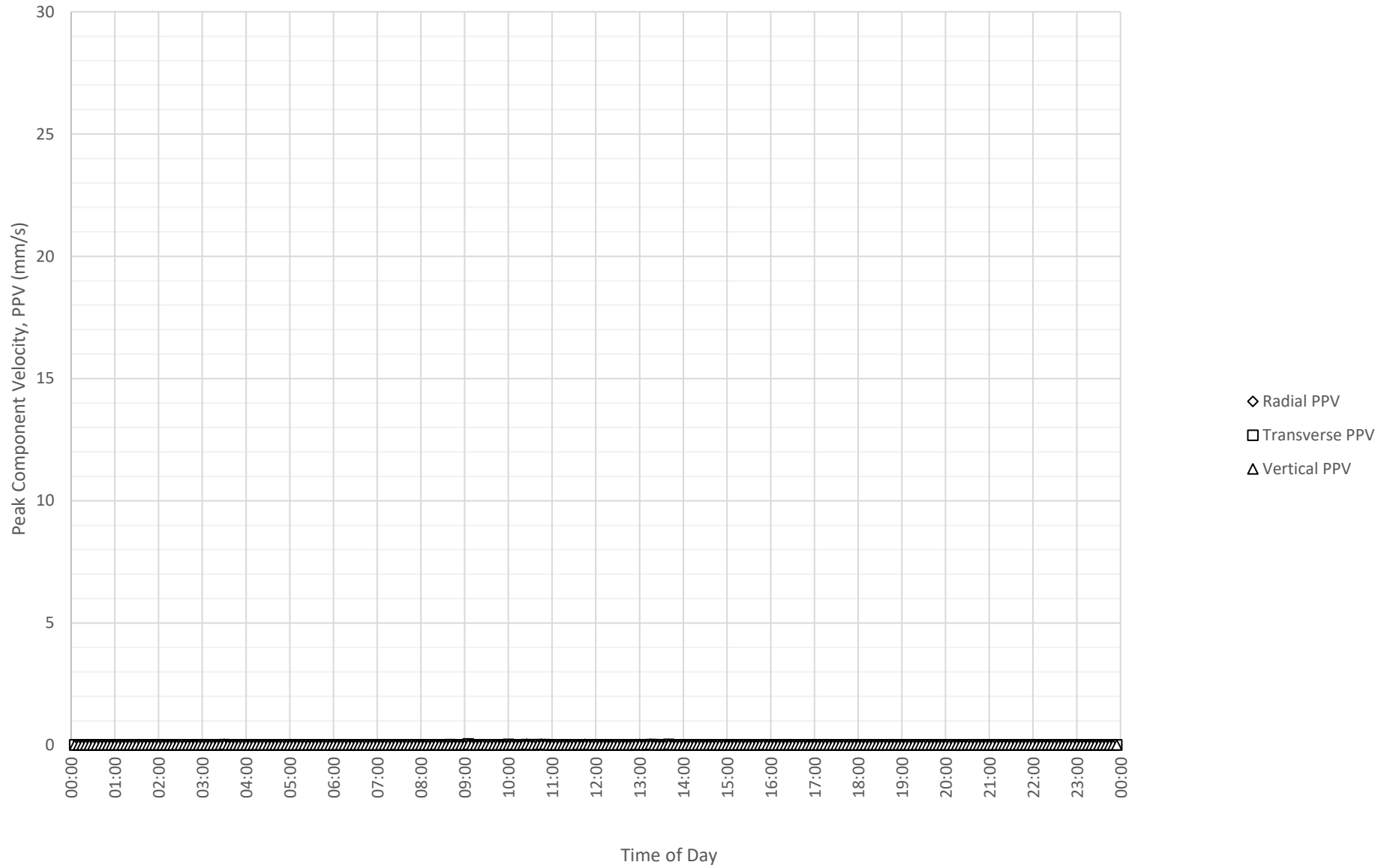
Daily Monitored Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 11-01-2024



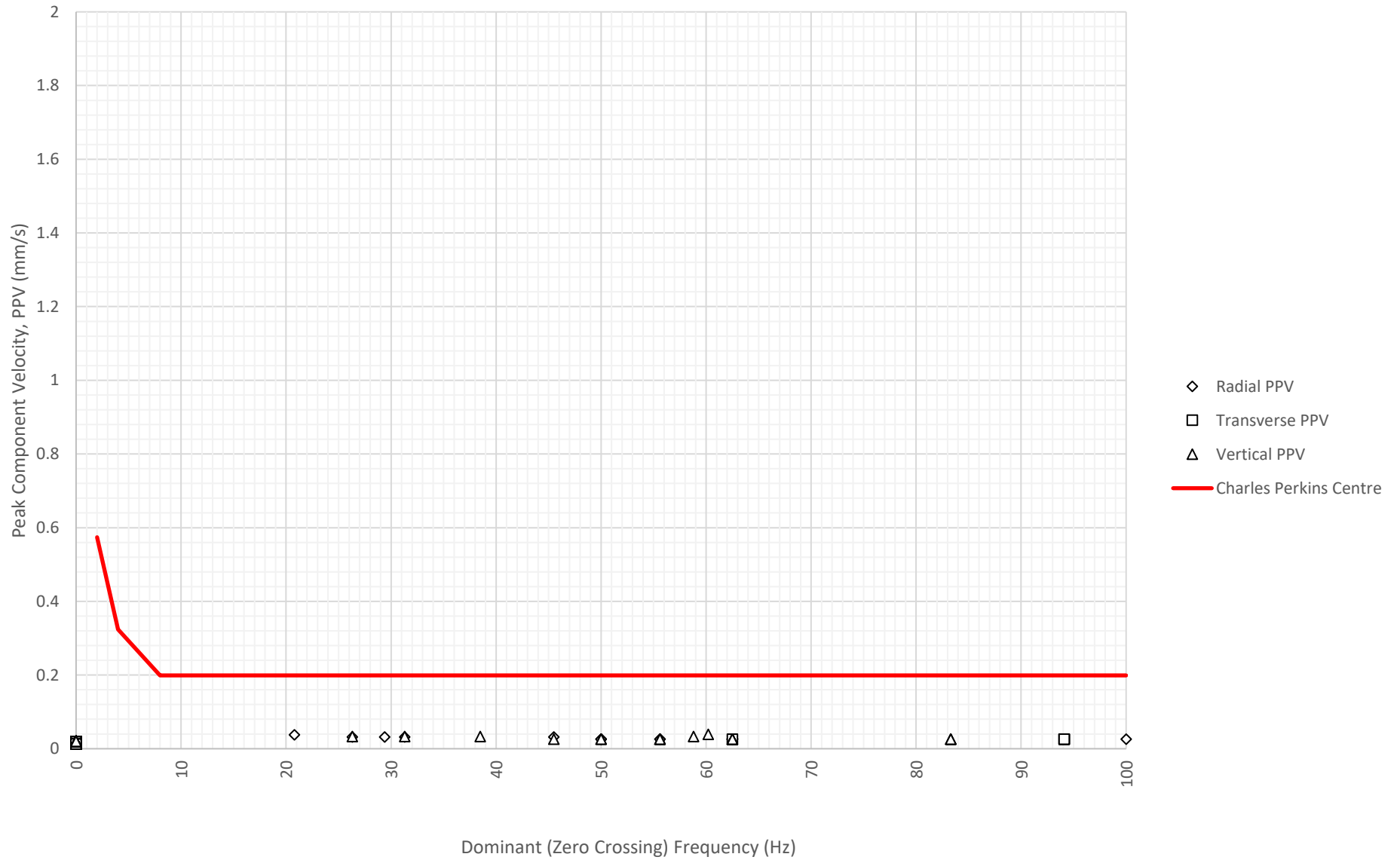
Frequency Content of Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 11-01-2024



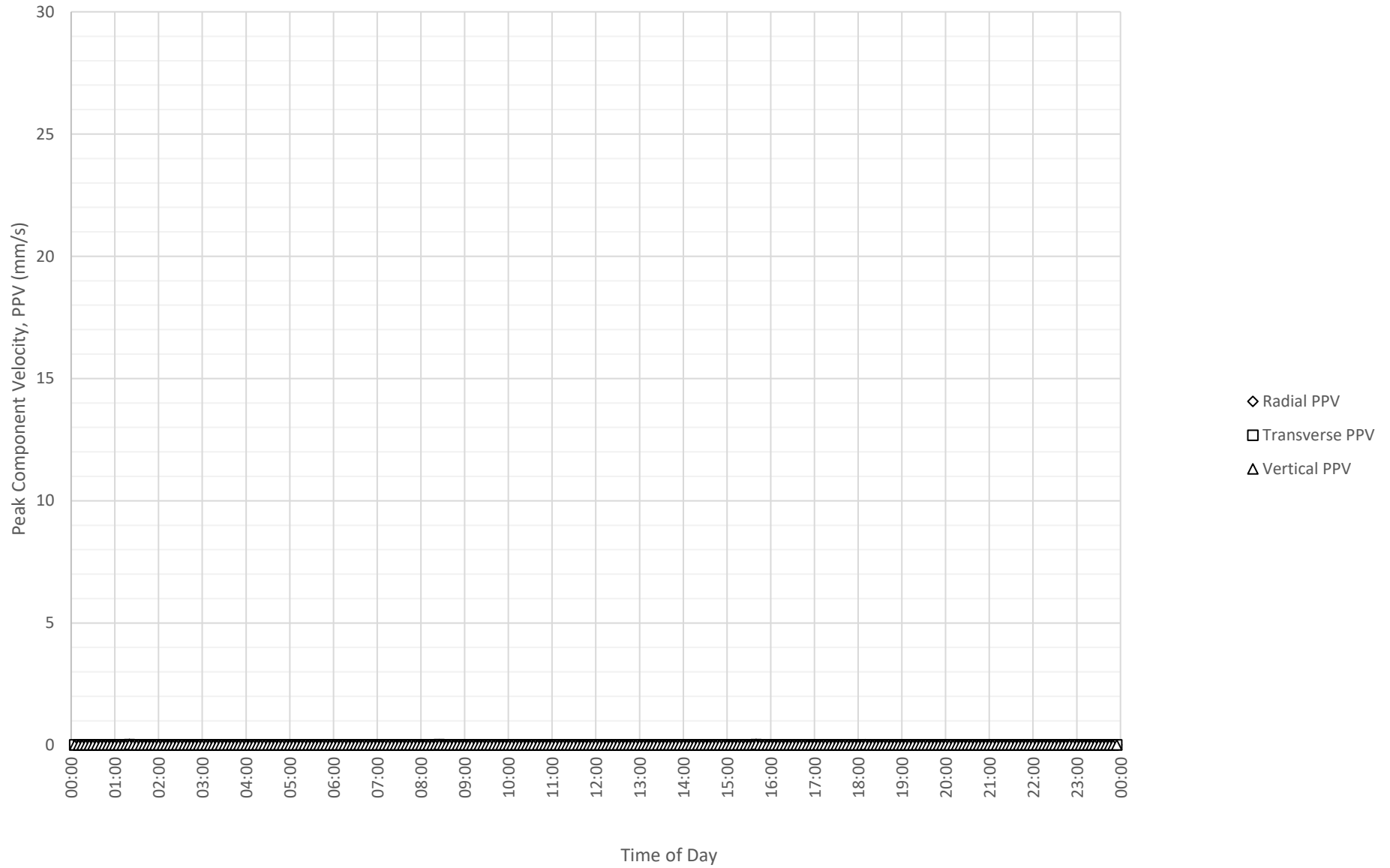
Daily Monitored Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 12-01-2024



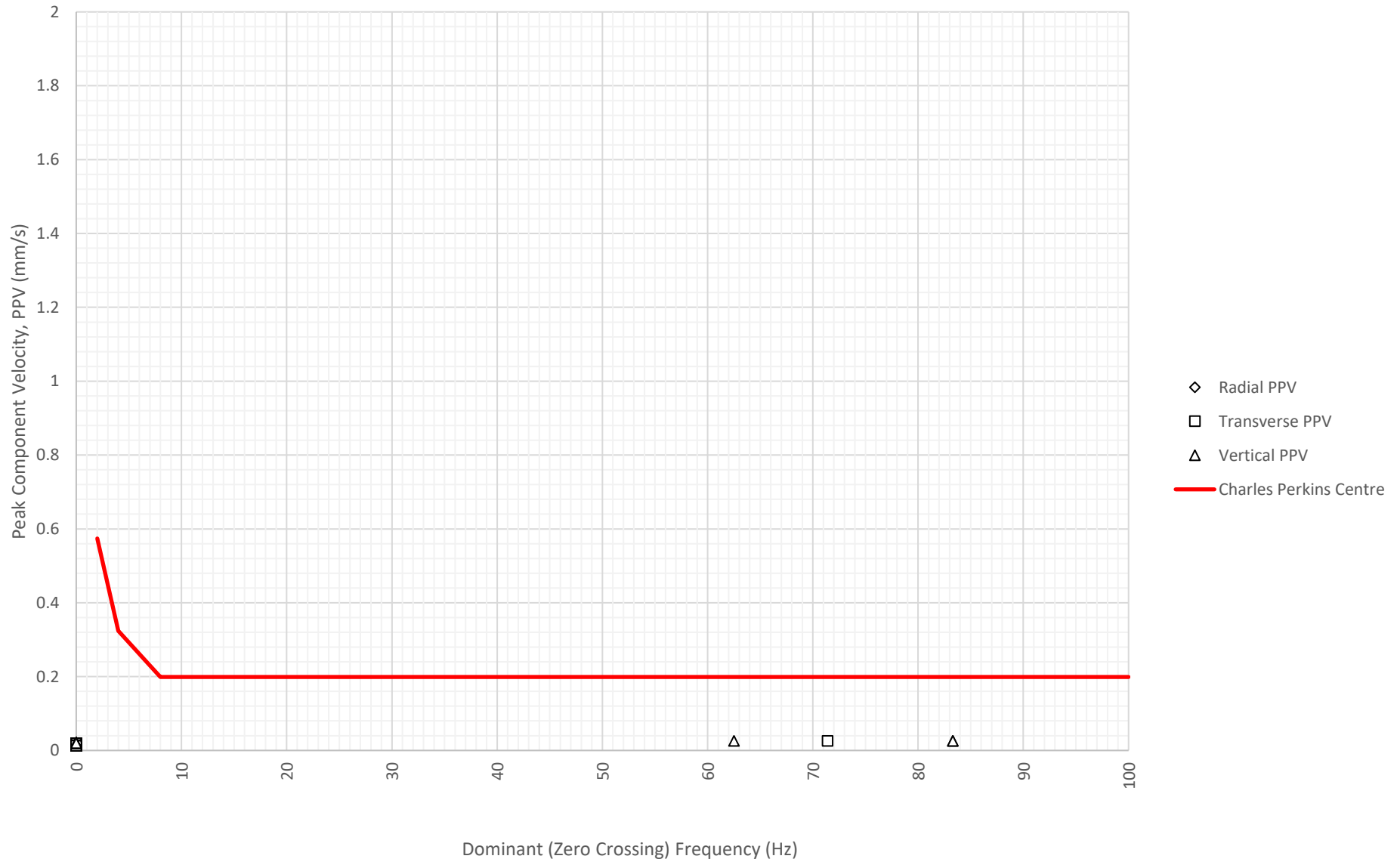
Frequency Content of Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E
on 12-01-2024



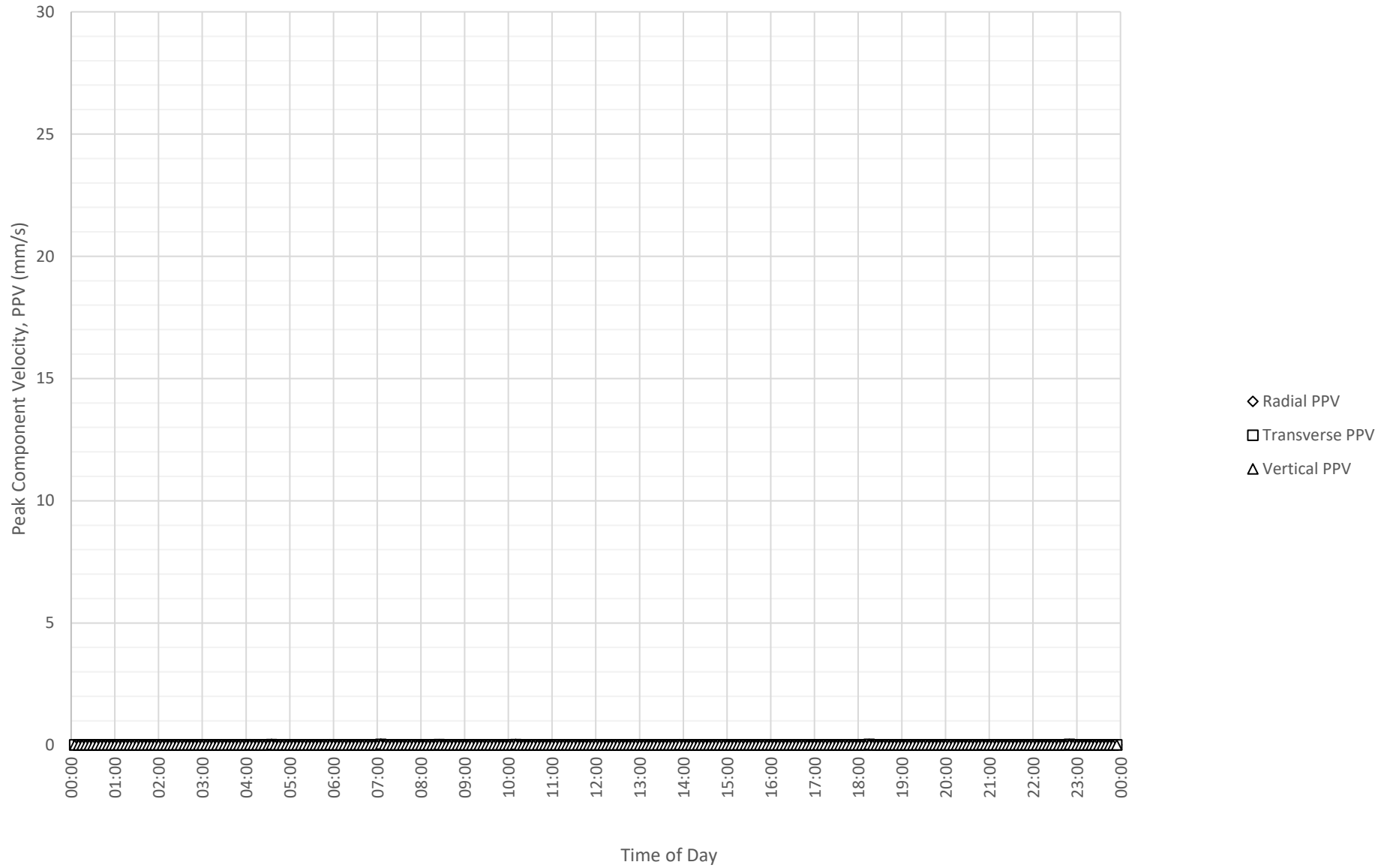
Daily Monitored Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 13-01-2024



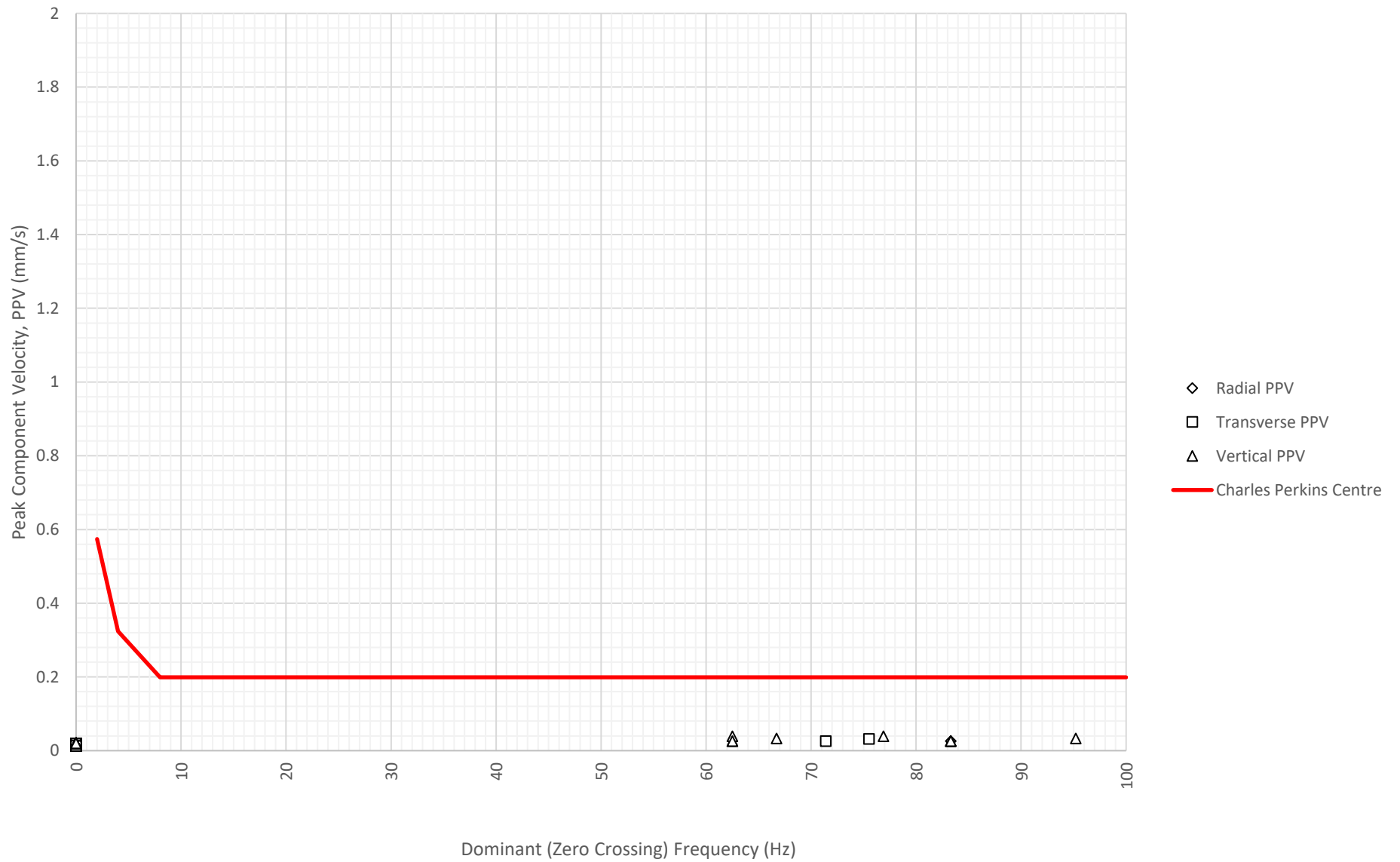
Frequency Content of Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 13-01-2024



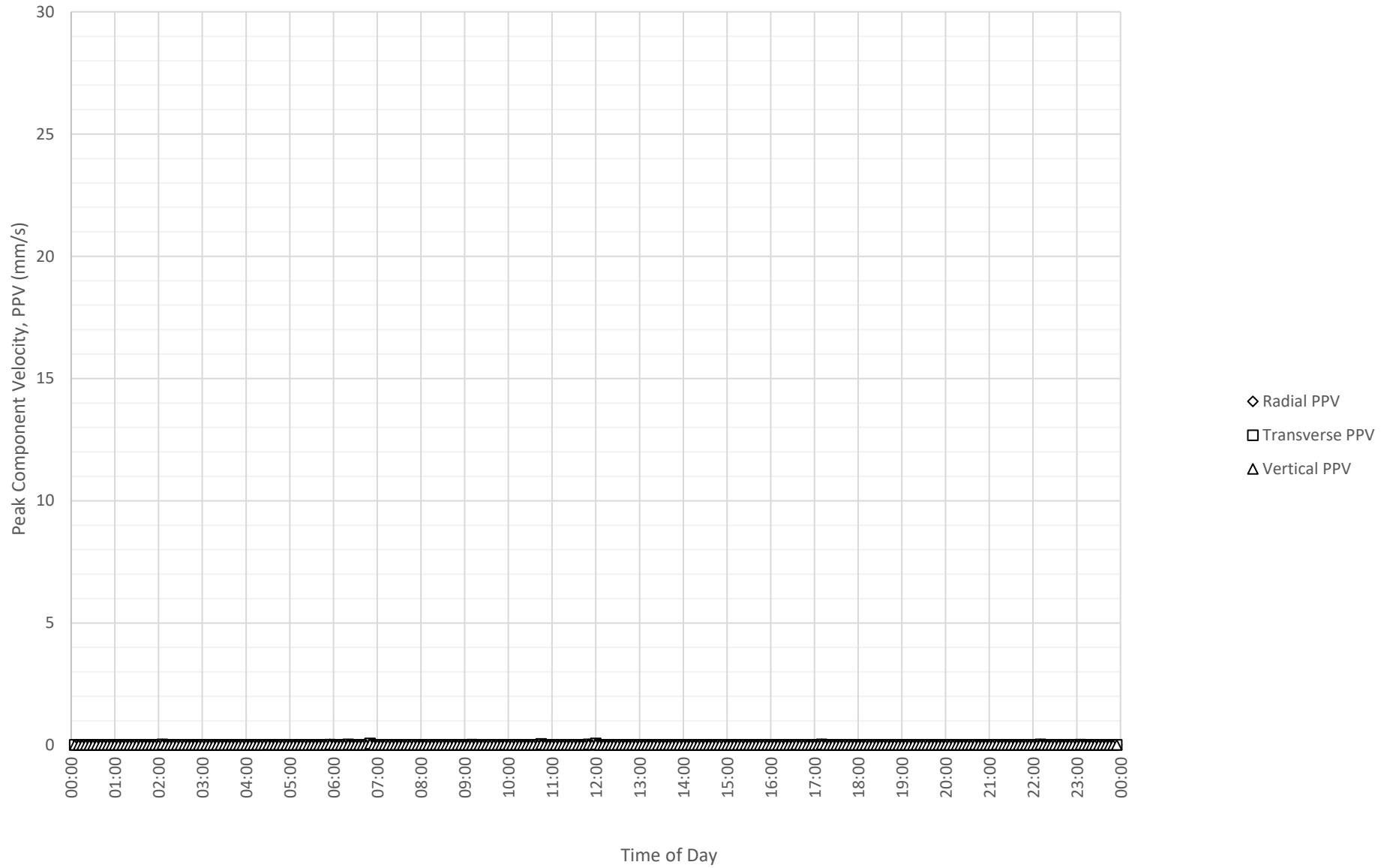
Daily Monitored Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 14-01-2024



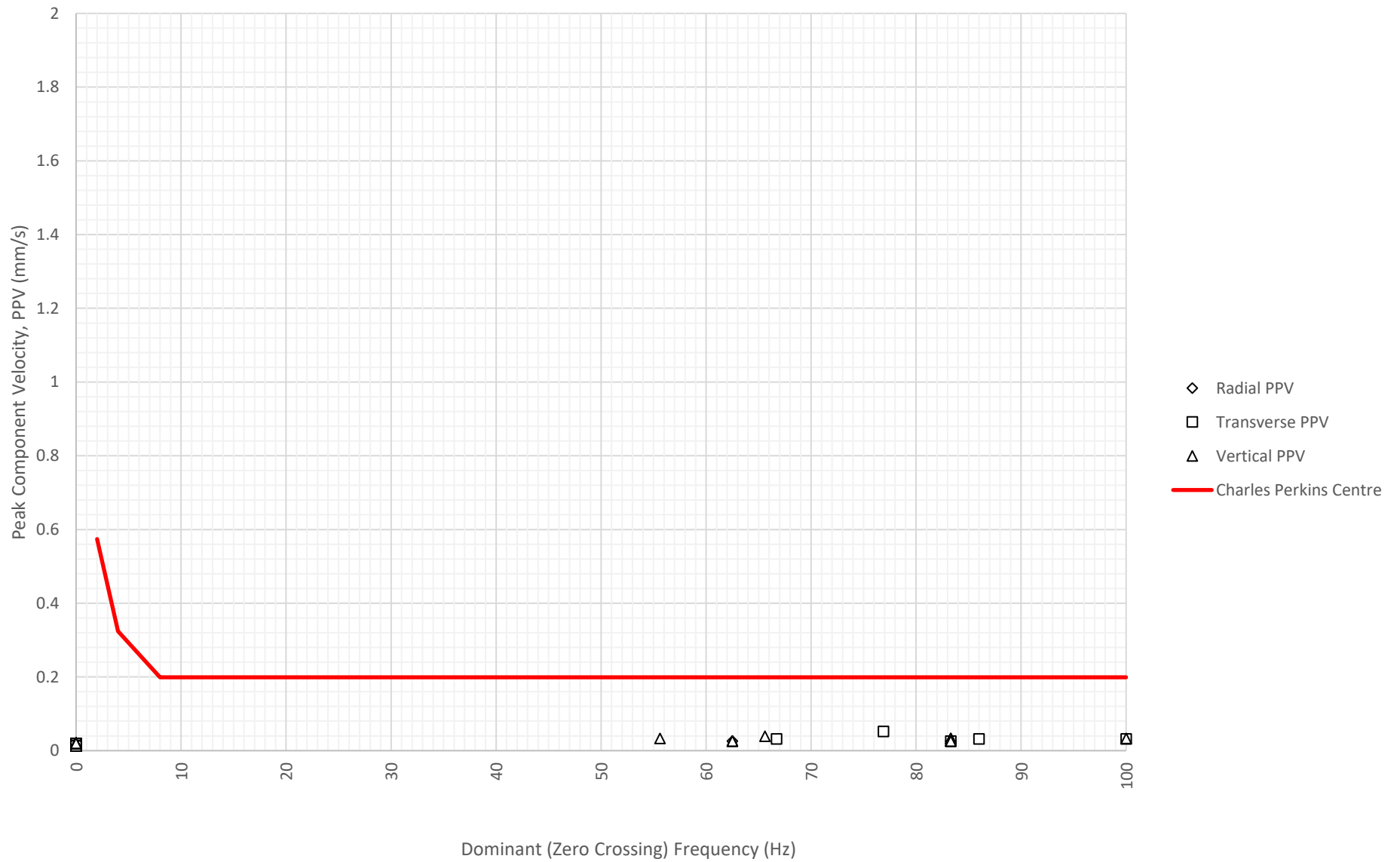
Frequency Content of Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 14-01-2024



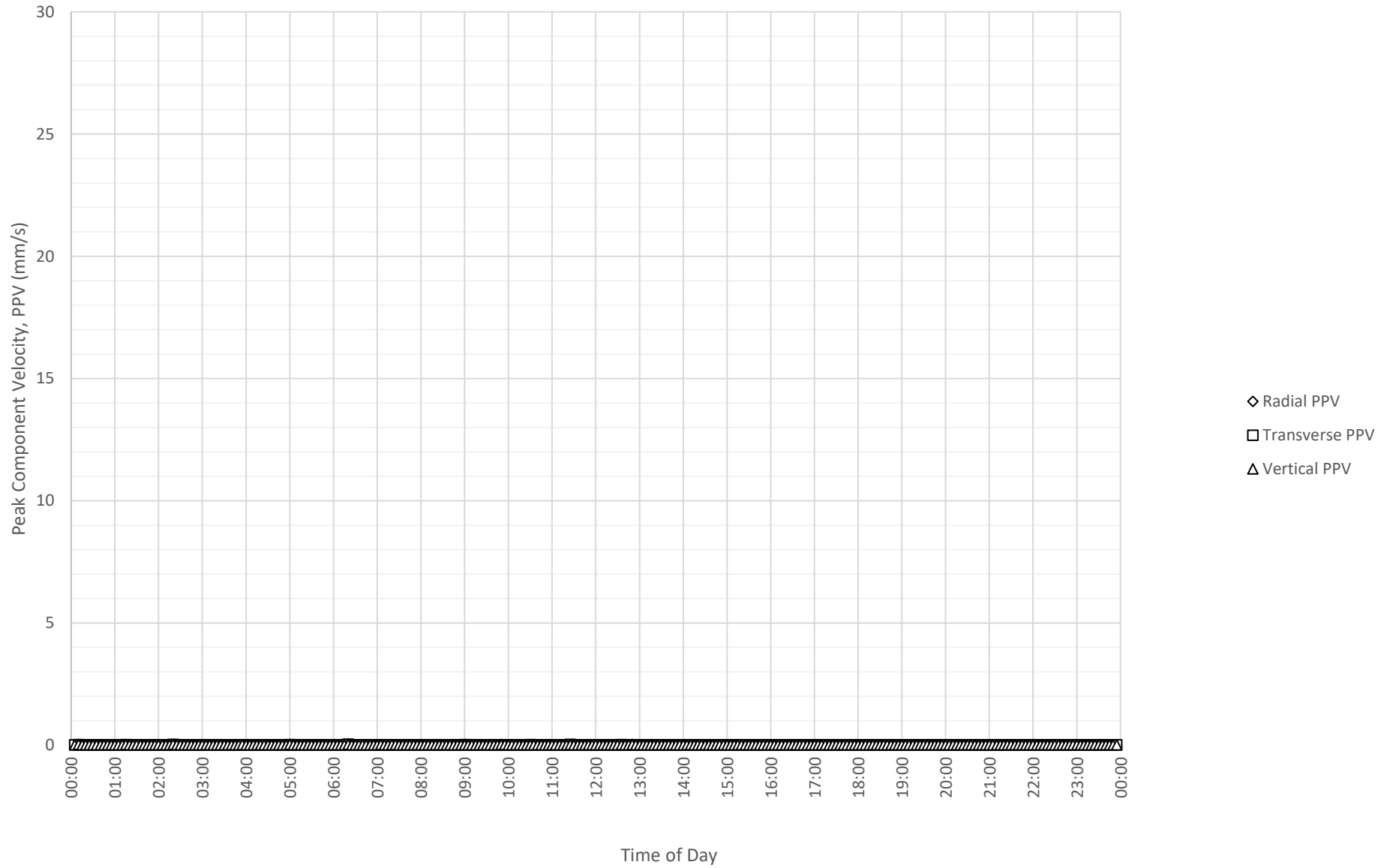
Daily Monitored Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 15-01-2024



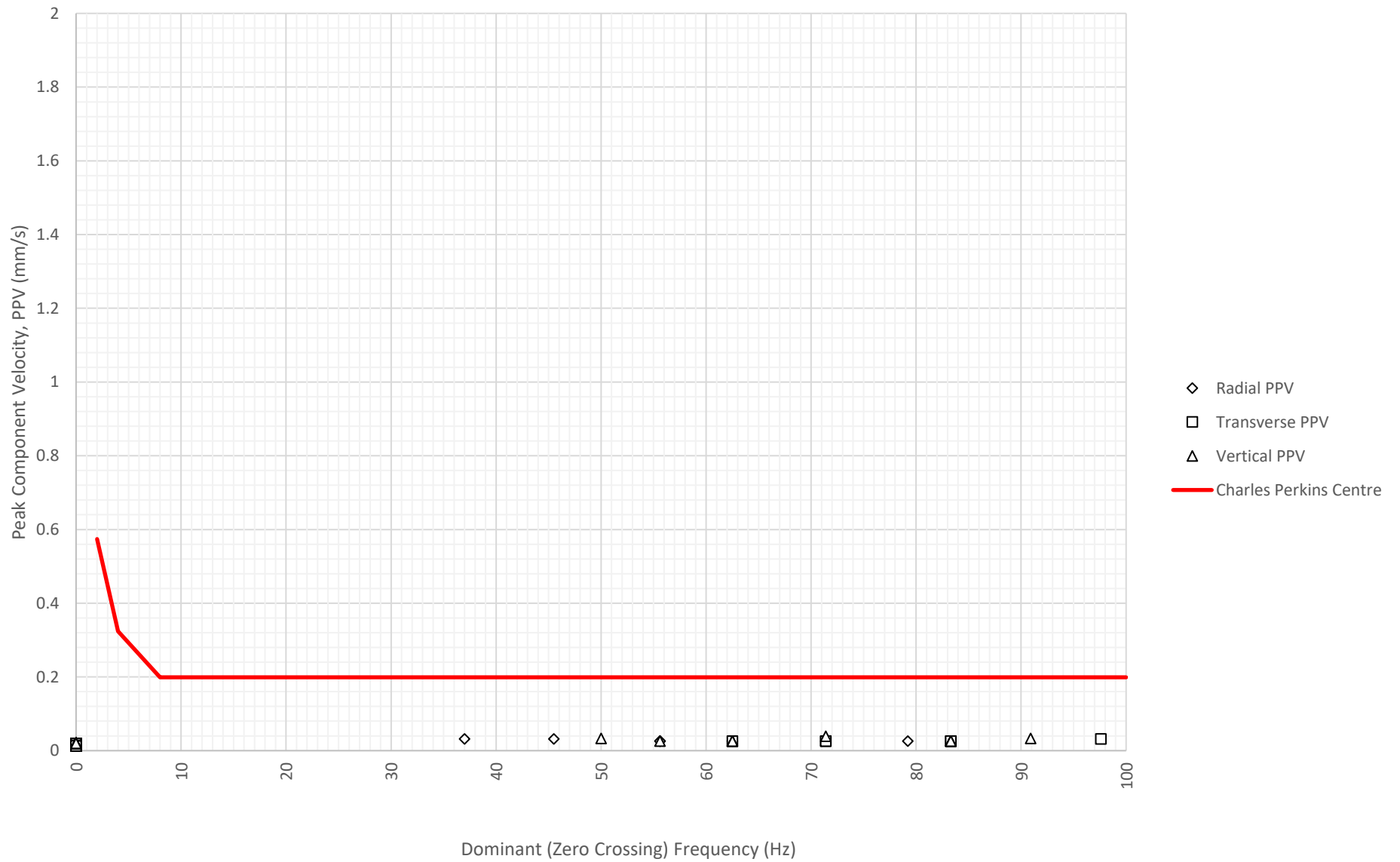
Frequency Content of Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 15-01-2024



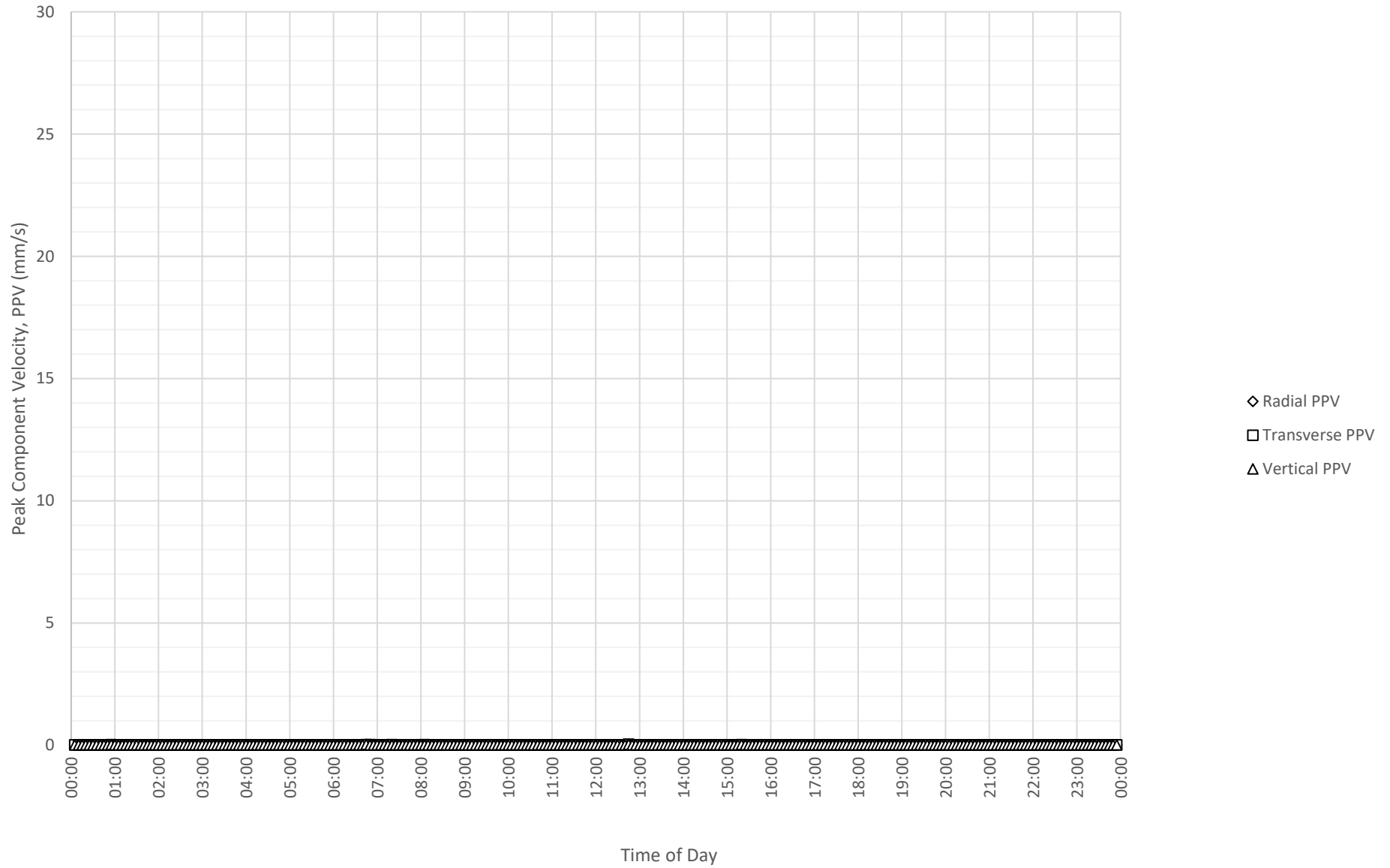
Daily Monitored Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 16-01-2024



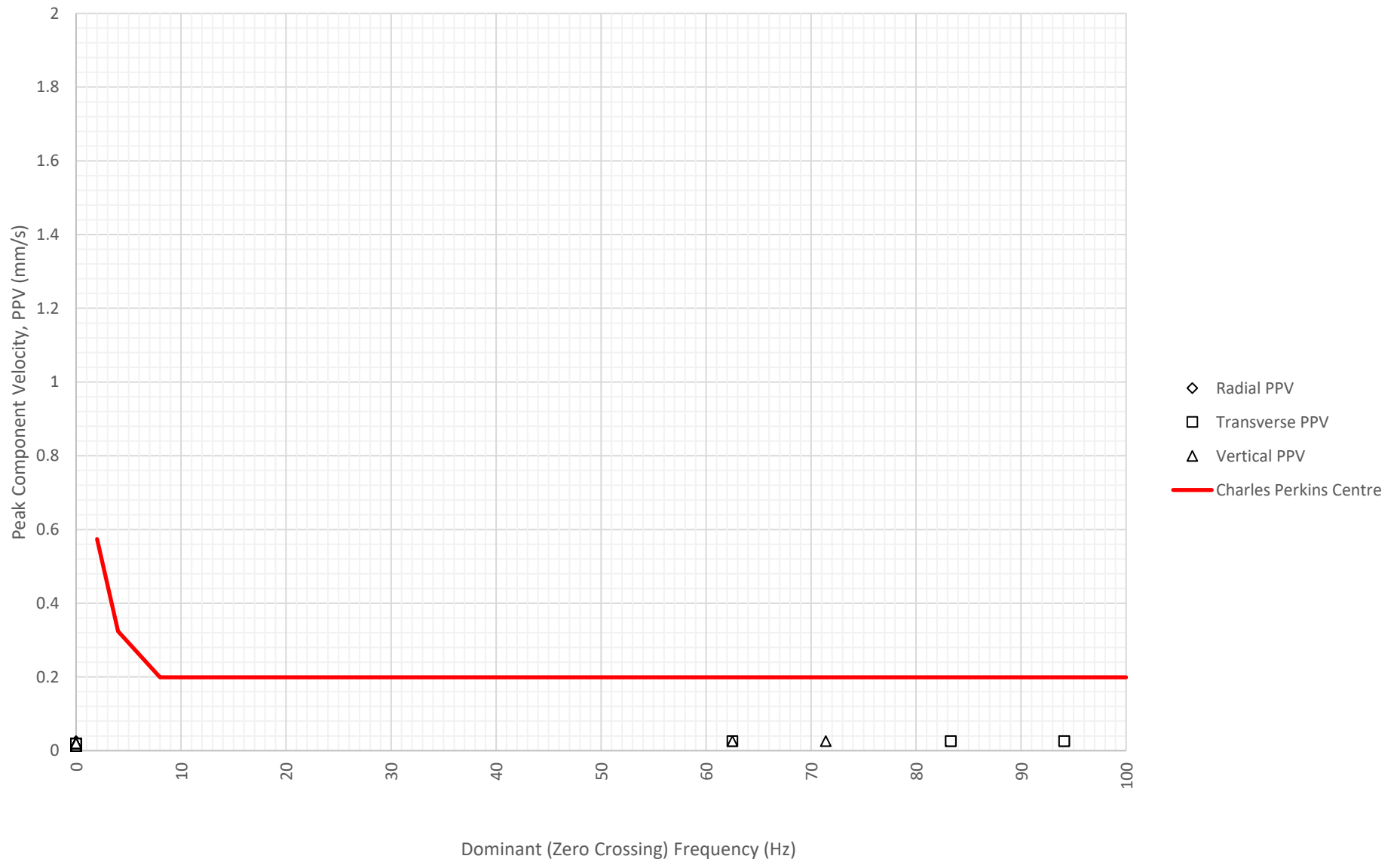
Frequency Content of Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 16-01-2024



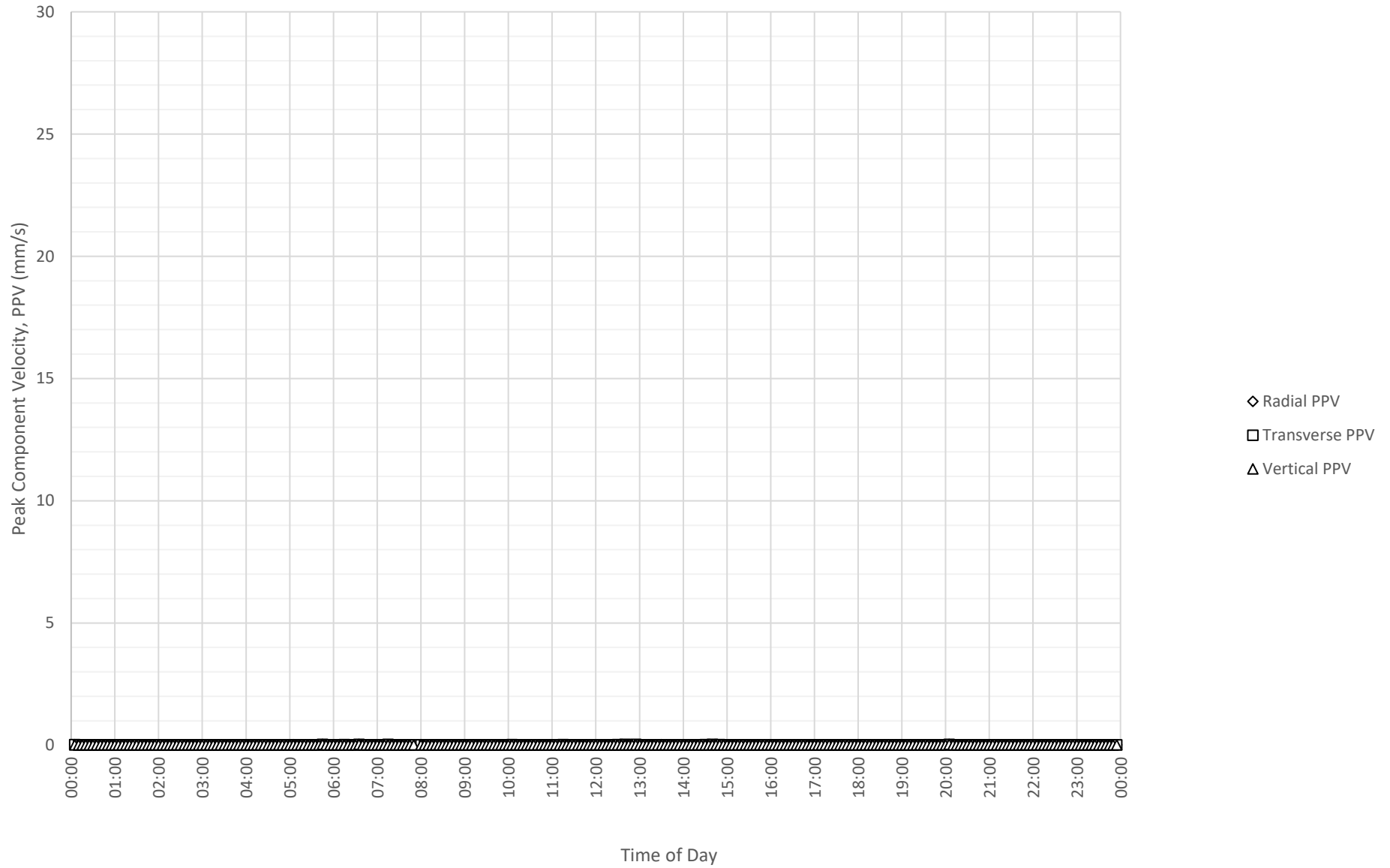
Daily Monitored Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 17-01-2024



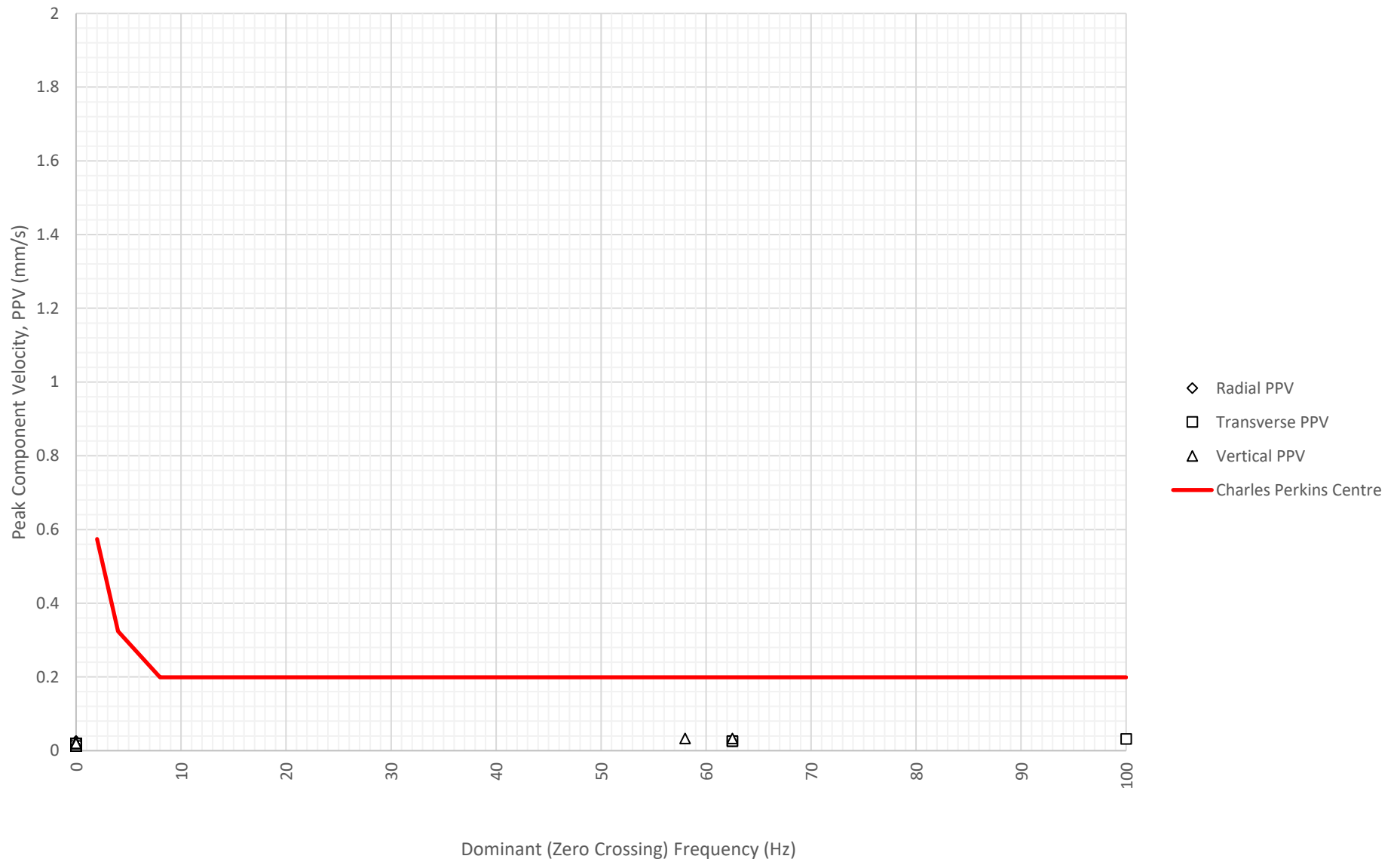
Frequency Content of Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 17-01-2024



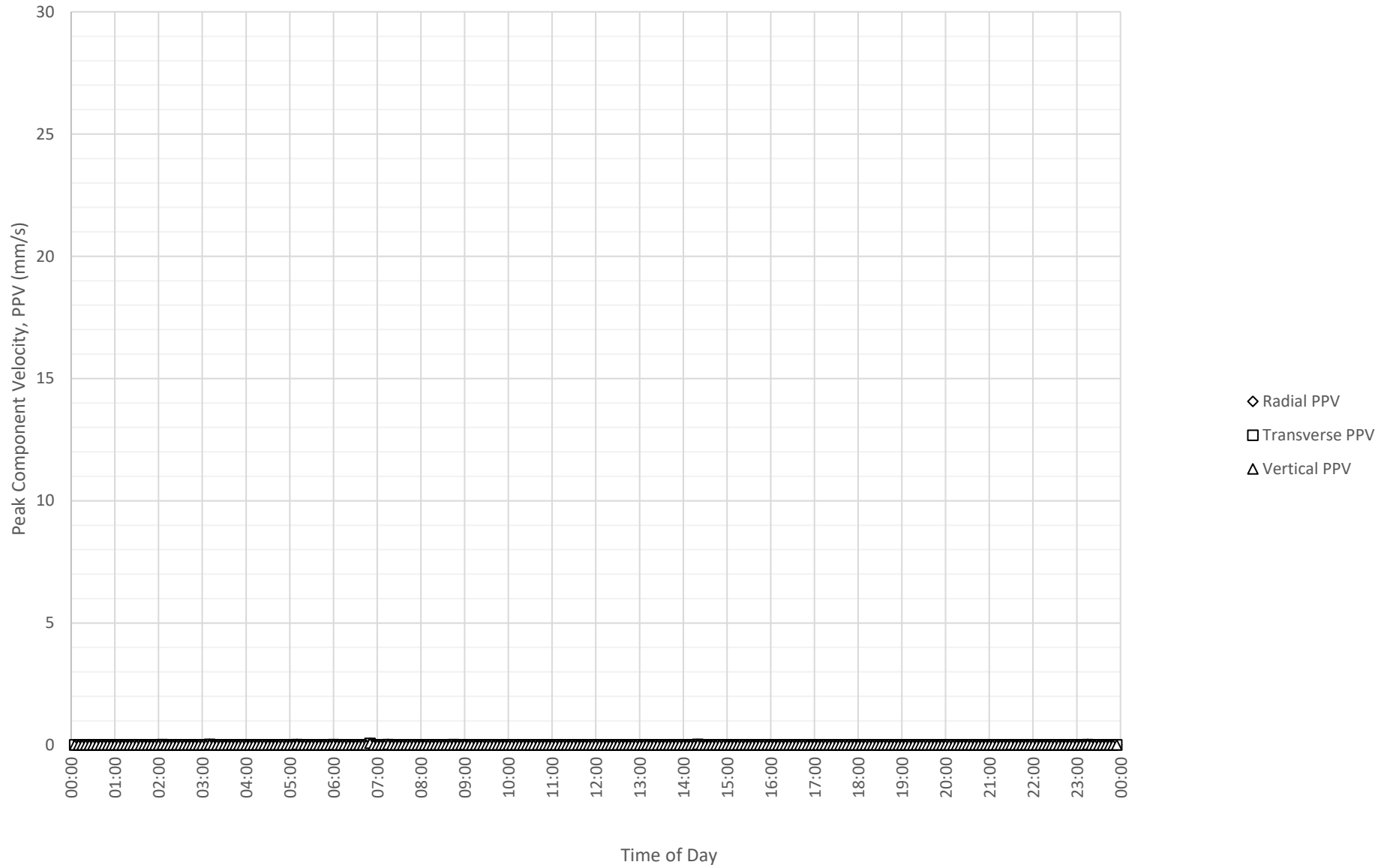
Daily Monitored Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 18-01-2024



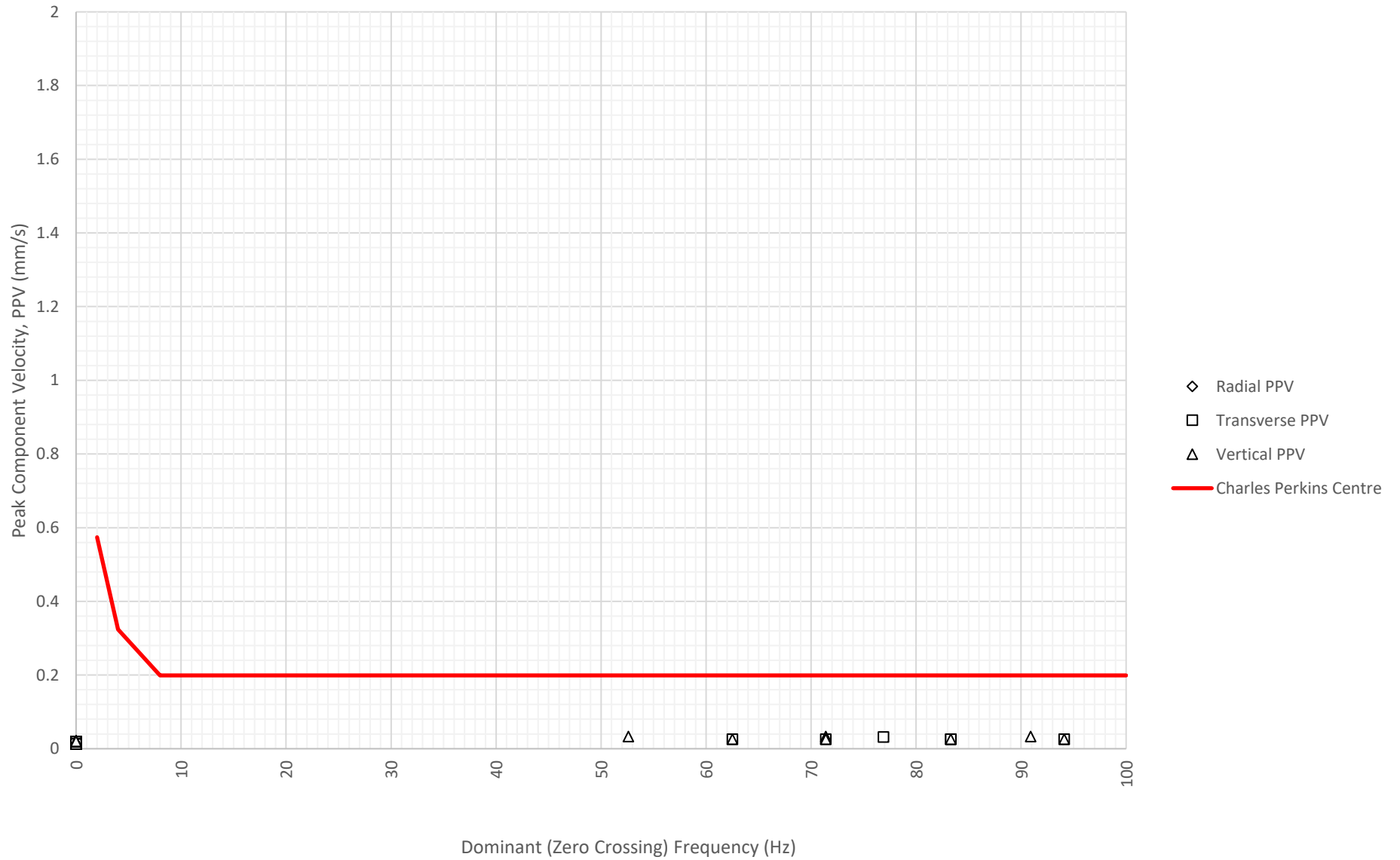
Frequency Content of Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 18-01-2024



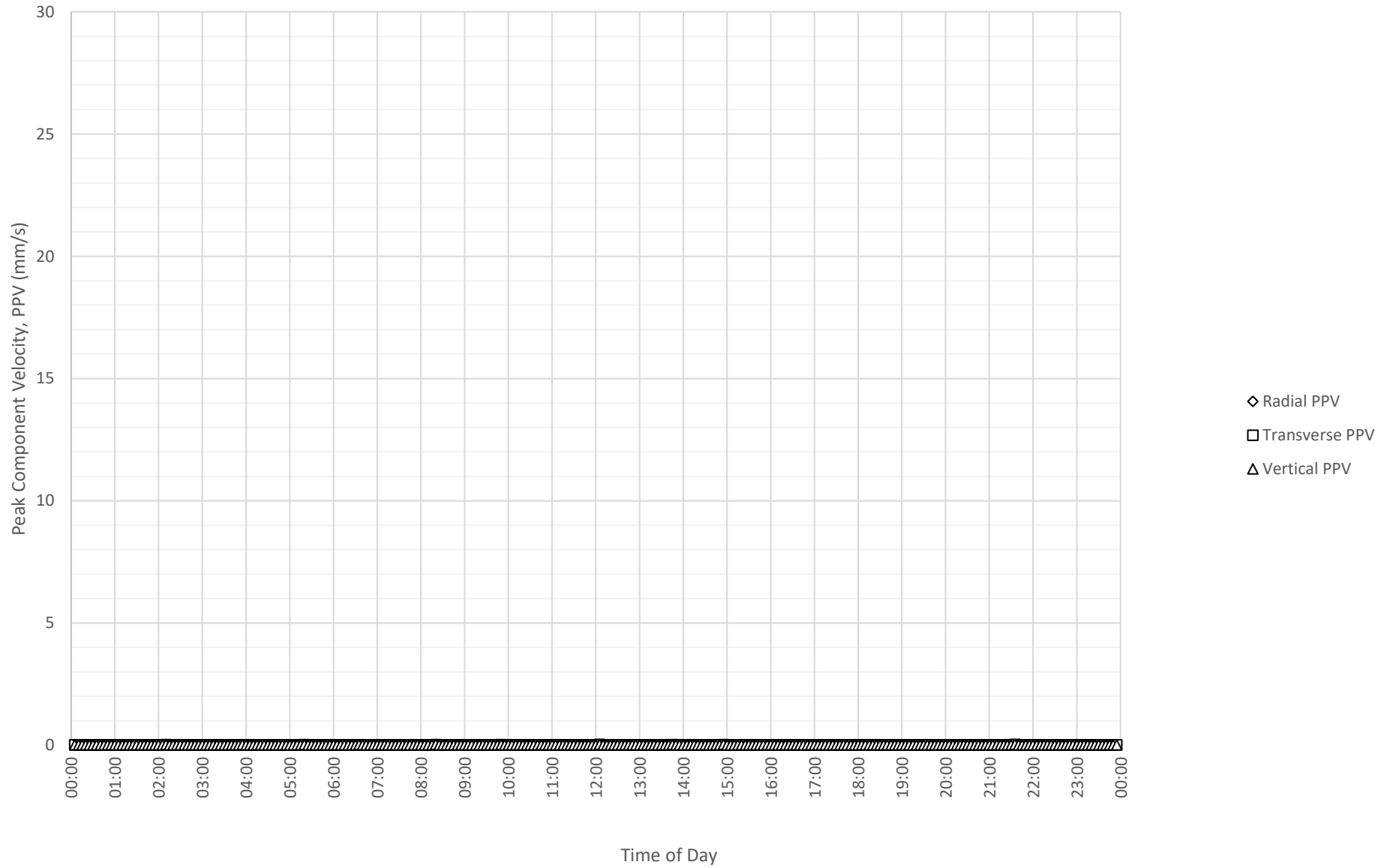
Daily Monitored Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 19-01-2024



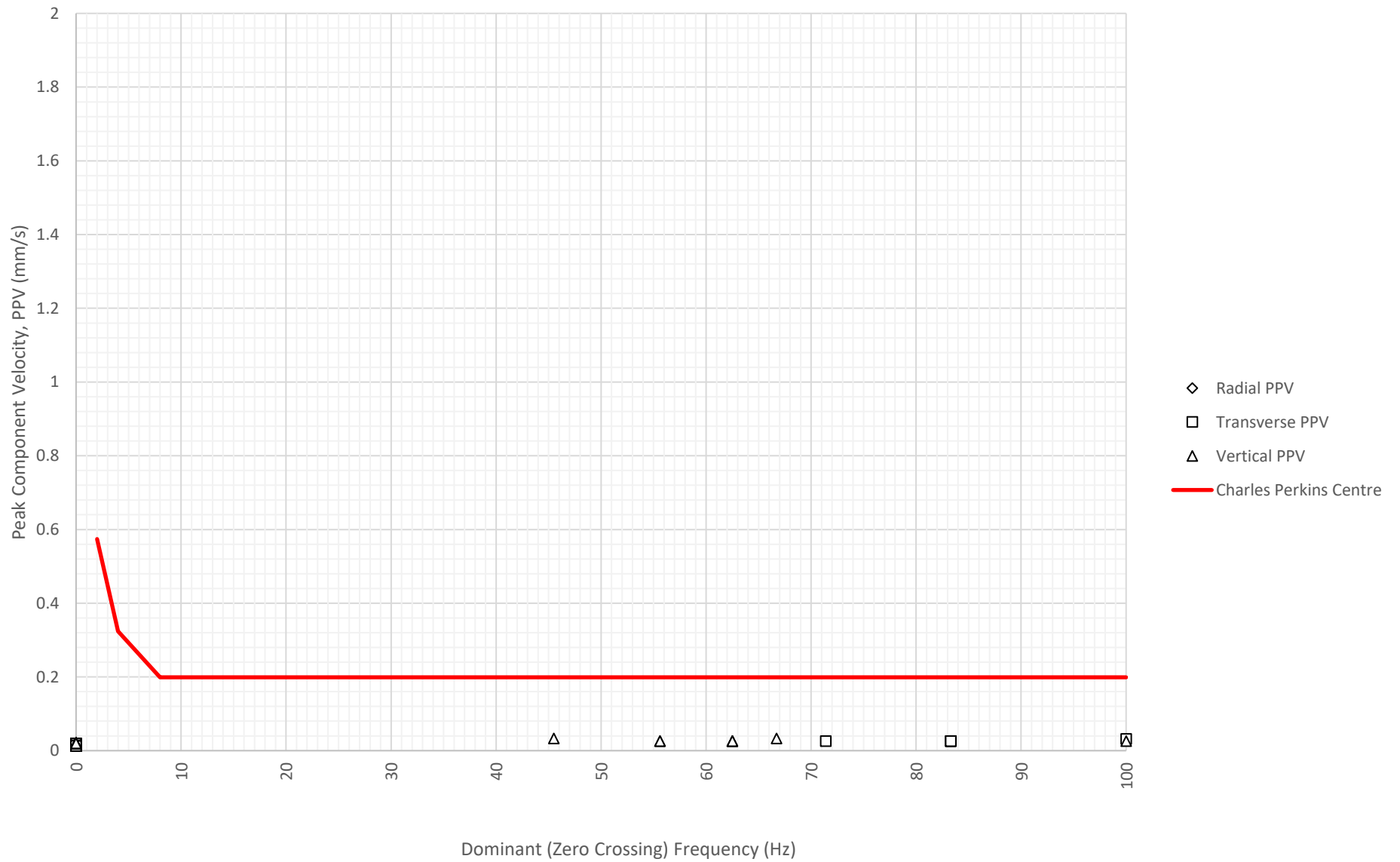
Frequency Content of Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 19-01-2024



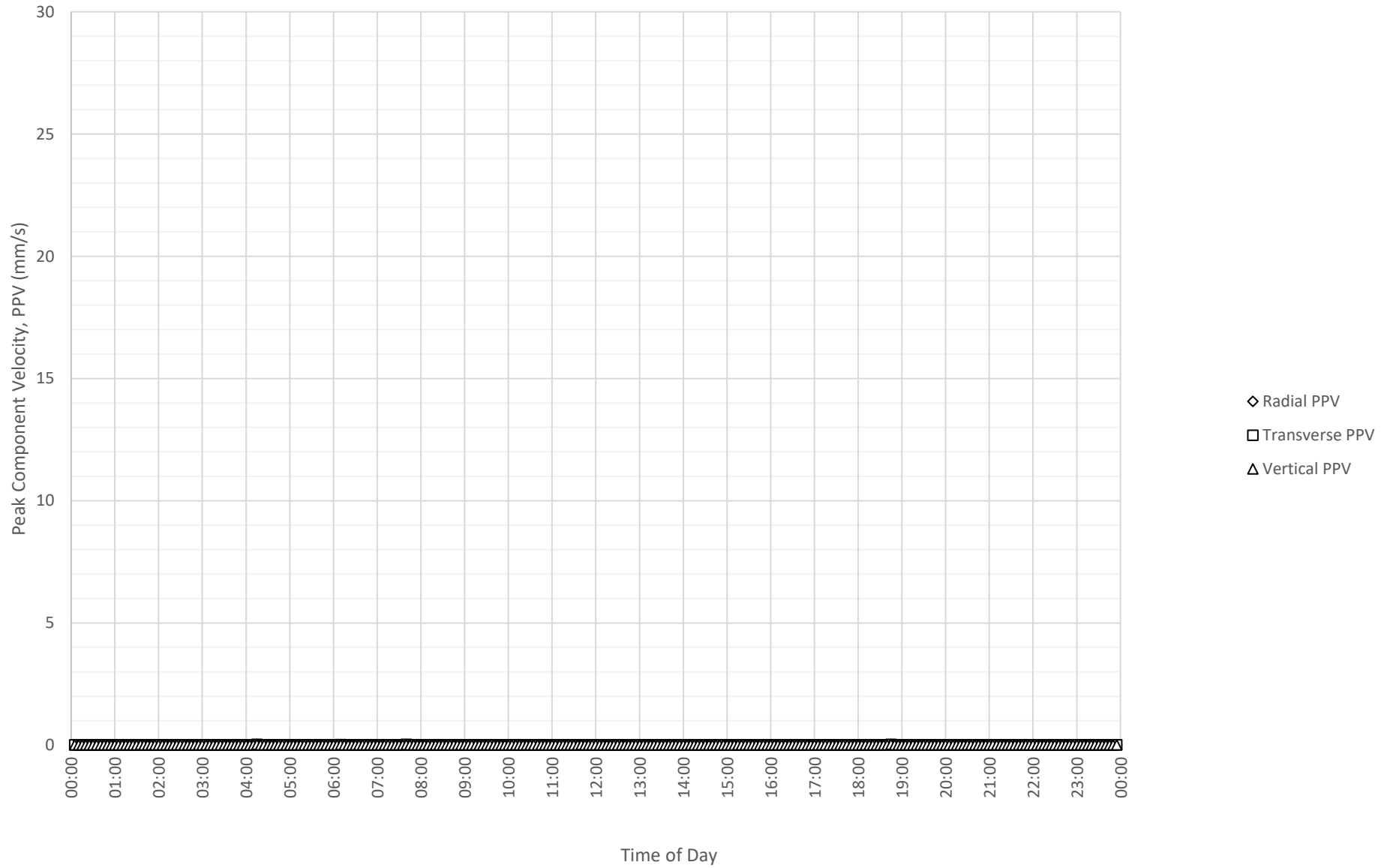
Daily Monitored Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 20-01-2024



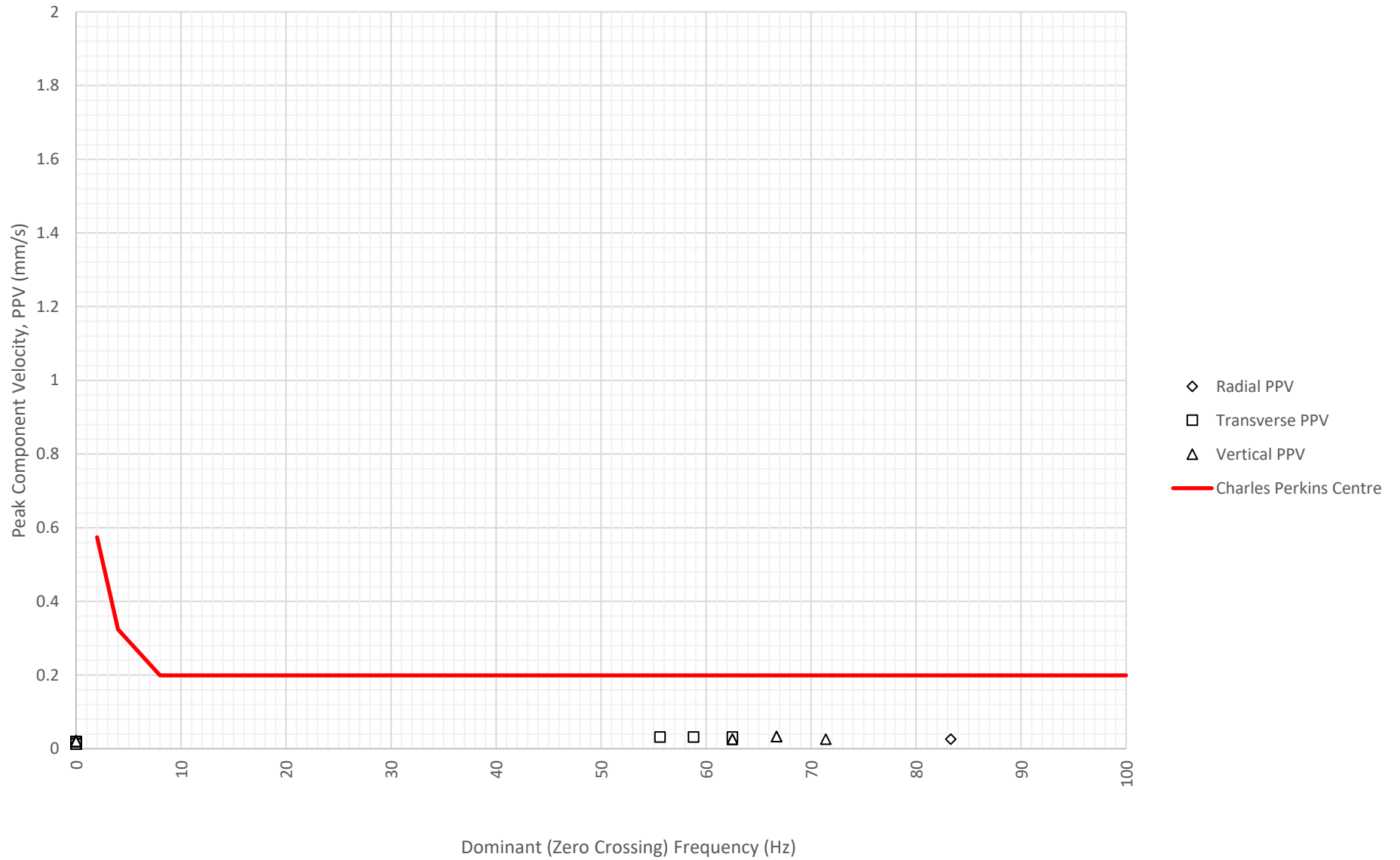
Frequency Content of Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E
on 20-01-2024



Daily Monitored Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 21-01-2024

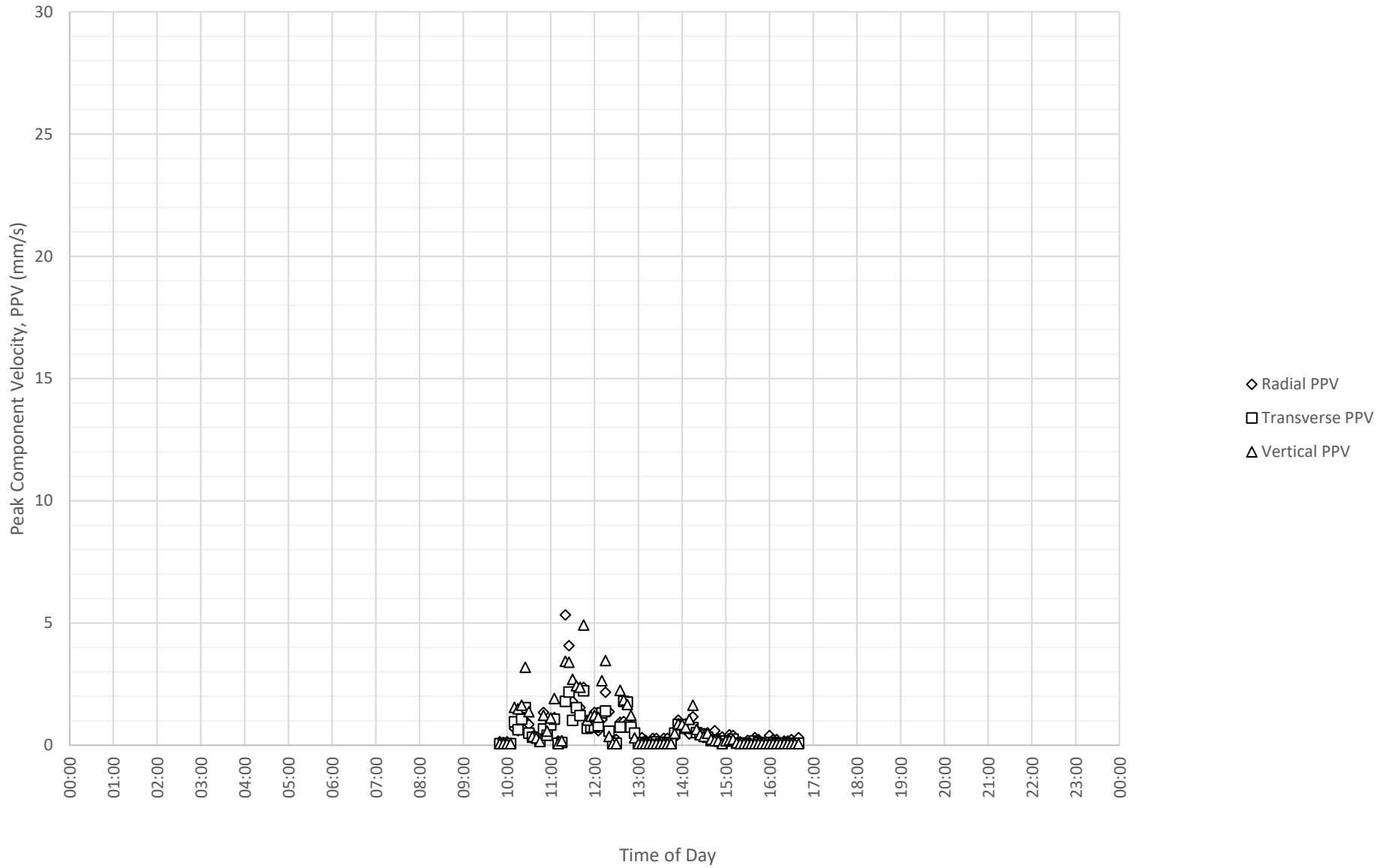


Frequency Content of Vibration Levels at Charles Perkins Centre - Southern Wing Observation Room E on 21-01-2024

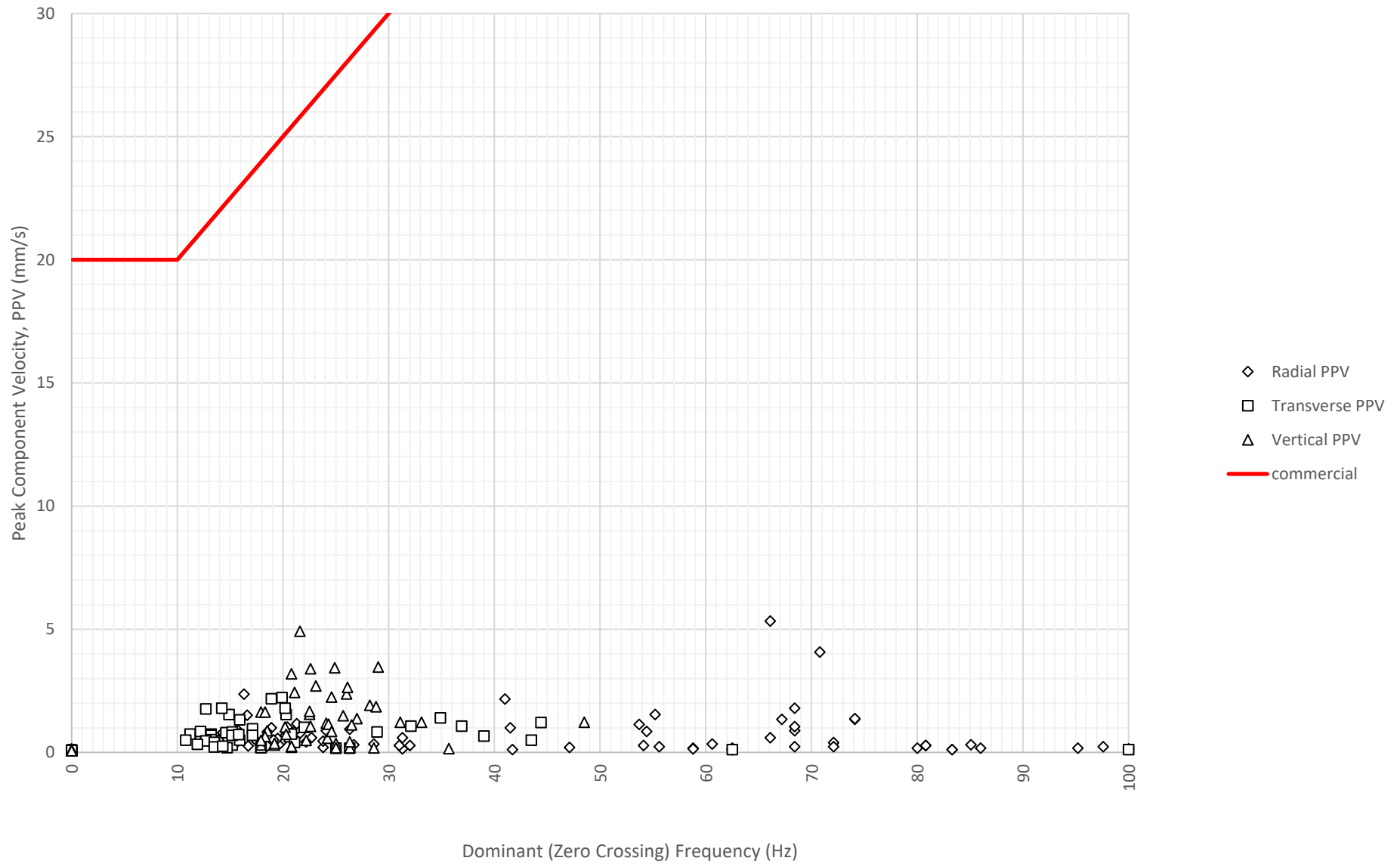


OUTSIDE SUSAN WAKIL HEALTH BUILDING

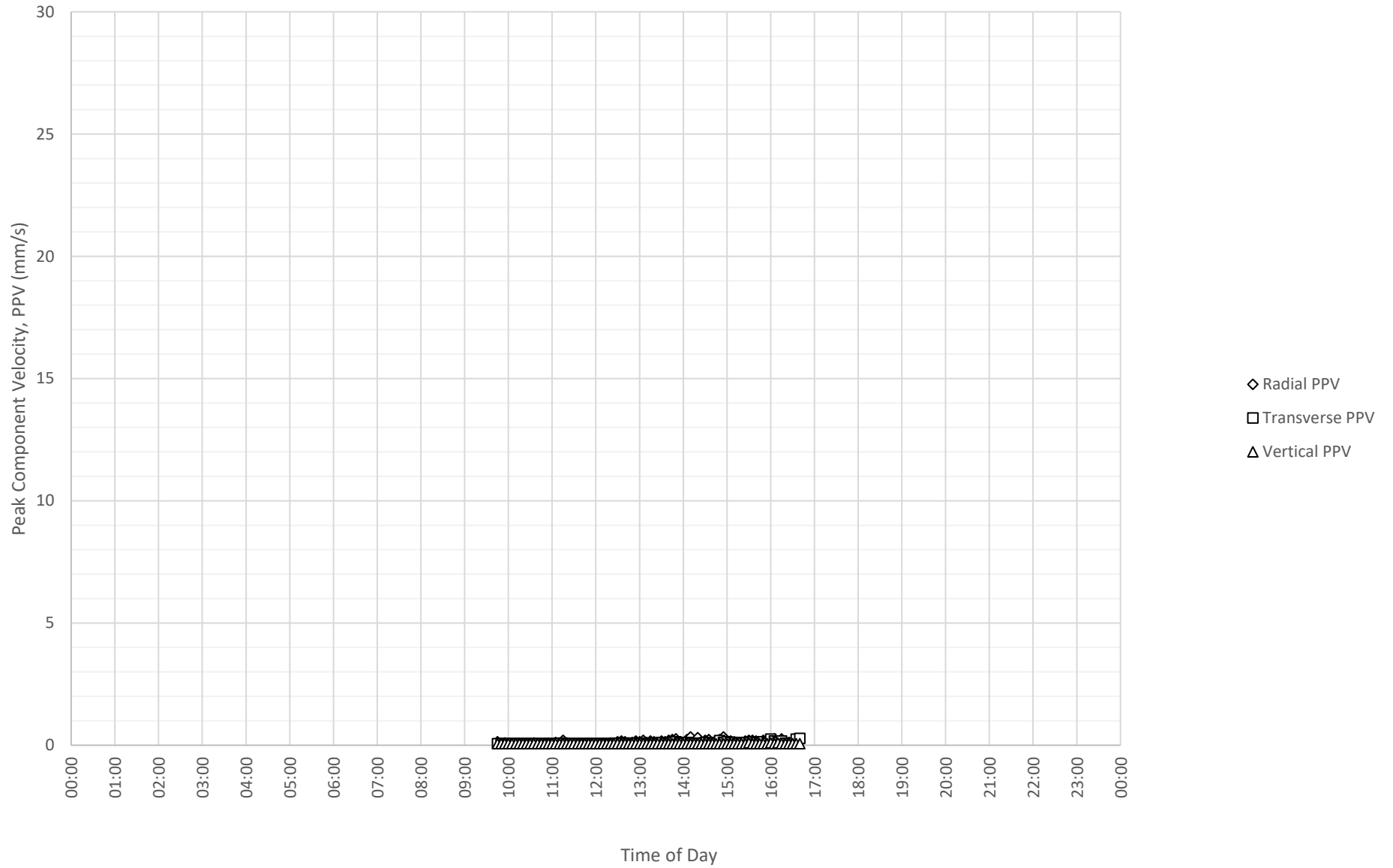
Daily Monitored Vibration Levels at Susan Wakil Health Building on 12-01-2024



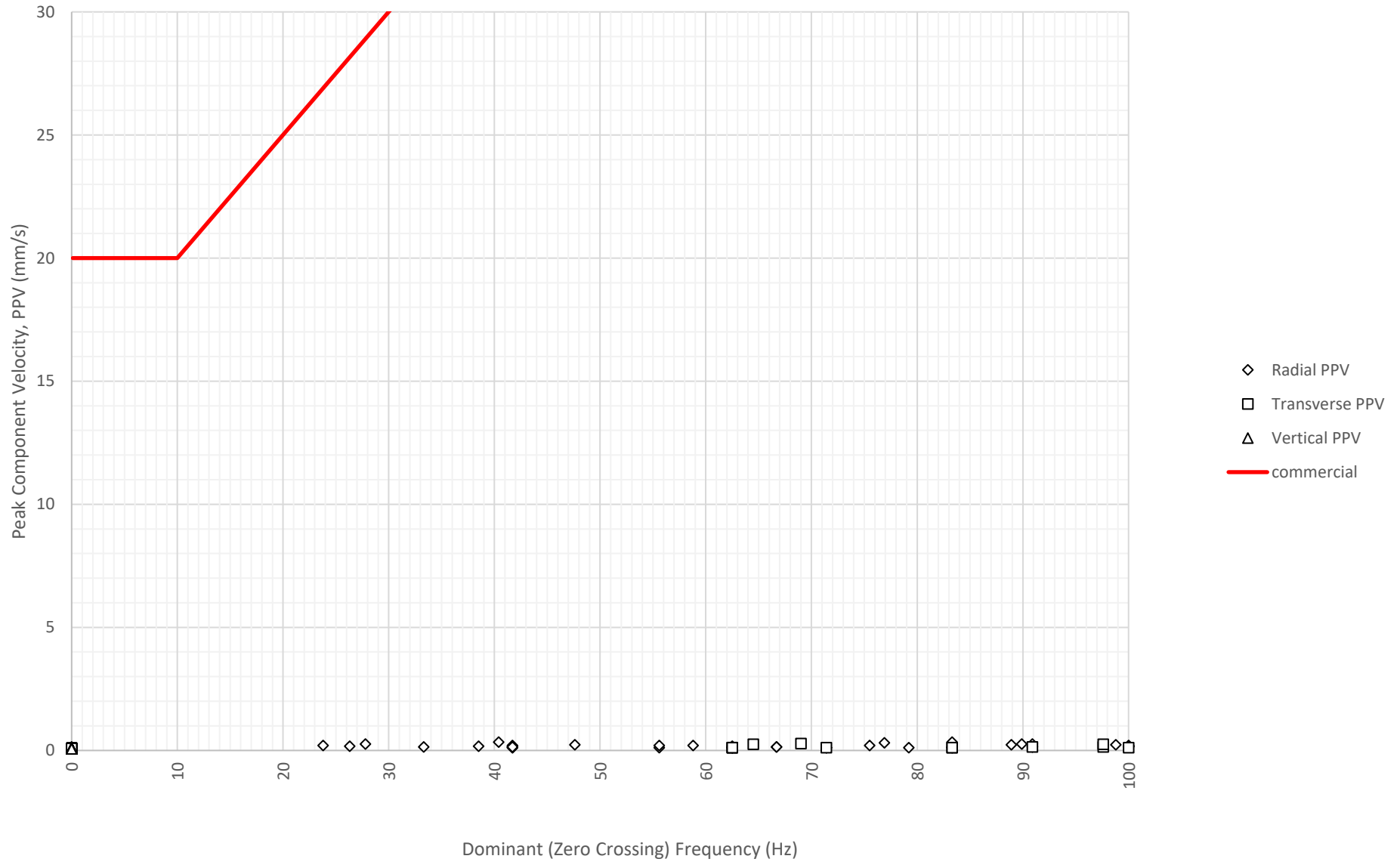
Frequency Content of Vibration Levels at Susan Wakil Health Building on 12-01-2024



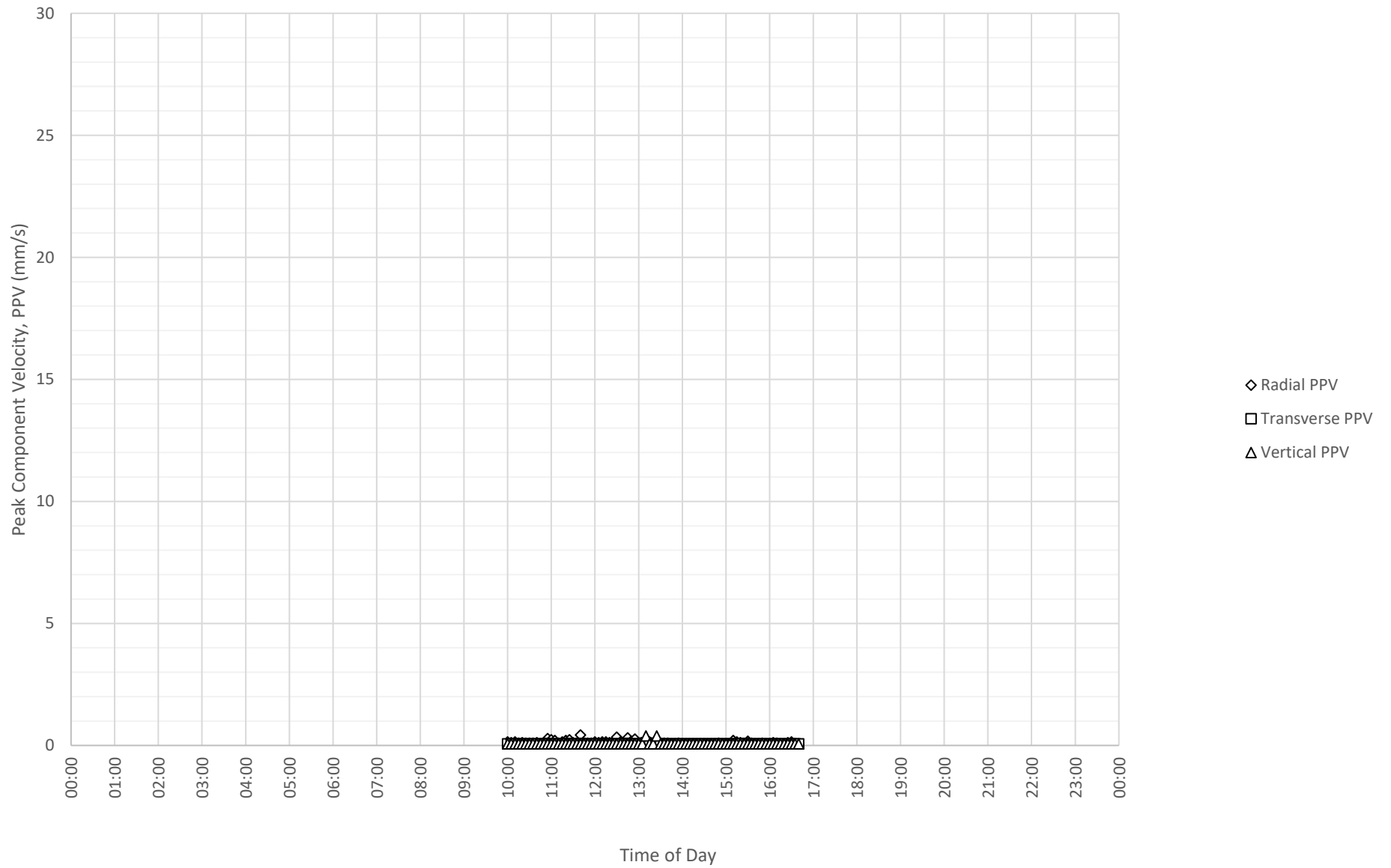
Daily Monitored Vibration Levels at Susan Wakil Health Building on 13-01-2024



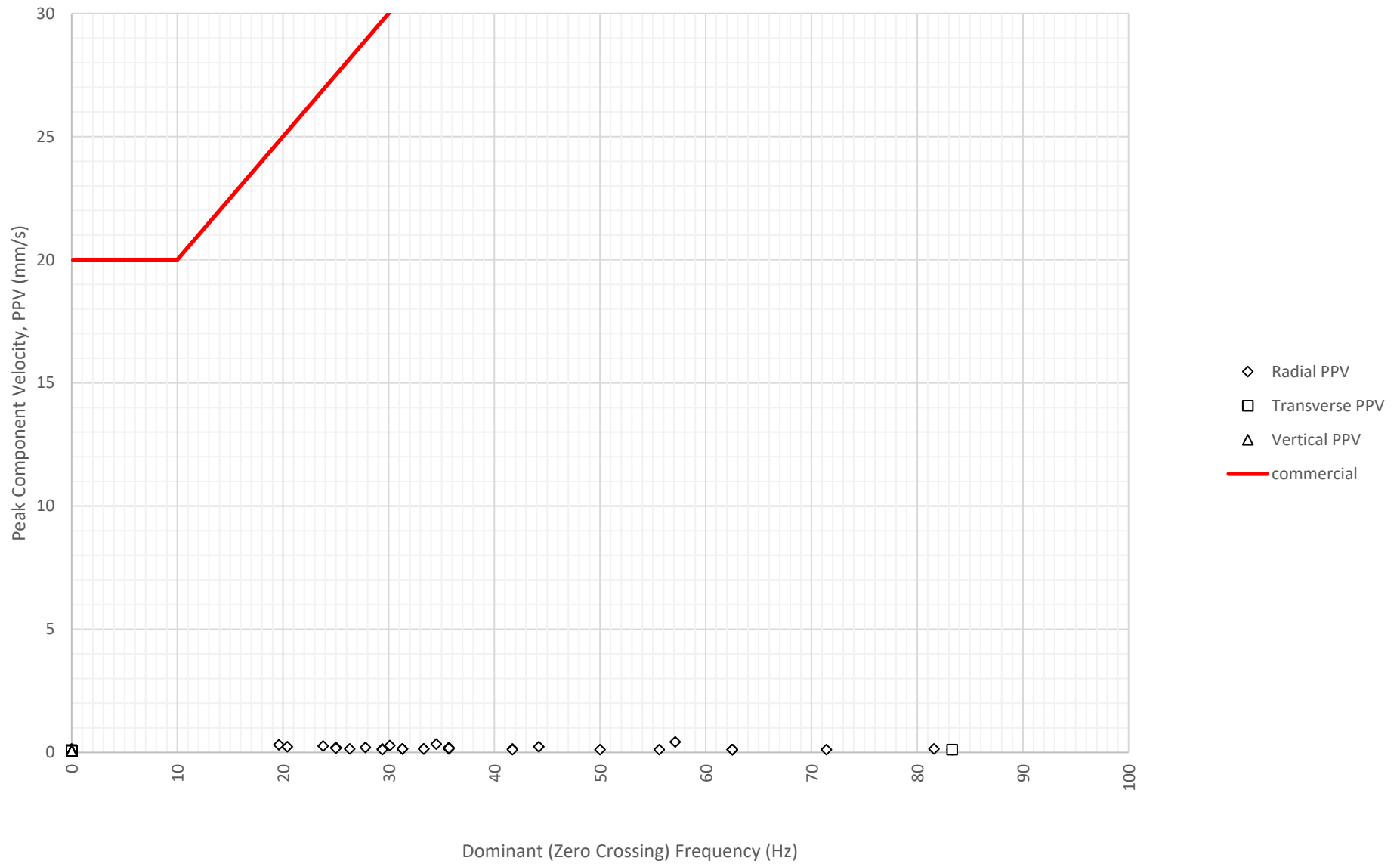
Frequency Content of Vibration Levels at Susan Wakil Health Building on 13-01-2024



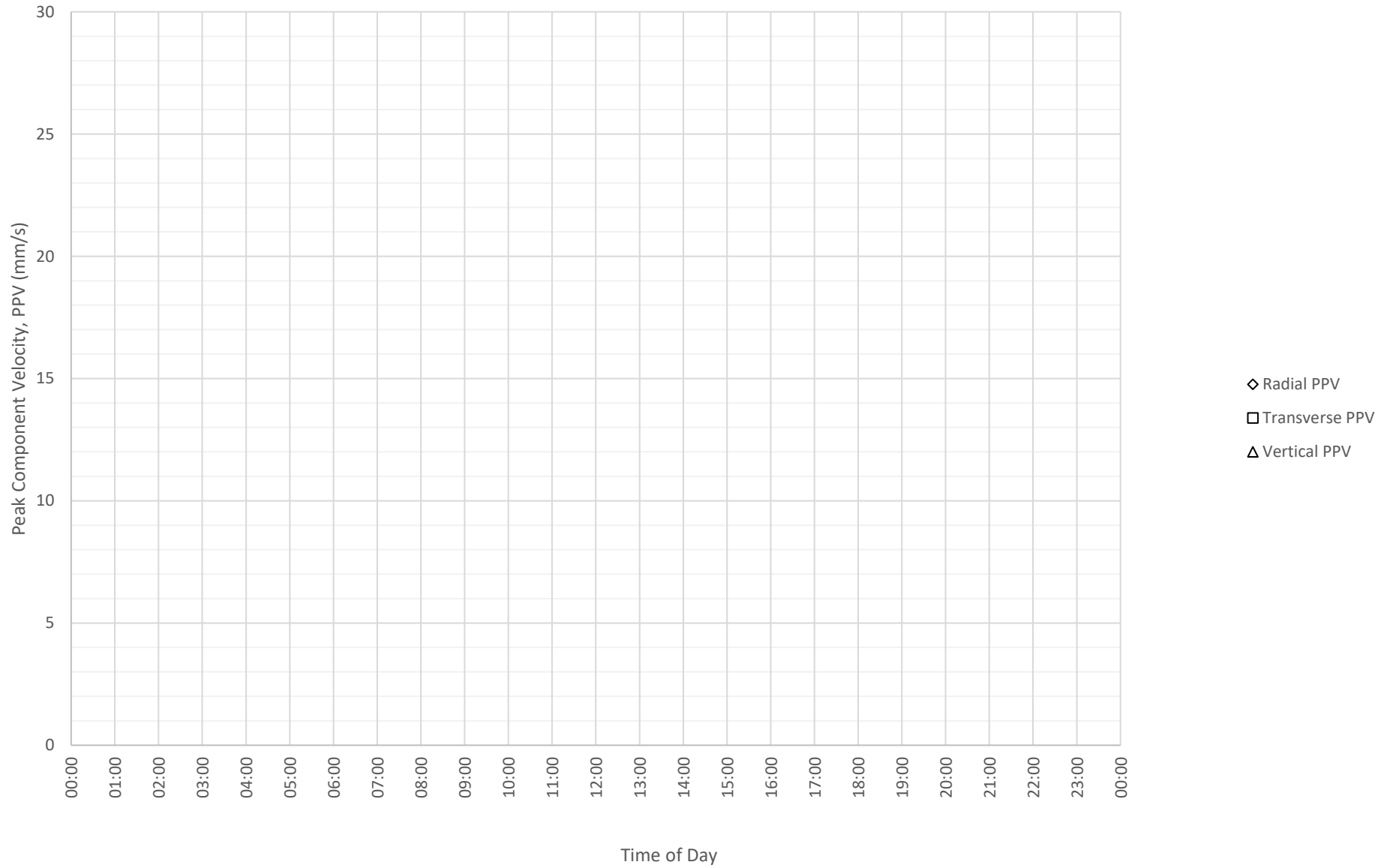
Daily Monitored Vibration Levels at Susan Wakil Health Building on 14-01-2024



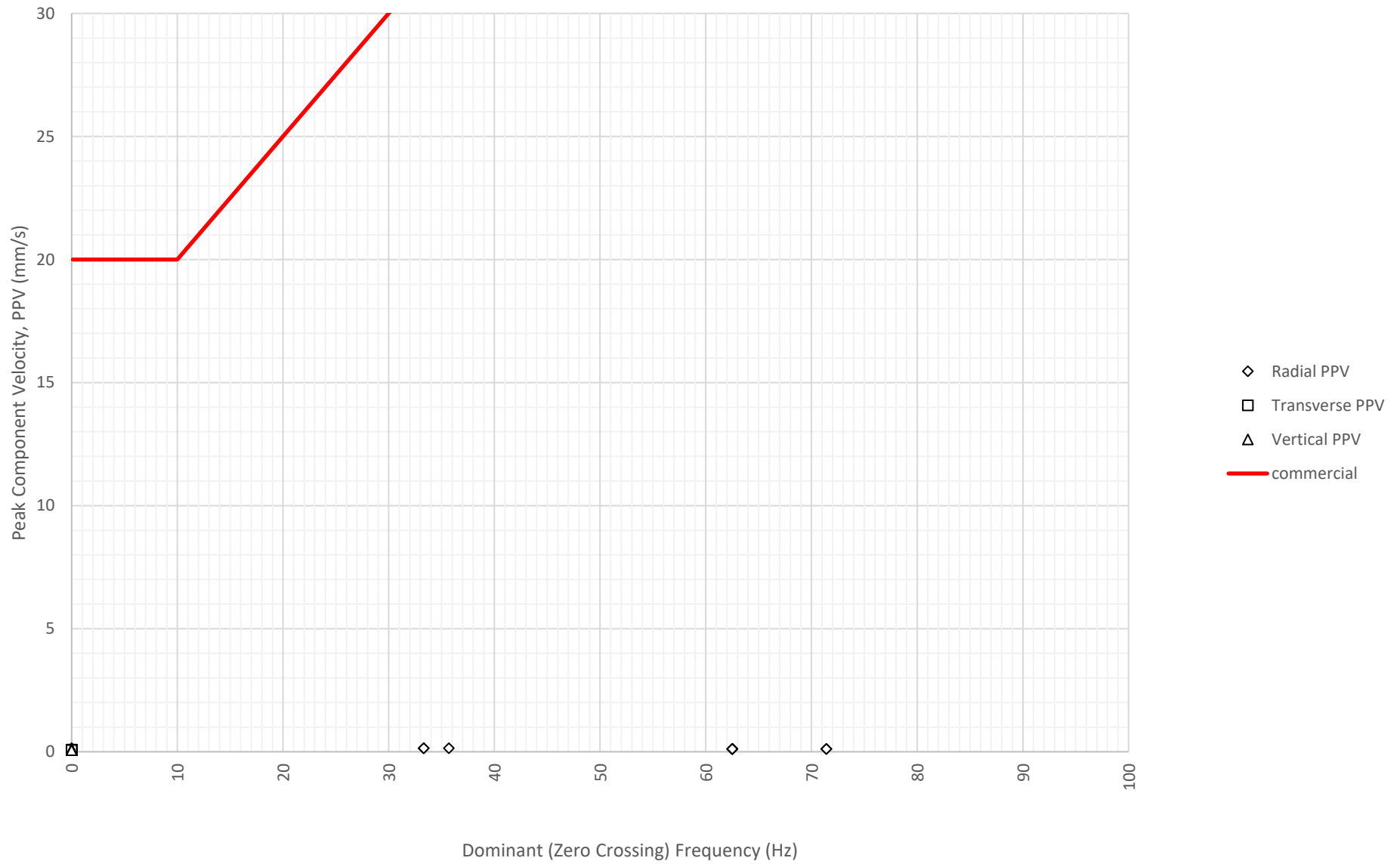
Frequency Content of Vibration Levels at Susan Wakil Health Building on 14-01-2024



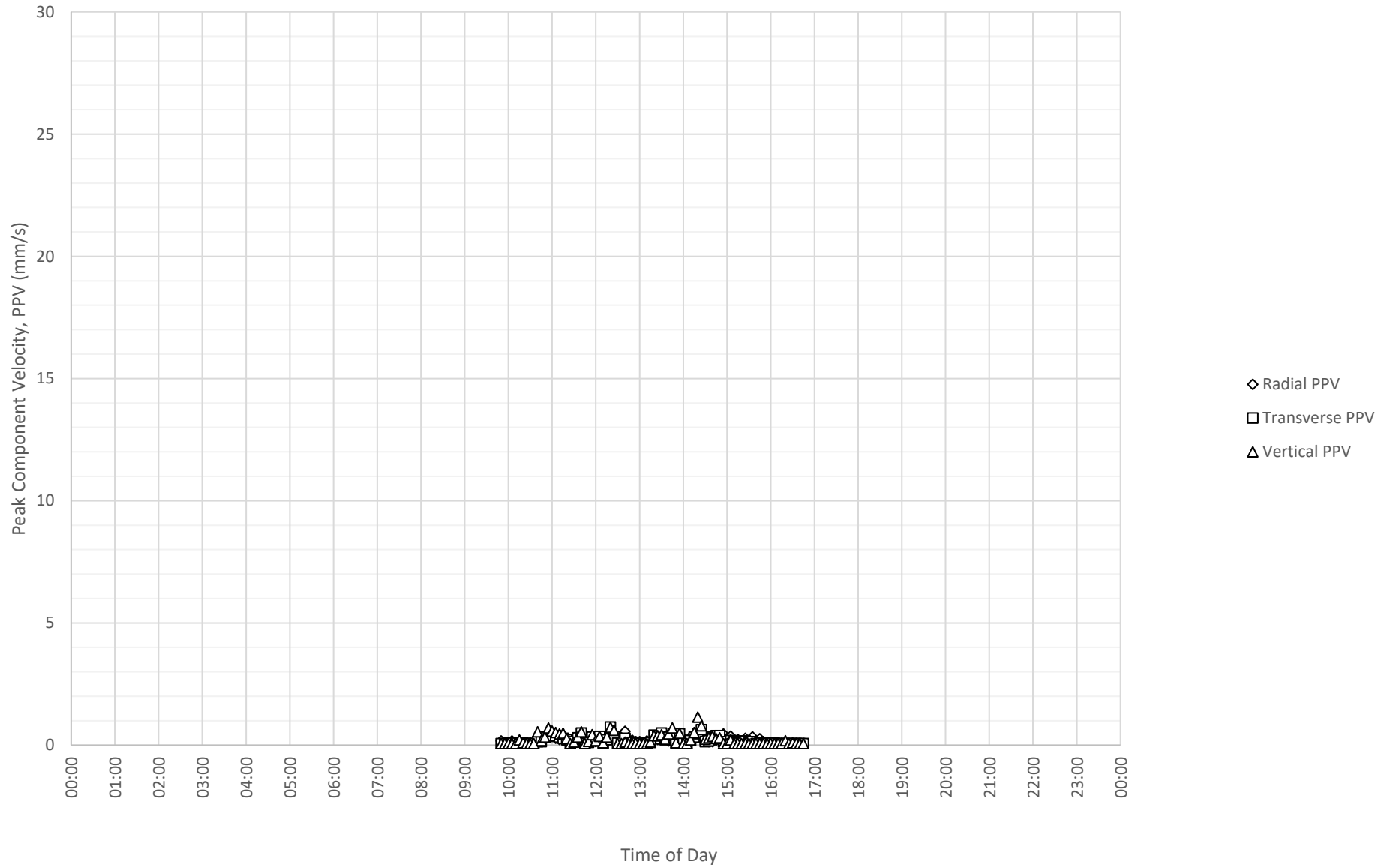
Daily Monitored Vibration Levels at Susan Wakil Health Building on 15-01-2024



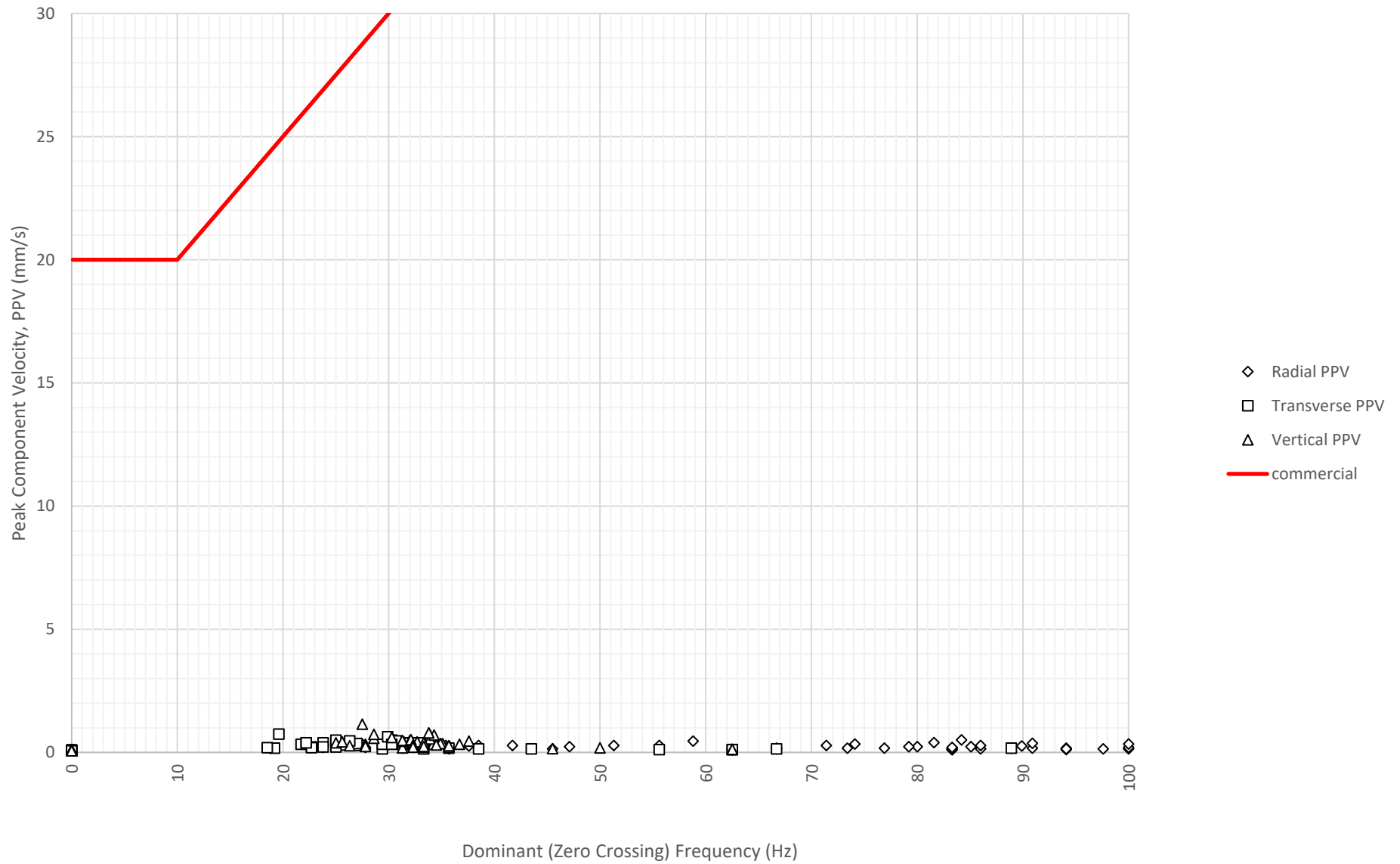
Frequency Content of Vibration Levels at Susan Wakil Health Building on 15-01-2024



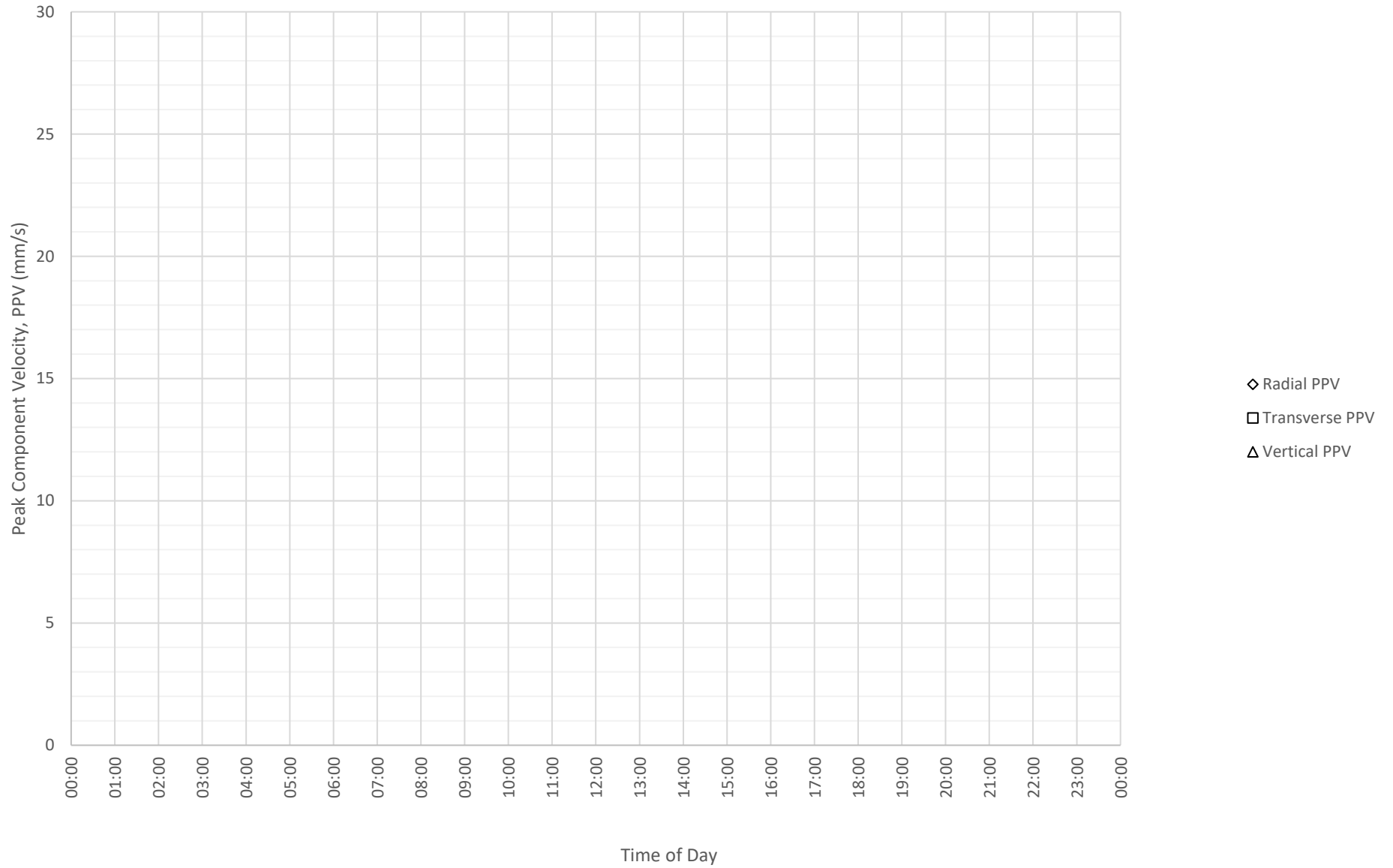
Daily Monitored Vibration Levels at Susan Wakil Health Building on 17-01-2024



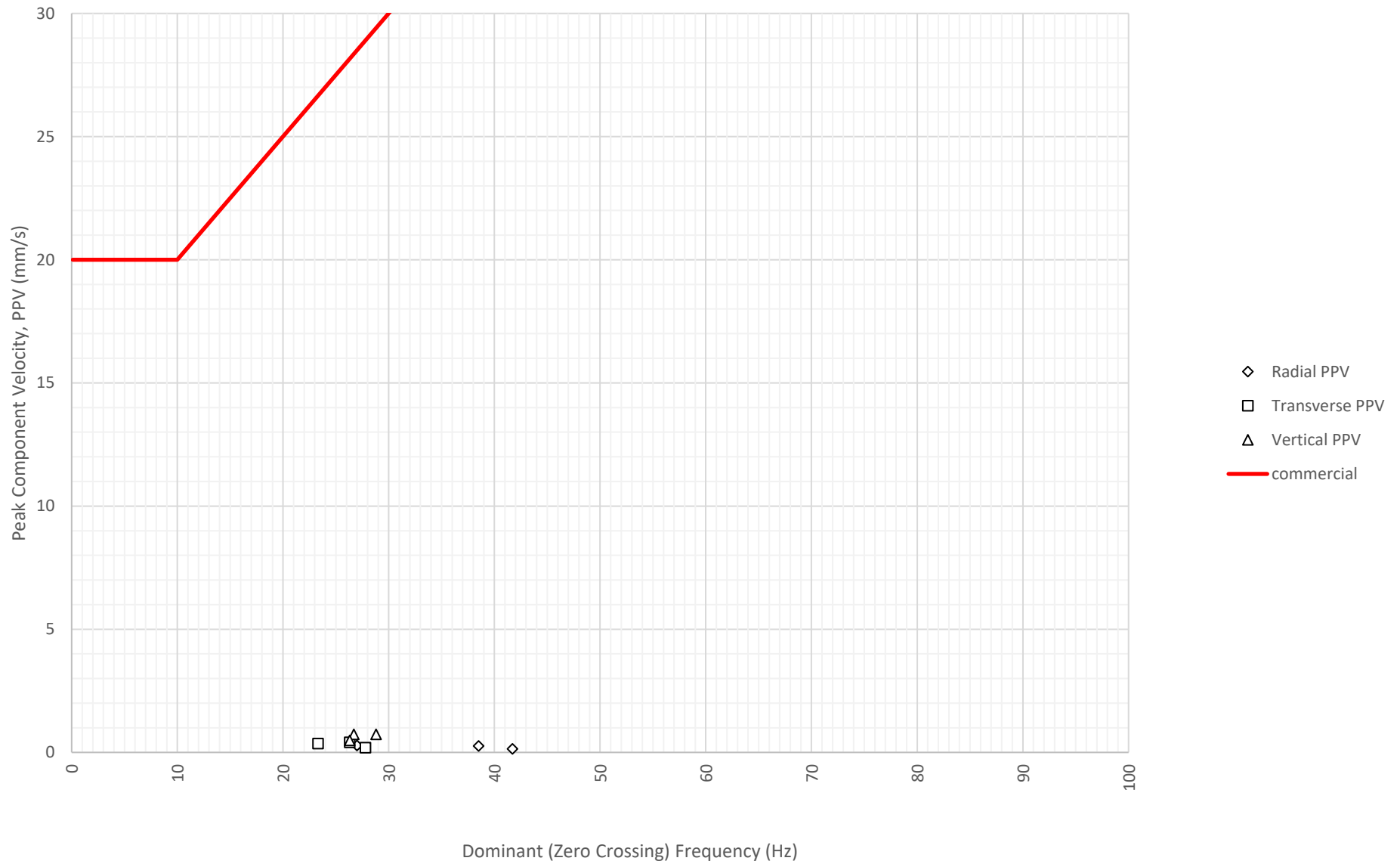
Frequency Content of Vibration Levels at Susan Wakil Health Building on 17-01-2024



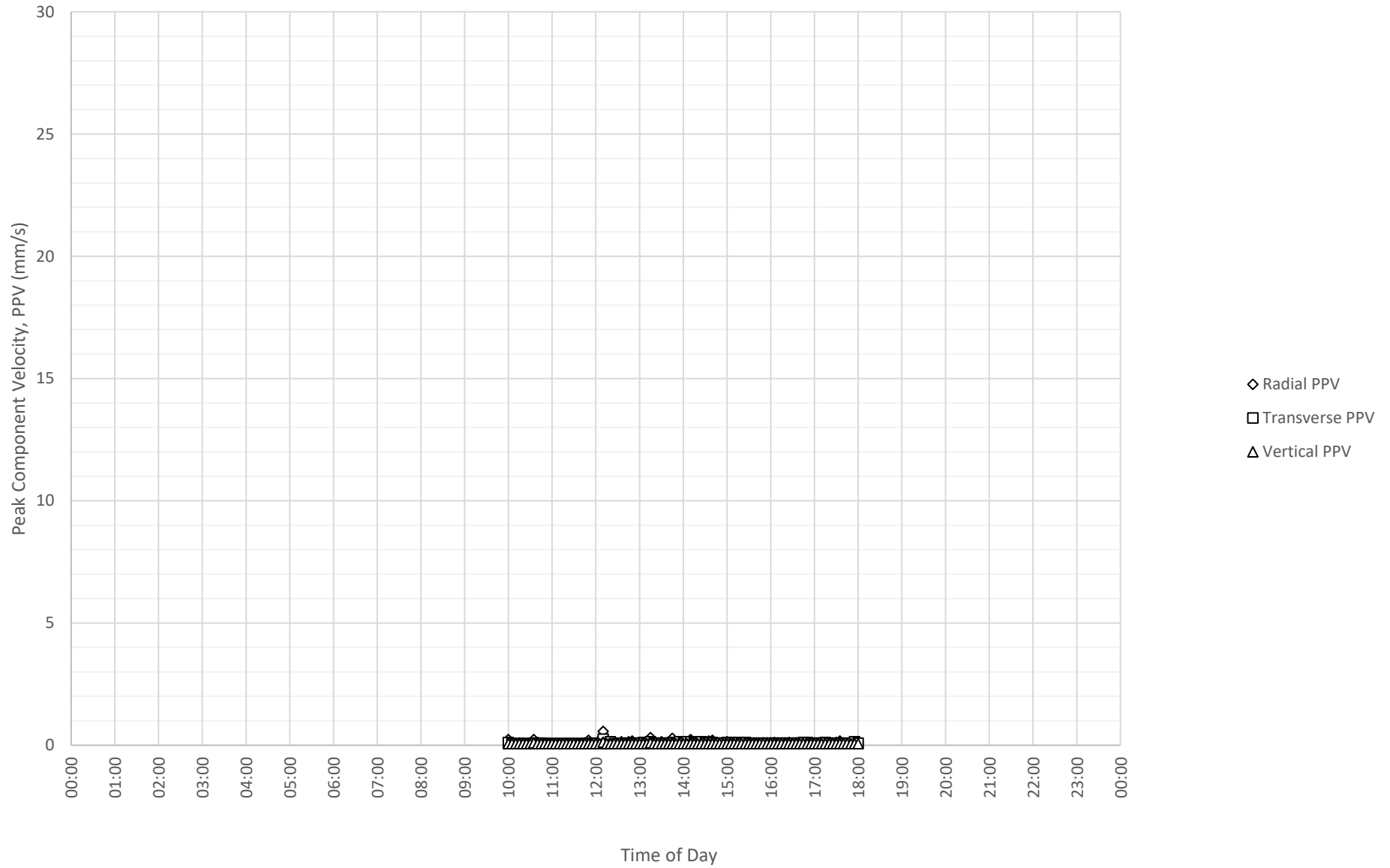
Daily Monitored Vibration Levels at Susan Wakil Health Building on 18-01-2024



Frequency Content of Vibration Levels at Susan Wakil Health Building on 18-01-2024



Daily Monitored Vibration Levels at Susan Wakil Health Building on 21-01-2024



Frequency Content of Vibration Levels at Susan Wakil Health Building on 21-01-2024

