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RNA Project Culloden & Gymnasium, Macquarie University

Monitoring Report 1

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1 INTRODUCTION

Acoustic Logic (AL) has been engaged to conduct vibration monitoring for the impacts associated with the demolition and excavation works at RNA Project Culloden & Gymnasium, Macquarie University (i.e., at the corner of Gymnasium Road and Culloden Road). The proposed development comprises the demolition of a portion of the existing N3 parking lot for a single storey building RNA research and manufacturing facility and a mezzanine plantroom.

This report presents the vibration monitoring results from 9th September to 30th September 2024.

Vibration monitoring has been carried out with reference to the following documents and guidelines:

- Noise and Vibration Impact Assessment prepared by ARUP (Ref: AC01, date 6th July 2024, issue 08)
- British Standard BS 7385-2 (1993)

1.1 SITE DESCRIPTION AND SENSITIVE RECEIVERS

The nearest/potentially most impacted sensitive receivers surrounding the site representative of vibration impacts have been identified and as summarised in the following table. An aerial photo of the site indicating nearby vibration sensitive receivers and the catchment areas, and the vibration monitoring locations are presented in Figure 1.

Table 1 – Sensitive Receivers

Receiver (Refer Figure 1)	Receiver Type	Comment
R1	Residential	Residential receivers at 146-150 Culloden Rd, Marsfield NSW
E1	Educational	Educational receiver at 5 Gymnasium Rd, Macquarie Park NSW
E2	Educational	Educational receiver at 2 Gymnasium Rd, Macquarie Park NSW

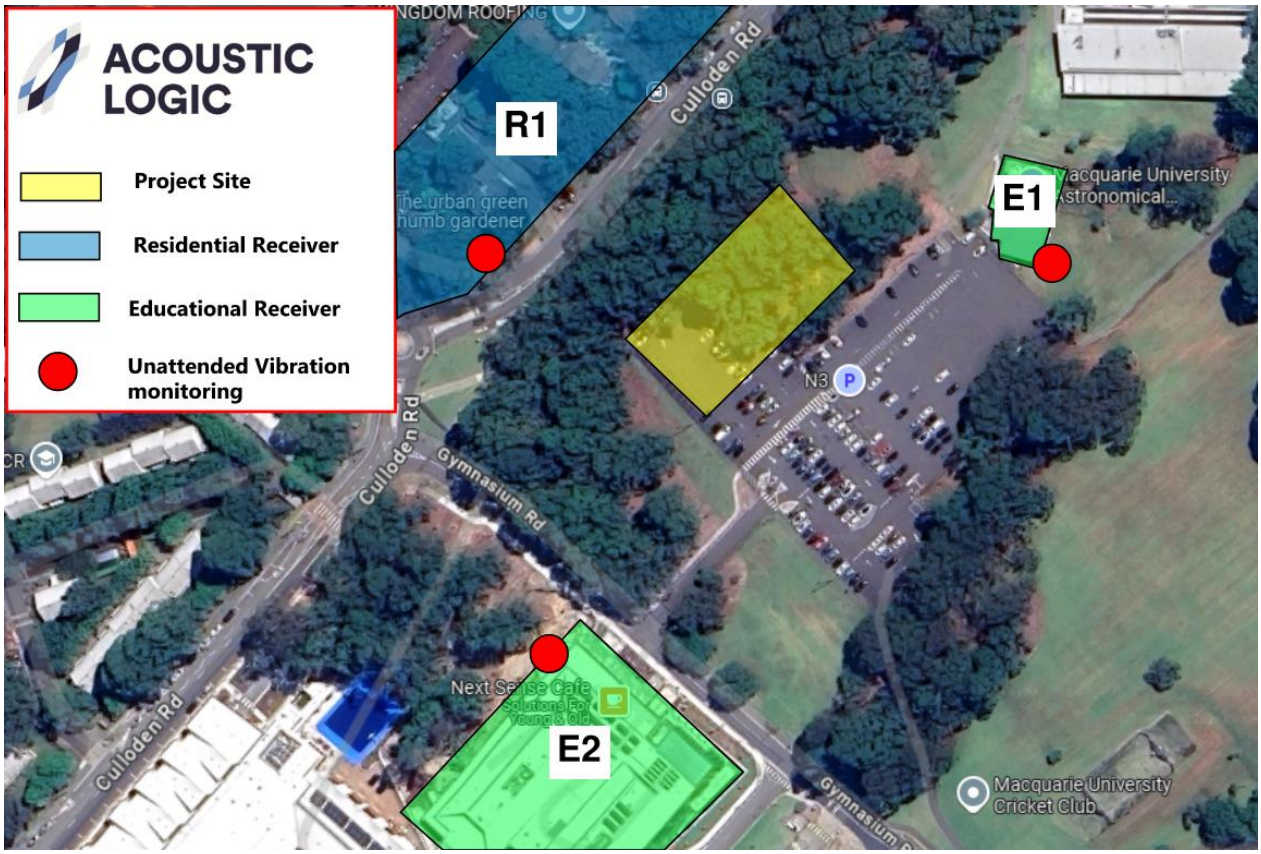


Figure 1. Project Site and Sensitive Receiver Locations

2 CONSTRUCTION VIBRATION CRITERIA

Vibration criteria are presented below have been adopted from the following documents:

- Noise and Vibration Impact Assessment prepared by ARUP (Ref: AC01, date 6th July 2024, issue 08)
- For structural damage vibration, British Standard BS 7385-2 Evaluation and measurement for vibration in buildings - Guide to damage levels from ground borne vibration
- German Standard DIN 4150-3 Structural Vibration: Effects of Vibration on Structures**VIBRATION MONITORING OBJECTIVES**

2.1.1 Noise and Vibration Impact Assessment

The noise and vibration impact assessment prepared by ARUP has outlined the following for vibration monitoring:

"Section 3.1.3 Construction vibration criteria

[...] British Standard 7385 Part 1: 1993, defines different levels of structural damage as:

- *Cosmetic - The formation of hairline cracks on drywall surfaces, or the growth of existing cracks in plaster or drywall surfaces; in addition, the formation of hairline cracks in mortar joints of brick/concrete block construction.*
- *Minor - The formation of large cracks or loosening of plaster or drywall surfaces, or cracks through bricks/concrete blocks.*
- *Major - Damage to structural elements of the building, cracks in supporting columns, loosening of joints, splaying of masonry cracks, etc.*

Table 1 and Section 7.4.2 of BS7385-2 sets limits for the protection against the different levels of structural damage and those levels are reproduced in Table 13 below.

Table 13: BS 7385-2 Structural damage criteria.

Group	Type of structure	Damage level	Peak component particle velocity, mm/s[1]		
			4 Hz to 15 Hz	15 Hz to 40 Hz	40 Hz and above
1	Reinforced or framed structures Industrial and heavy commercial buildings[3]	Cosmetic	50		
		Minor[2]	100		
		Major[2]	200		
2		Cosmetic	15 to 20	20 to 50	50
	Un-reinforced or light framed structures Residential or light commercial type buildings	Minor[2]	30 to 40	40 to 100	100
		Major[2]	60 to 80	80 to 200	200

Notes:

1. Peak Component Particle Velocity is the maximum Peak particle velocity in any one direction (x, y, z) as measured by a tri-axial vibration transducer.
2. Minor and major damage criteria established based on British Standard 7385 Part 2 (1993) Section 7.4.2

"

2.1.2 BS 7385-2

British Standard BS 7385-2 provides guidelines damage levels from ground born vibration in buildings. The criteria presented in BS 7385-2 are presented in section 2.1.1 above.

2.1.3 DIN 4150-3

German Standard DIN 4150-3 provides vibration velocity guideline levels for use in evaluating the effects of vibration on structures. The criteria presented in DIN 4150-3 are presented in Table 2.

It is noted that the peak velocity is the absolute value of the maximum of any of the three orthogonal component particle velocities as measured at the foundation, and the maximum levels measured in the x- and y-horizontal directions in the plane of the floor of the uppermost storey.

Table 2 – DIN4150-3 Safe Limits for Building Vibration

TYPE OF STRUCTURE		PEAK PARTICLE VELOCITY (mms^{-1})			
		At Foundation at a Frequency of			Plane of Floor of Uppermost Storey
		< 10Hz	10Hz to 50Hz	50Hz to 100Hz	All Frequencies
1	Buildings used in commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40
2	Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15
3	Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Lines 1 or 2 and have intrinsic value (e.g. buildings that are under a preservation order)	3	3 to 8	8 to 10	8

2.1.4 Summary

According to the Noise and Vibration Impact Assessment, vibration levels from the construction activities are expected to be significantly below amenity and damage risk management levels at all receivers except for **R1, E1 and E2**, which are near to the site.

Residential receiver R1 and receivers E1 and E2 will be assessed with the criteria of type 2 structure in DIN 4150-3.

3 VIBRATION MONITORING

3.1 MONITOR/MEASUREMENT EQUIPMENT AND LOCATIONS

3.1.1 Measurement Equipment

Vibration monitoring was conducted using Texcel ETM vibration monitors with external Tri-axial Geophones and Omnidots Swarm. The monitors are programmed to store statistical vibration data every 5-minute intervals, along with any 'triggered' events that occur throughout the monitoring period. Three vibration monitors were installed onsite during excavation phase.

3.1.2 Measurement Locations & Installation Dates

One Omnidot vibration monitor was installed at the ground level of the North-West of the site. This location is, representative of the potential vibration impacts to receiver R1, (see Figure 1). The monitor was installed on Monday 9th September 2024. The location of the monitor is shown in the Figure below.

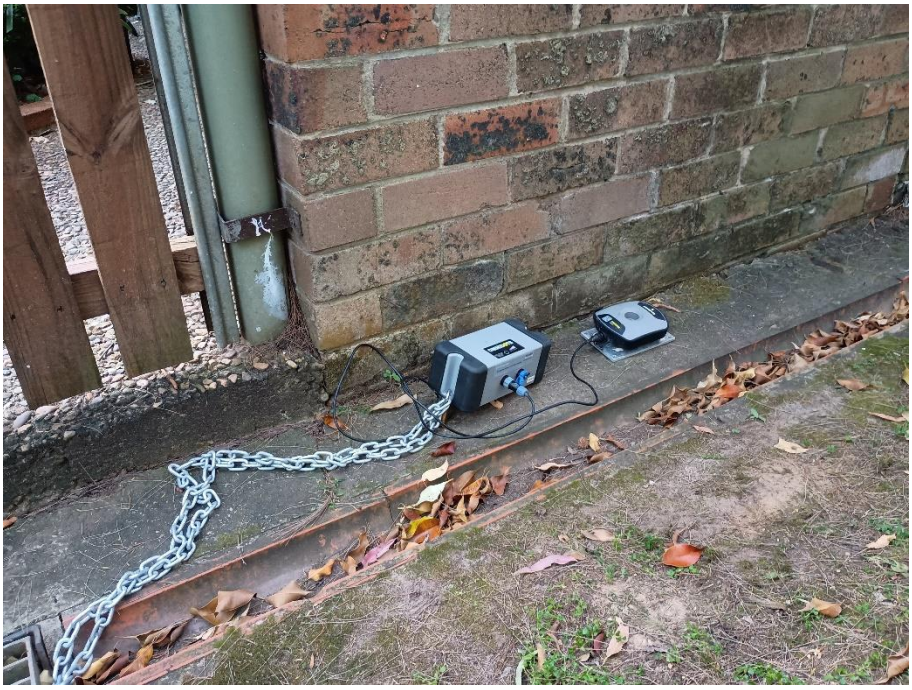


Figure 2. CONUFE Vibration Monitor located at North-West of the site (for R1)

One vibration monitor has been installed on Monday 9th September 2024 at the North-East of the construction site on ground level. This location is representative of the potential vibration impacts to receiver E1 (see Figure 1). The location of the monitor is shown in the Figure below.

Figure 3. 7900 Vibration Monitor located at North-East of the site (for E1)

One vibration monitor has been installed on Monday 9th September 2024 at the South-West of the construction site on ground level. This location is representative of the potential vibration impacts to receiver E2 (see Figure 1). The location of the monitor is shown in the Figure below.

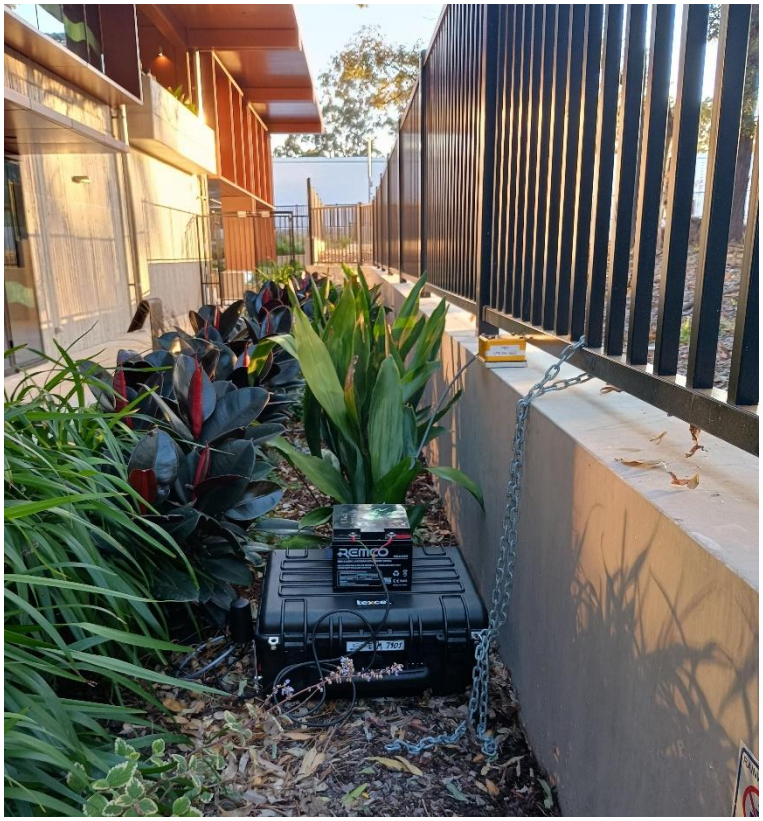


Figure 4. 7901 Vibration Monitor located at South-West of the site (for E2)

3.2 VIBRATION MEASURMENTS

3.2.1 Monitoring period

This report provides the available results of vibration monitoring between the 9th September 2024 and 30th September 2024.

3.2.2 Vibration Monitoring Results

3.2.2.1 Vibration Monitor – CONUFE (North-West of the site)

Date	Maximum Measured Vibration Level mm/s	Structural Damage Criteria for Type 2 (DIN4150-3)	Comments
Monday 9 September 2024	<5mm/s	5 mm/s (<10Hz) 5-15 mm/s (10-50Hz) 15-20 mm/s (50-100Hz)	Vibration levels satisfy DIN4150-3 Type 2 criteria
Tuesday 10 September 2024	<5mm/s		
Wednesday 11 September 2024	<5mm/s		
Thursday 12 September 2024	<5mm/s		
Friday 13 September 2024	<5mm/s		
Saturday 14 September 2024	<5mm/s		
Sunday 15 September 2024	No Works		
Monday 16 September 2024	<5mm/s		
Tuesday 17 September 2024	<5mm/s		
Wednesday 18 September 2024	<5mm/s		
Thursday 19 September 2024	<5mm/s		
Friday 20 September 2024	<5mm/s		
Saturday 21 September 2024	<5mm/s		
Sunday 22 September 2024	No Works		
Monday 23 September 2024	<5mm/s		

Date	Maximum Measured Vibration Level mm/s	Structural Damage Criteria for Type 2 (DIN4150-3)	Comments
Tuesday 24 September 2024	<5mm/s	5 mm/s (<10Hz) 5-15 mm/s (10-50Hz) 15-20 mm/s (50-100Hz)	Vibration levels satisfy DIN4150-3 Type 2 criteria
Wednesday 25 September 2024	<5mm/s		
Thursday 26 September 2024	<5mm/s		
Friday 27 September 2024	<5mm/s		
Saturday 28 September 2024	<5mm/s		
Sunday 29 September 2024	No Works		
Monday 30 September 2024	<5mm/s		

Vibration levels for monitor CONUFE to the north-west of the construction site were generally within the nominated criteria for the whole monitoring period between 9th September to 30th September 2024.

3.2.2.2 Vibration Monitor – M7900 (GL, North-East of the site)

Table 3 - Vibration Monitoring Results – M7900

Date	Maximum Measured Vibration Level mm/s	Structural Damage Criteria for Type 2 (DIN4150-3)	Comments
Tuesday 10 September 2024	<5mm/s	5 mm/s (<10Hz) 5-15 mm/s (10-50Hz) 15-20 mm/s (50-100Hz)	Vibration levels satisfy DIN4150-3 Type 2 criteria
Wednesday 11 September 2024	<5mm/s		
Thursday 12 September 2024	<5mm/s		
Friday 13 September 2024	<5mm/s		
Saturday 14 September 2024	<5mm/s		
Sunday 15 September 2024	No Works		
Monday 16 September 2024	60.69 @ 1.5Hz		One exceedance at 9 AM due to work near the monitor (not relative to construction activities)
Tuesday 17 September 2024	60.69 @ 4.5Hz		One exceedance at 8 AM due to work near the monitor (not relative to construction activities)
Wednesday 18 September 2024	<5mm/s		Vibration levels satisfy DIN4150-3 Type 2 criteria
Thursday 19 September 2024	<5mm/s		
Friday 20 September 2024	<5mm/s		
Saturday 21 September 2024	<5mm/s		
Sunday 22 September 2024	No Works		
Monday 23 September 2024	<5mm/s		
Tuesday 24 September 2024	<5mm/s		
Wednesday 25 September 2024	<5mm/s		

Date	Maximum Measured Vibration Level mm/s	Structural Damage Criteria for Type 2 (DIN4150-3)	Comments
Thursday 26 September 2024	<5mm/s	5 mm/s (<10Hz) 5-15 mm/s (10-50Hz) 15-20 mm/s (50-100Hz)	Vibration levels satisfy DIN4150-3 Type 2 criteria
Friday 27 September 2024	<5mm/s		
Saturday 28 September 2024	<5mm/s		
Sunday 29 September 2024	No Works		
Monday 30 September 2024	<5mm/s		

Vibration levels for monitor M7900 to the north-east of the construction site were generally within the nominated criteria for the whole monitoring period between 10th September to 30th September 2024. Two exceedances were recorded to the ETM7900 vibration monitor (on 16th and 17th September 2024) due to work near the monitoring (not relative to construction activities).

3.2.2.3 Vibration Monitor – M7901 (GL, South-West of the site)

Date	Maximum Measured Vibration Level mm/s	Structural Damage Criteria for Type 2 (DIN4150-3)	Comments
Monday 9 September 2024	27.13 @ 12.2Hz	5 mm/s (<10Hz) 5-15 mm/s (10-50Hz) 15-20 mm/s (50-100Hz)	One exceedance at 9 AM due to work due to testing (not relative to construction activities)
Tuesday 10 September 2024	<5mm/s		Vibration levels satisfy DIN4150-3 Type 2 criteria
Wednesday 11 September 2024	<5mm/s		
Thursday 12 September 2024	<5mm/s		
Friday 13 September 2024	<5mm/s		
Saturday 14 September 2024	<5mm/s		
Sunday 15 September 2024	No Works		
Monday 16 September 2024	<5mm/s		
Tuesday 17 September 2024	<5mm/s		
Wednesday 18 September 2024	<5mm/s		
Thursday 19 September 2024	<5mm/s		
Friday 20 September 2024	<5mm/s		
Saturday 21 September 2024	<5mm/s		
Sunday 22 September 2024	No Works		
Monday 23 September 2024	<5mm/s		
Tuesday 24 September 2024	<5mm/s		
Wednesday 25 September 2024	<5mm/s		

Date	Maximum Measured Vibration Level mm/s	Structural Damage Criteria for Type 2 (DIN4150-3)	Comments
Thursday 26 September 2024	<5mm/s	5 mm/s (<10Hz) 5-15 mm/s (10-50Hz) 15-20 mm/s (50-100Hz)	Vibration levels satisfy DIN4150-3 Type 2 criteria
Friday 27 September 2024	<5mm/s		
Saturday 28 September 2024	<5mm/s		
Sunday 29 September 2024	No Works		
Monday 30 September 2024	<5mm/s		

Vibration levels for monitor M7901 to the south-west of the construction site were generally within the nominated criteria for the whole monitoring period between 9th September to 30th September 2024. One exceedance was recorded to the ETM7901 vibration monitor (on 9th September 2024) due to testing (not relative to construction activities).

4 CONCLUSION

Acoustic Logic (AL) has been engaged to carry out vibration monitoring for the construction impacts associated with works being conducted at RNA Project Culloden & Gymnasium, Macquarie University. Vibration works comprise the demolition of a portion of the existing N3 parking lot for a single storey building RNA research and manufacturing facility and a mezzanine plantroom.

This report provides the results of Vibration Monitoring from 9th September to 30th September 2024. Monitoring graphs have been presented in the Appendix 1.

With respect to measured vibration levels:

- Measured vibration levels were generally less than 1mm/s PPV which is typically imperceptible. Measured vibration at these levels were generally compliant with the building damage criteria of BS7385-2 and DIN4150-3.
- Two exceedances were recorded to the ETM7900 vibration monitor during the month of September 2024 due to work near the monitoring (not relative to construction activities).
- One exceedance was recorded to the ETM 7901 vibration monitor on 9th September 2024 due to installation testing (not relative to construction activities).

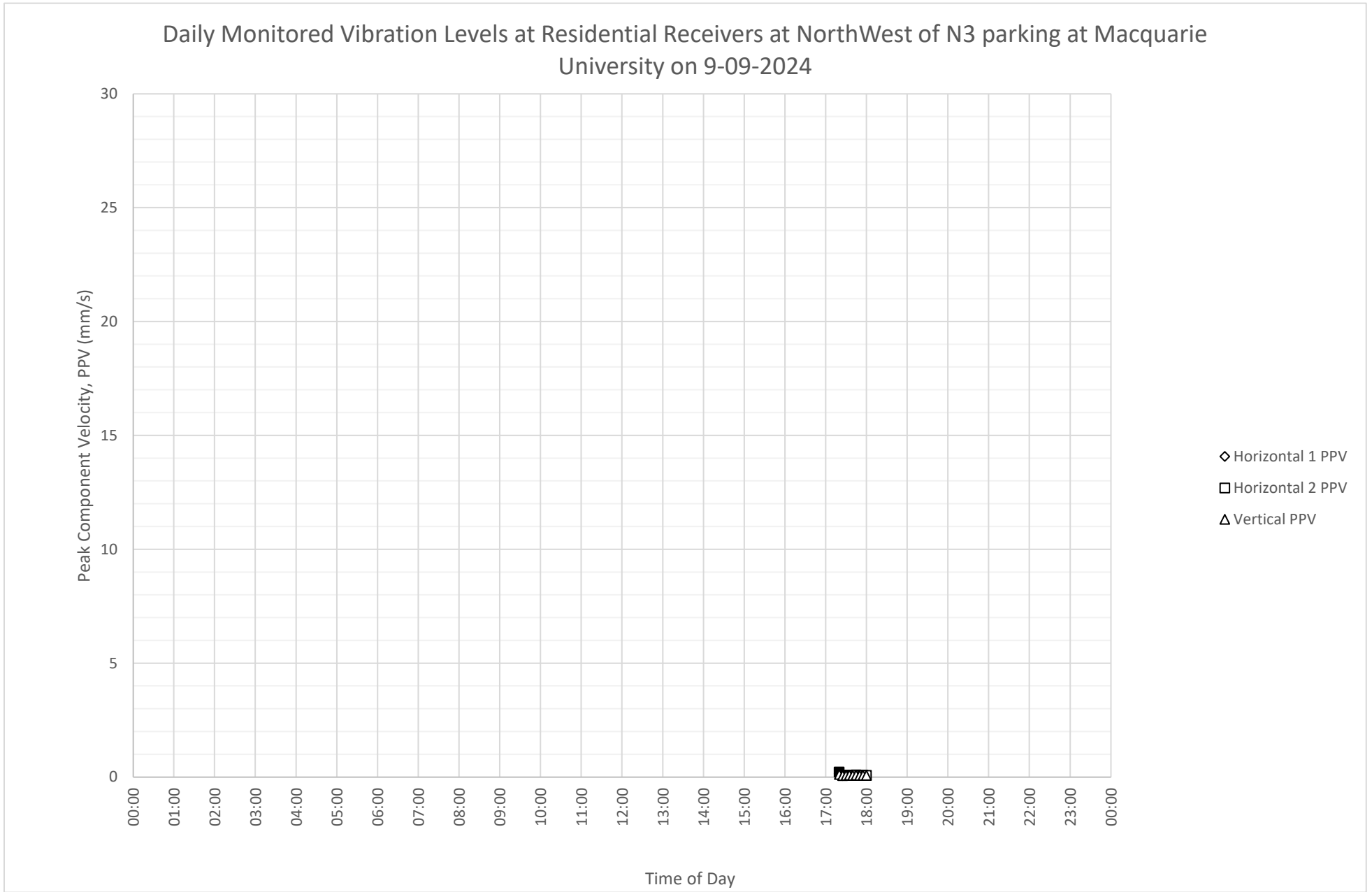
Please contact us should you have any further queries.

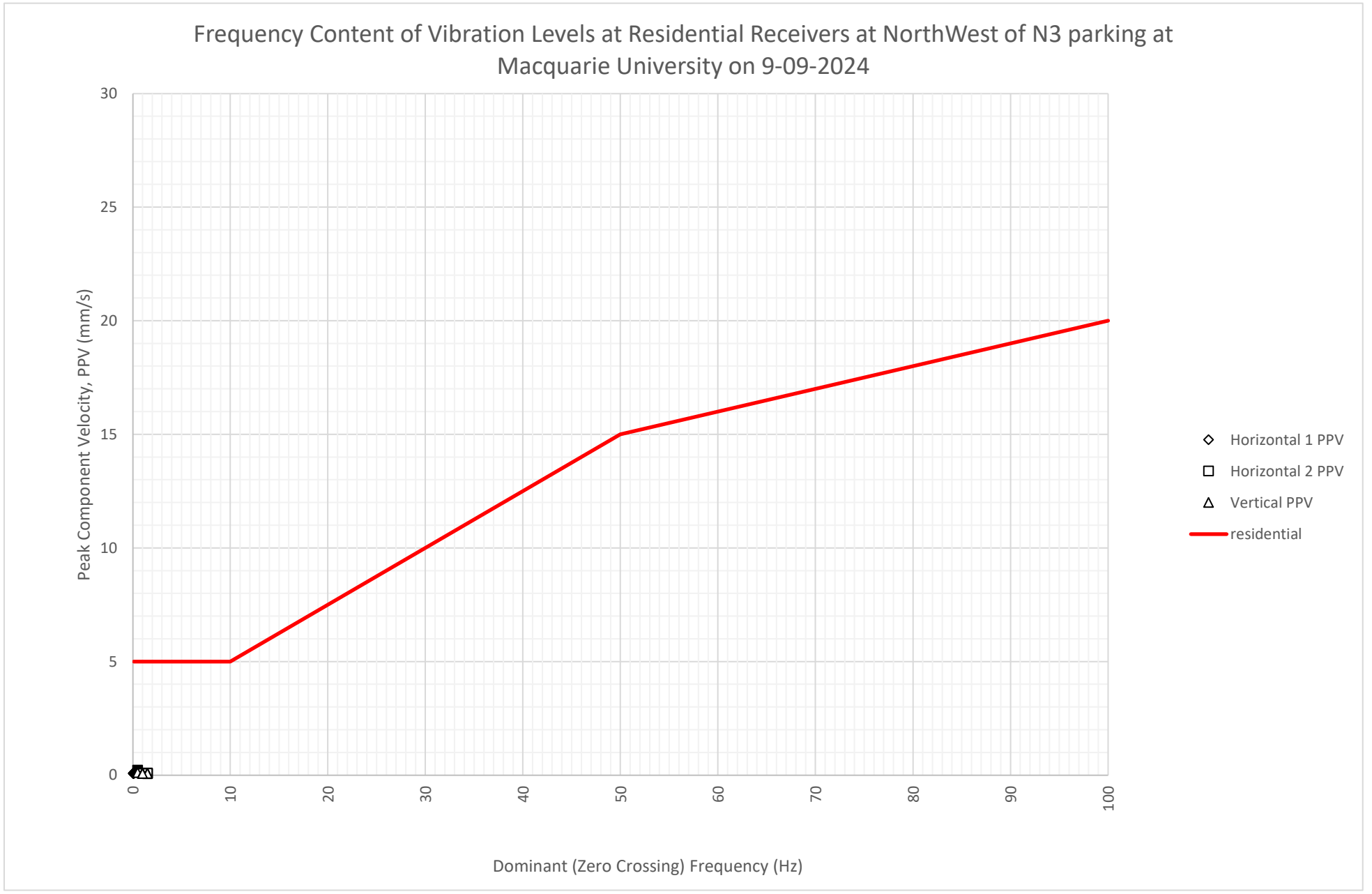
Yours faithfully,

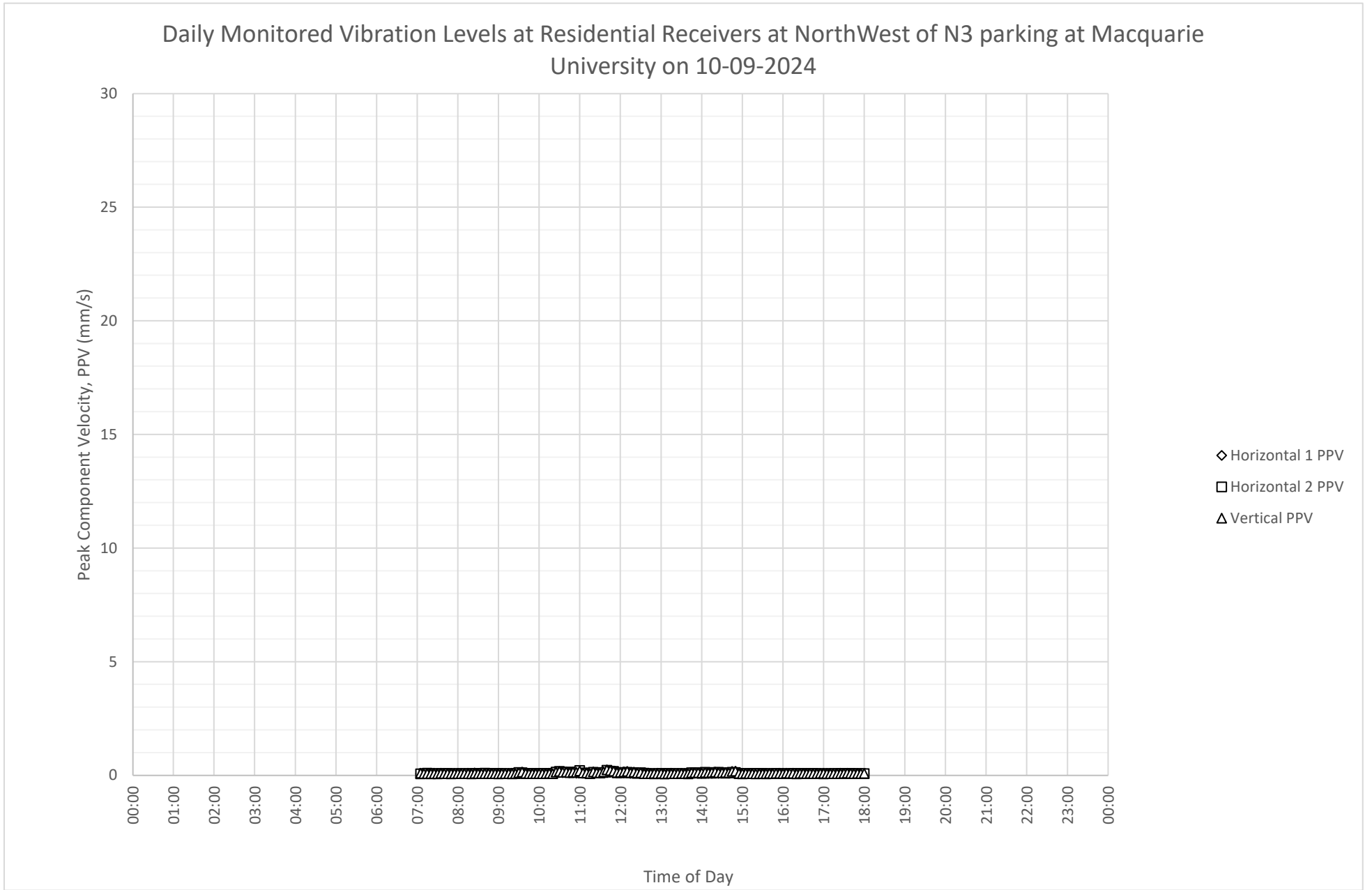
Acoustic Logic Pty Ltd
Eric Mao

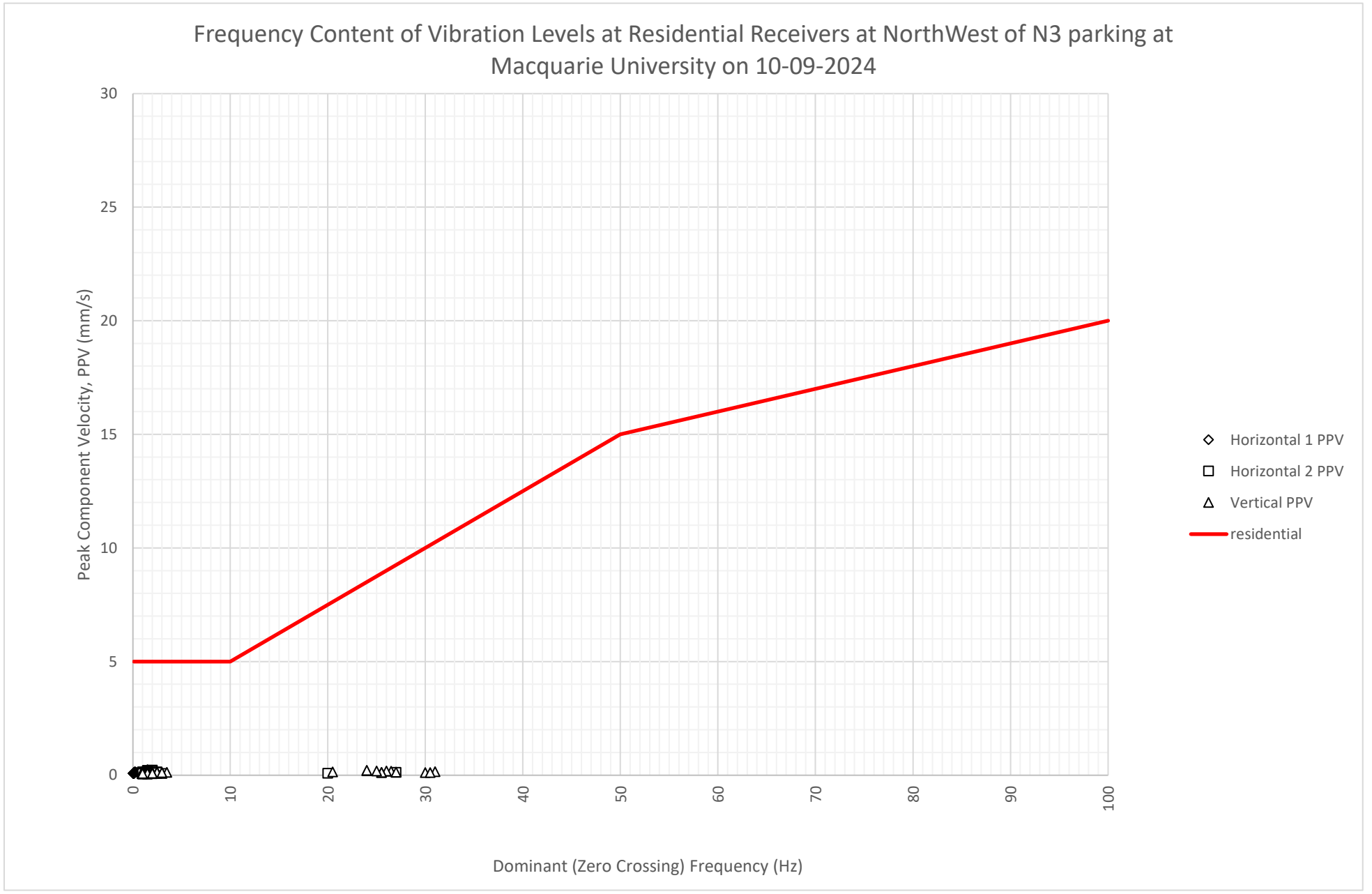
APPENDIX 1 – VIBRATION MONITORING RESULTS

CONUFE (GL, NORTH-WEST OF THE SITE)


Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 9-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV

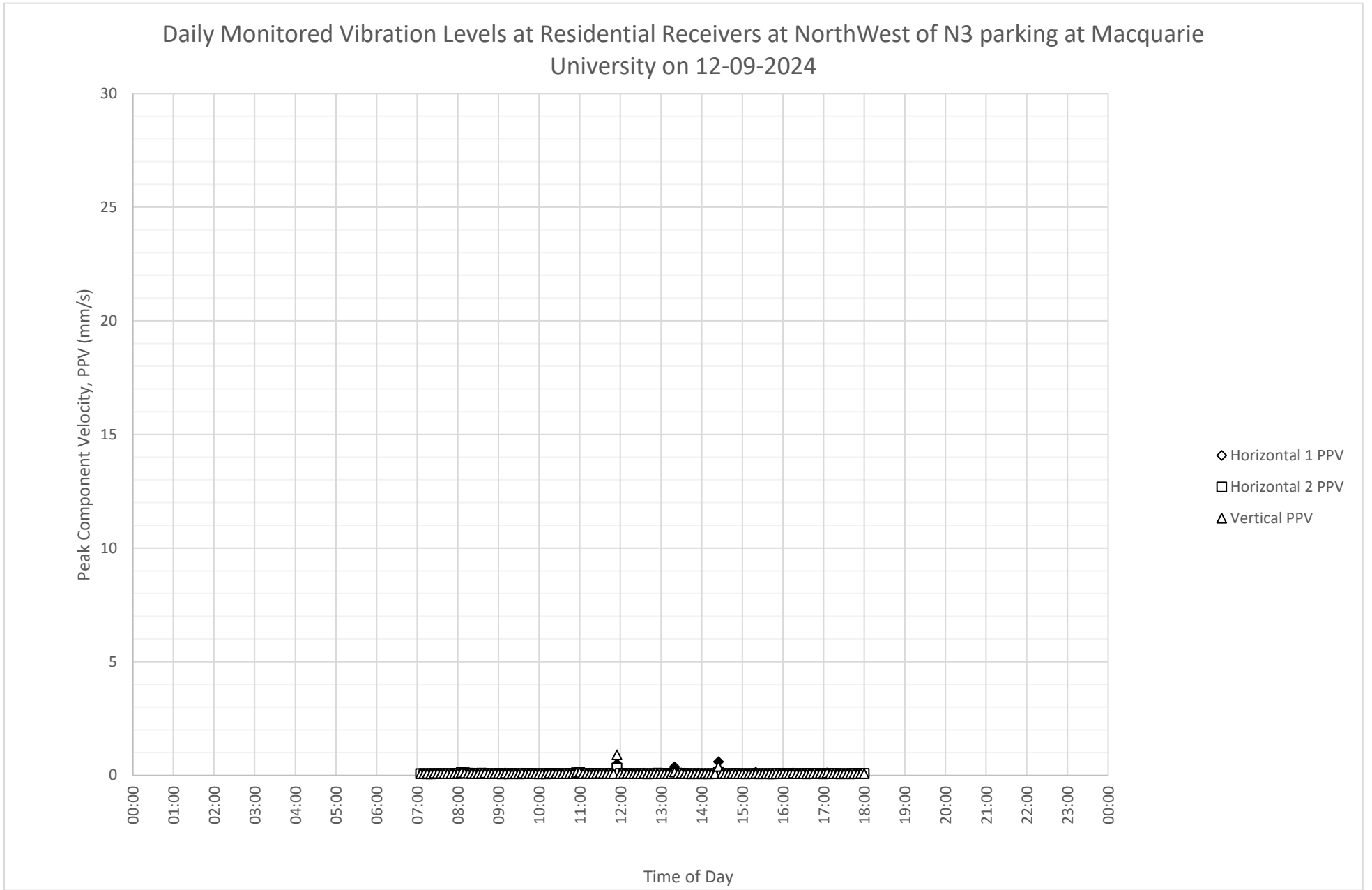

Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 9-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 10-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV


Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 10-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 11-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV


Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 11-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 12-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV


Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 12-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 13-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV


Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 13-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 14-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV


Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 14-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 15-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV


Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 15-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 16-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV


Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 16-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 17-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV


Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 17-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential

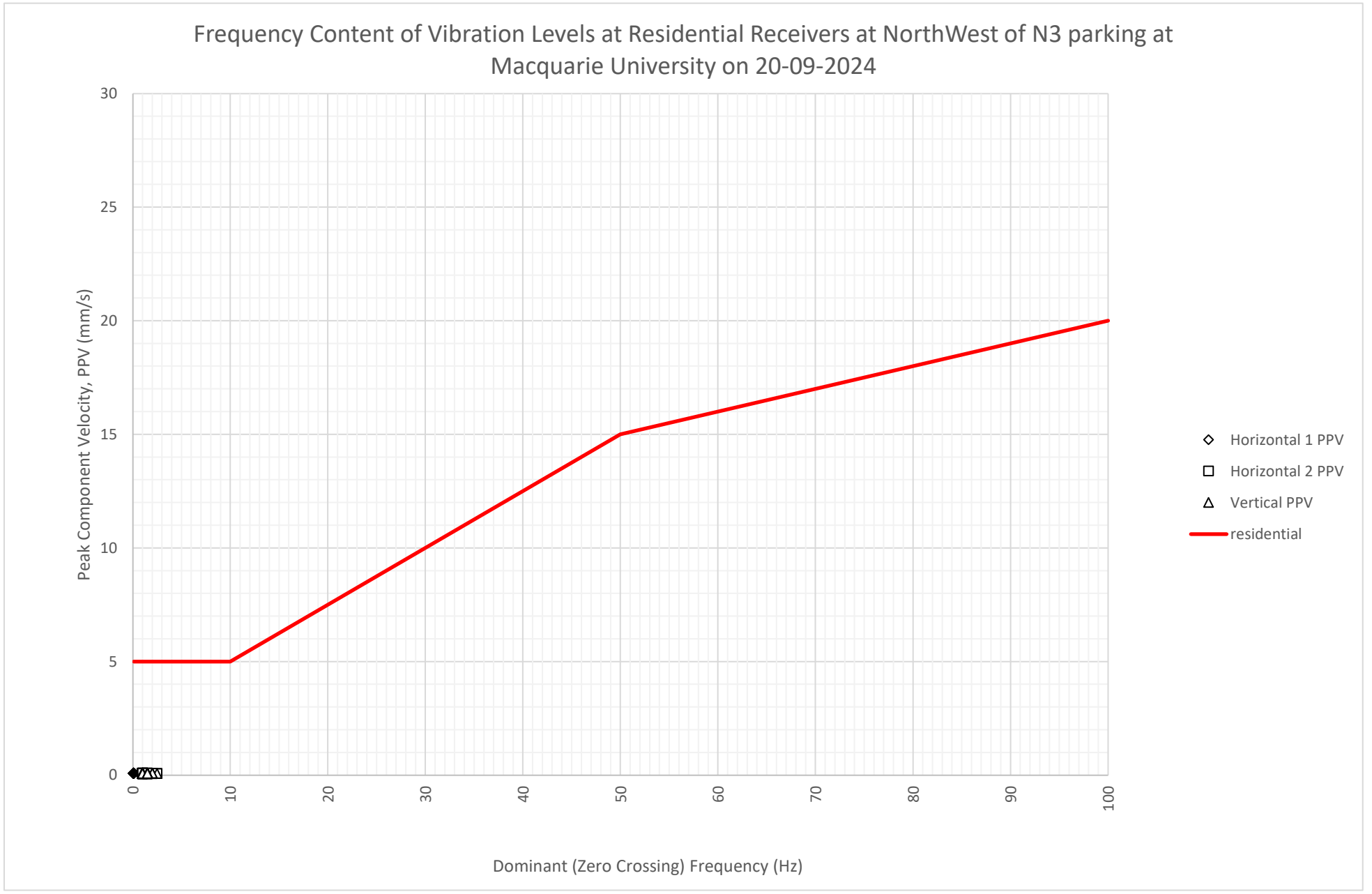

Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 18-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV


Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 18-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential

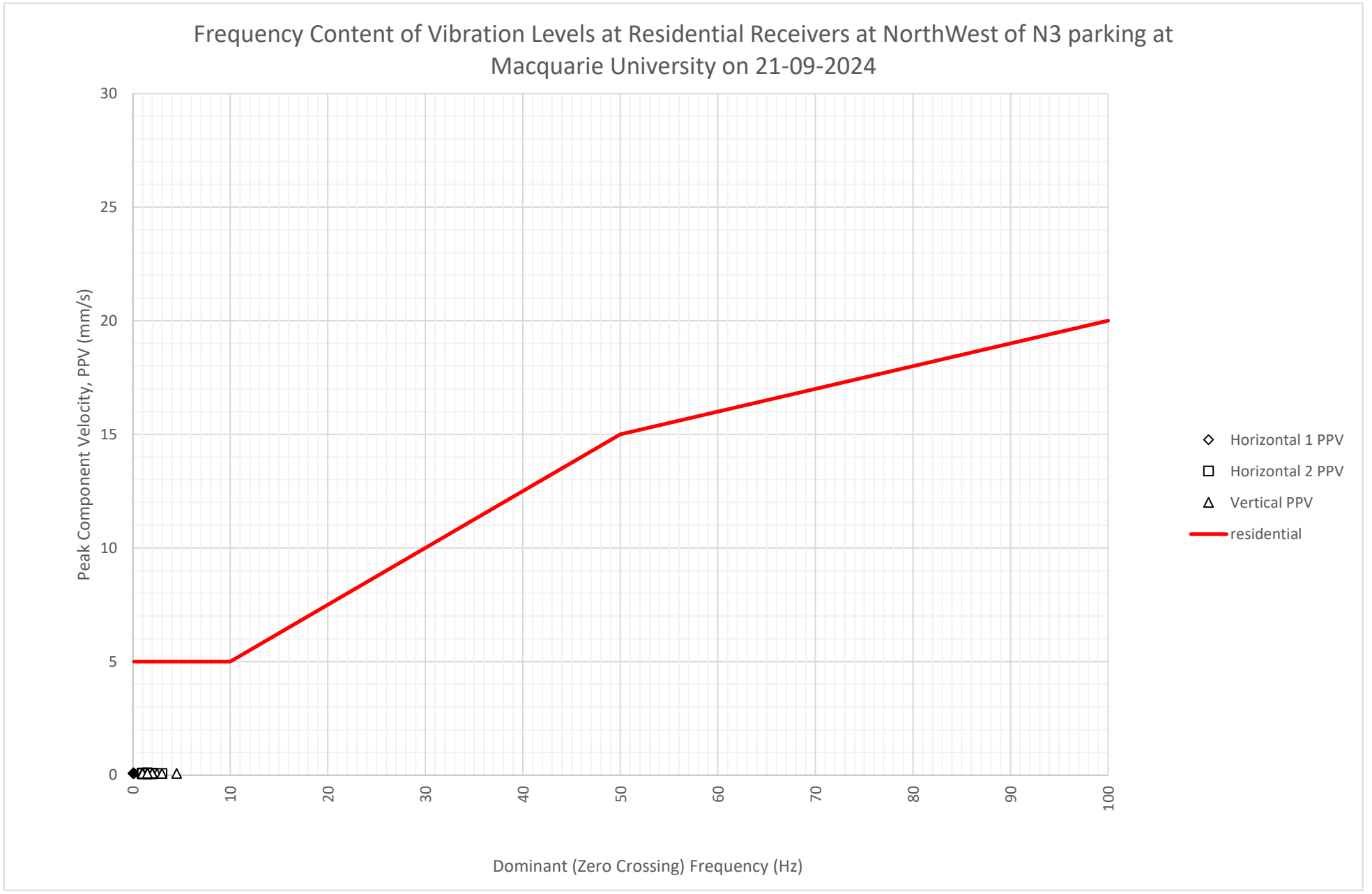

Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 19-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV


Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 19-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential

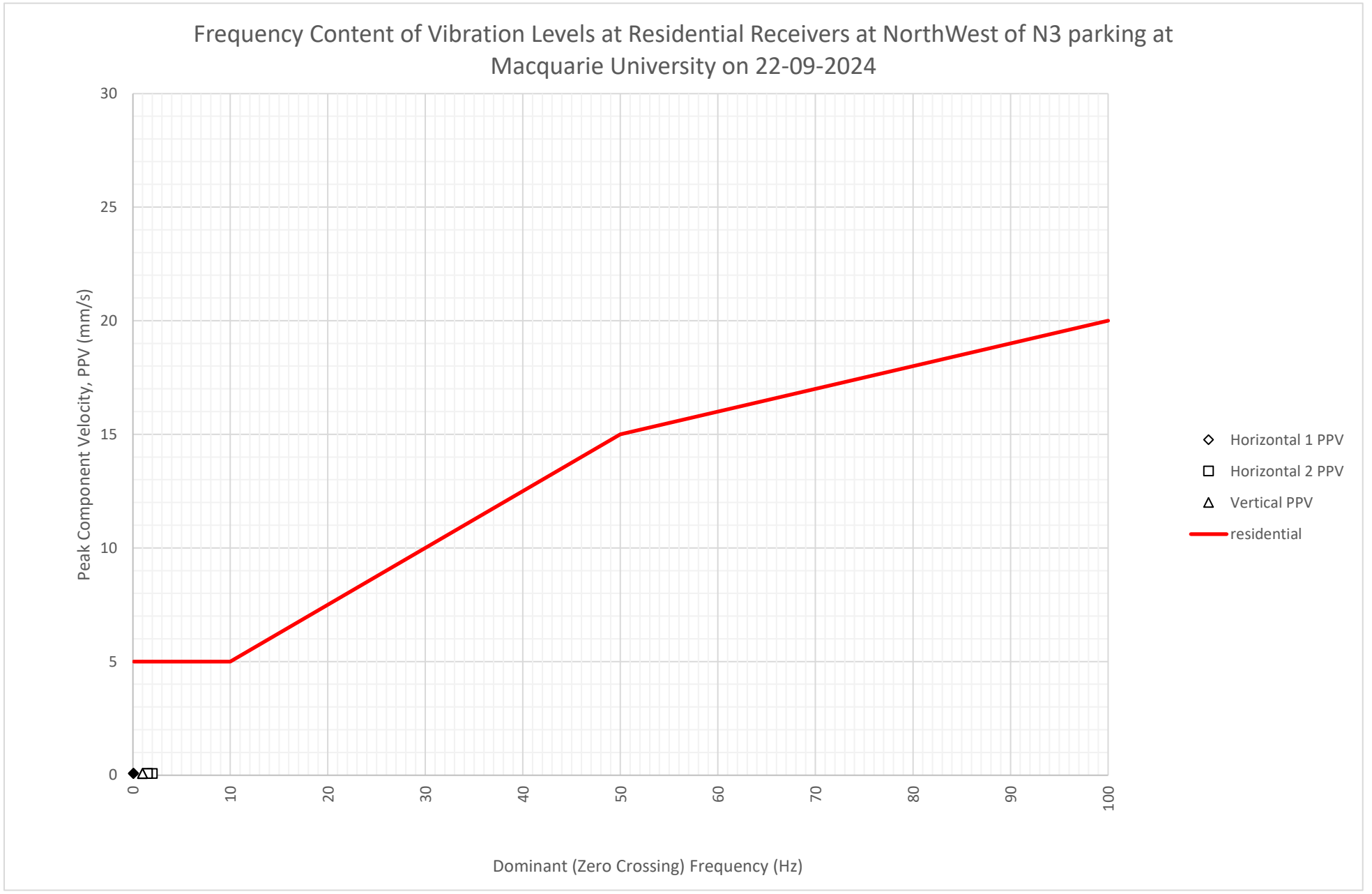

Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 20-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV


Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 20-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential

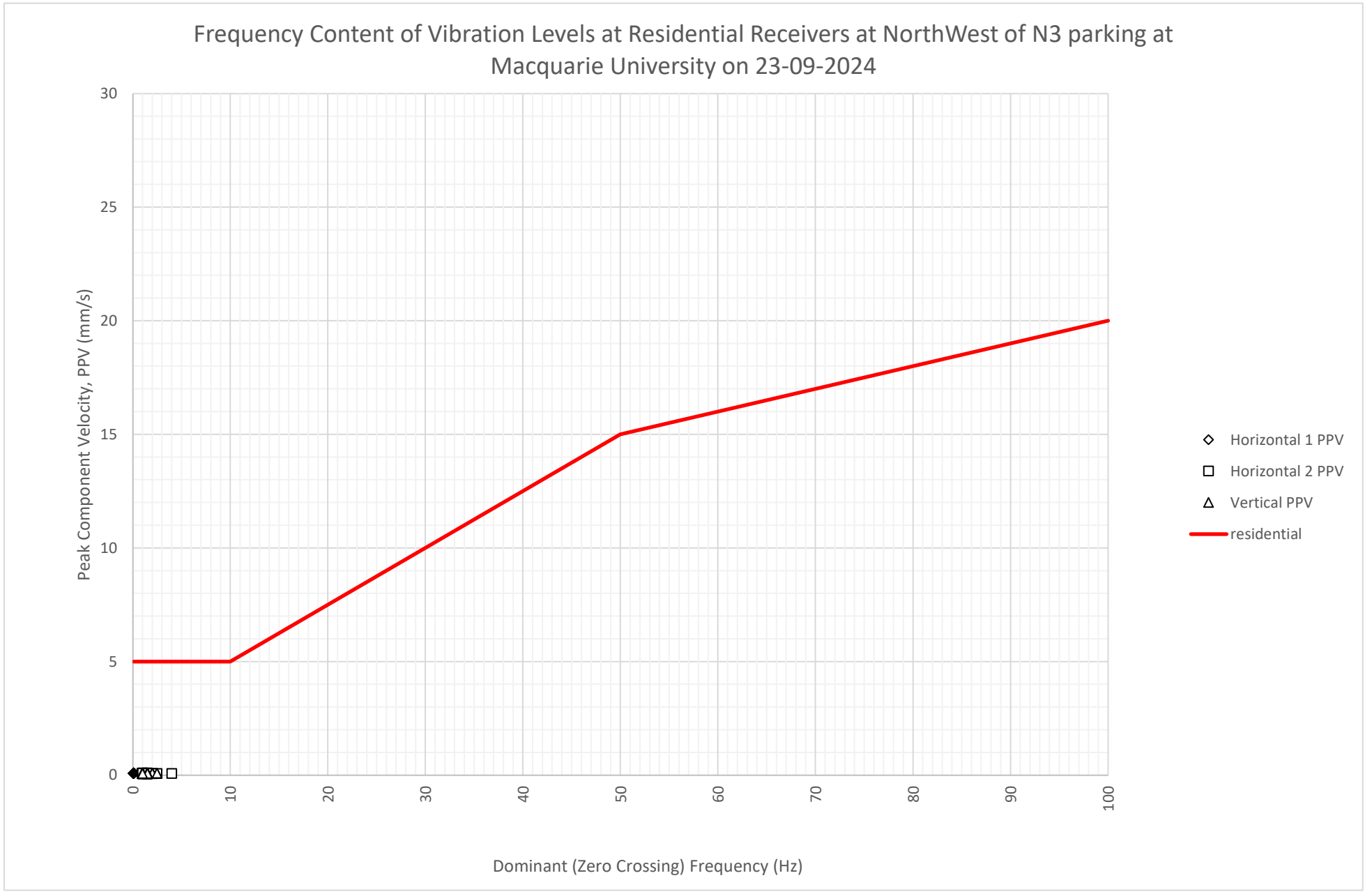

Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 21-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV

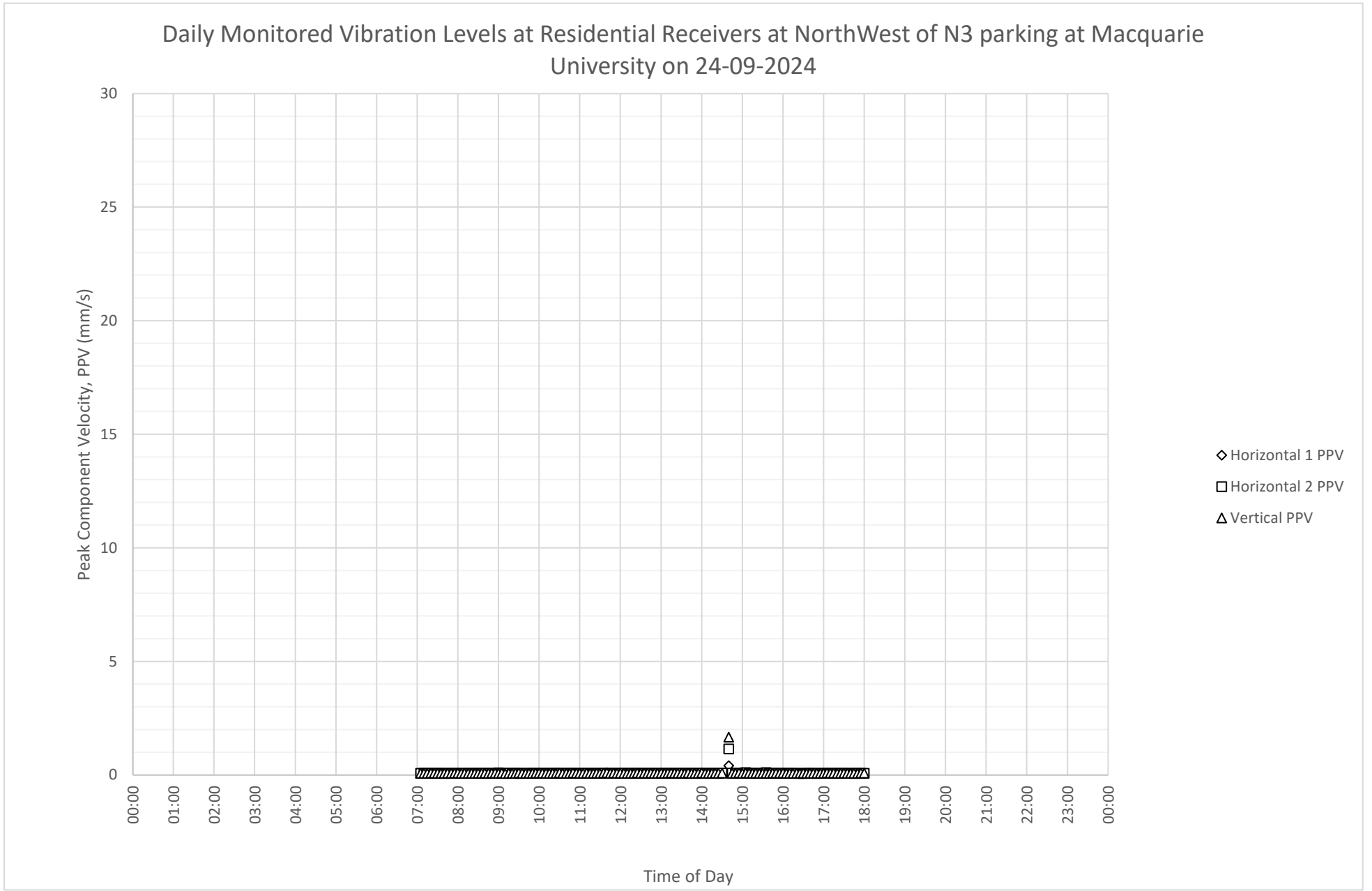

Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 21-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential

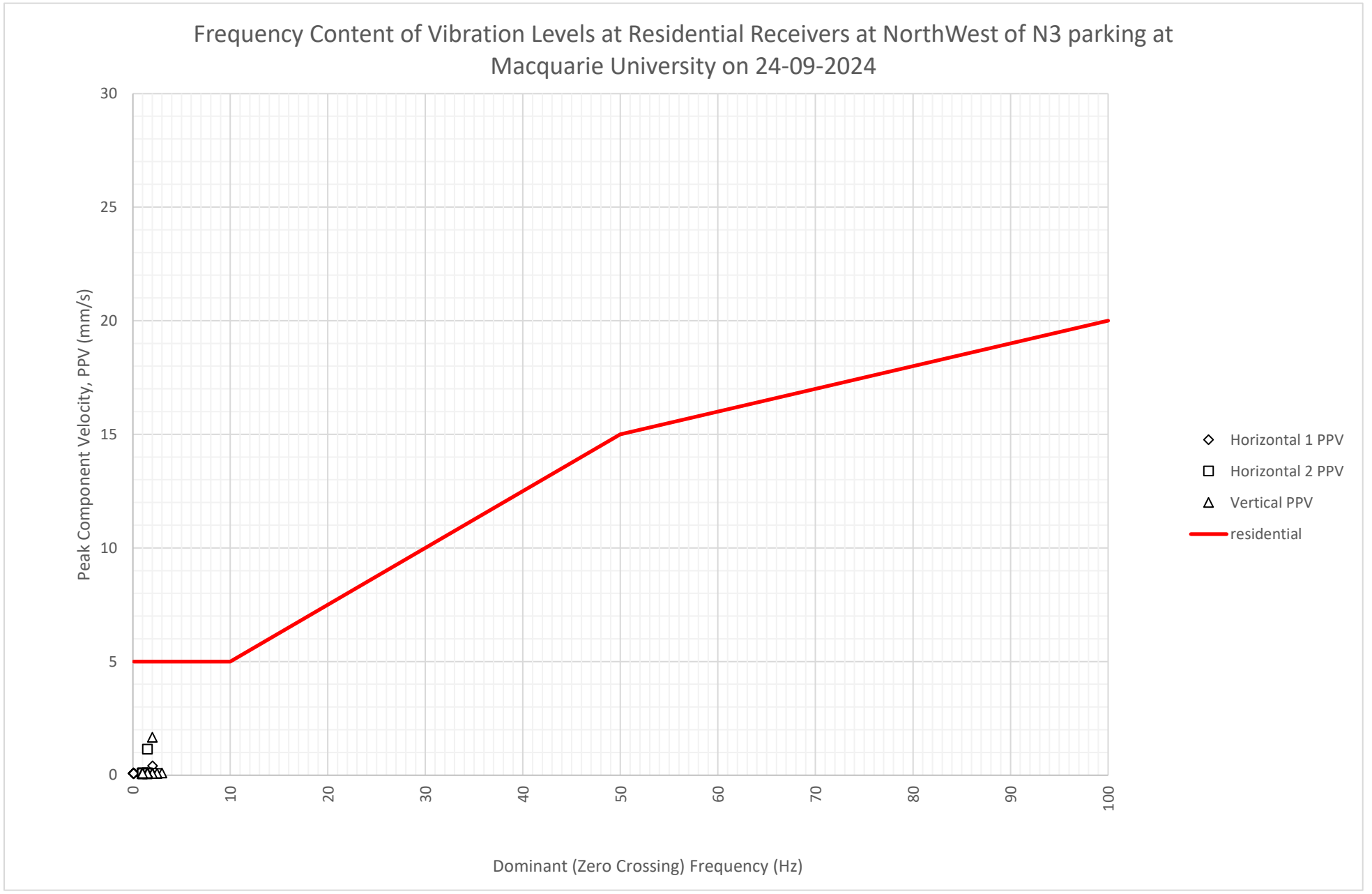

Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 22-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV

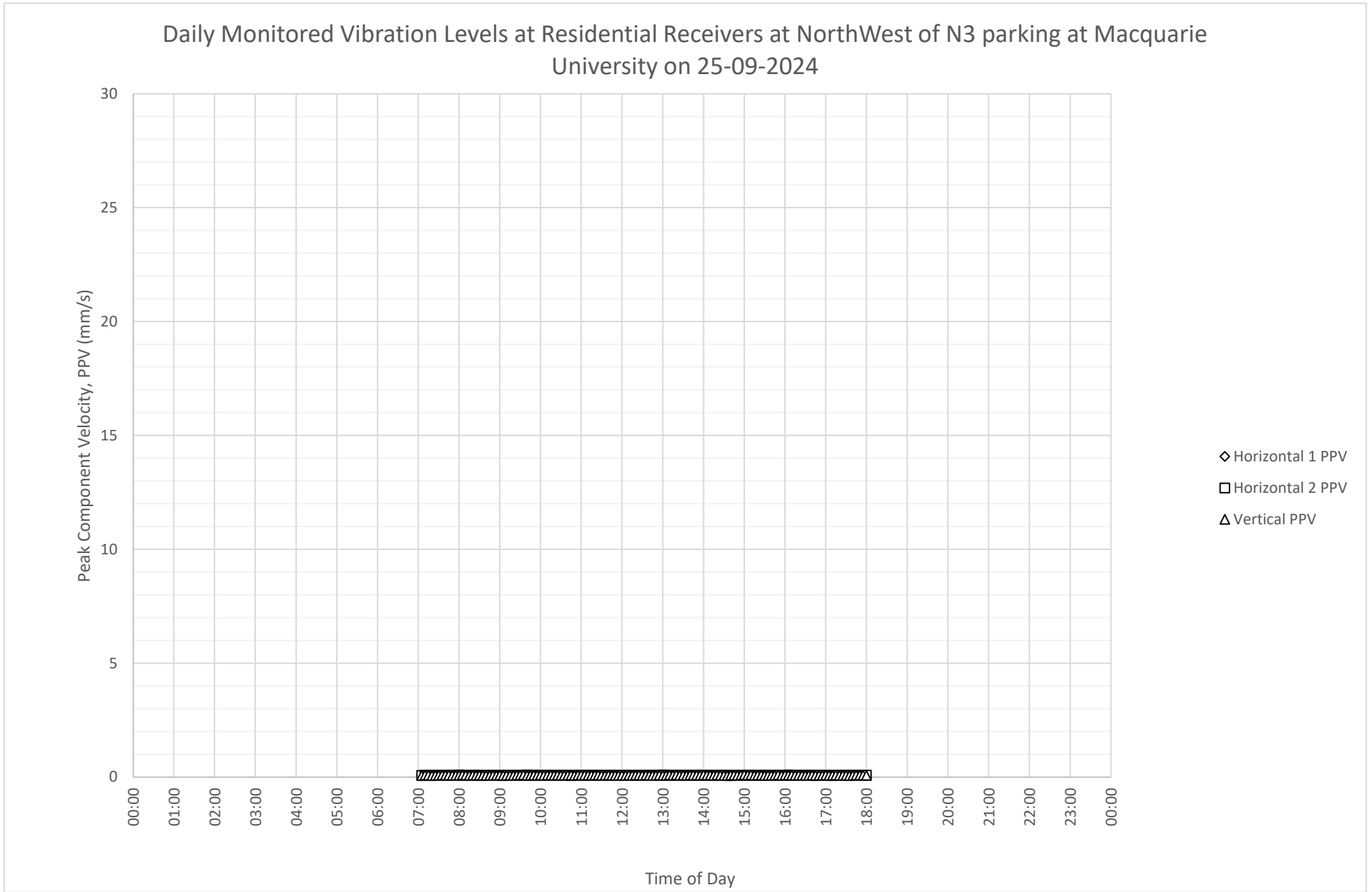

Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 22-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential

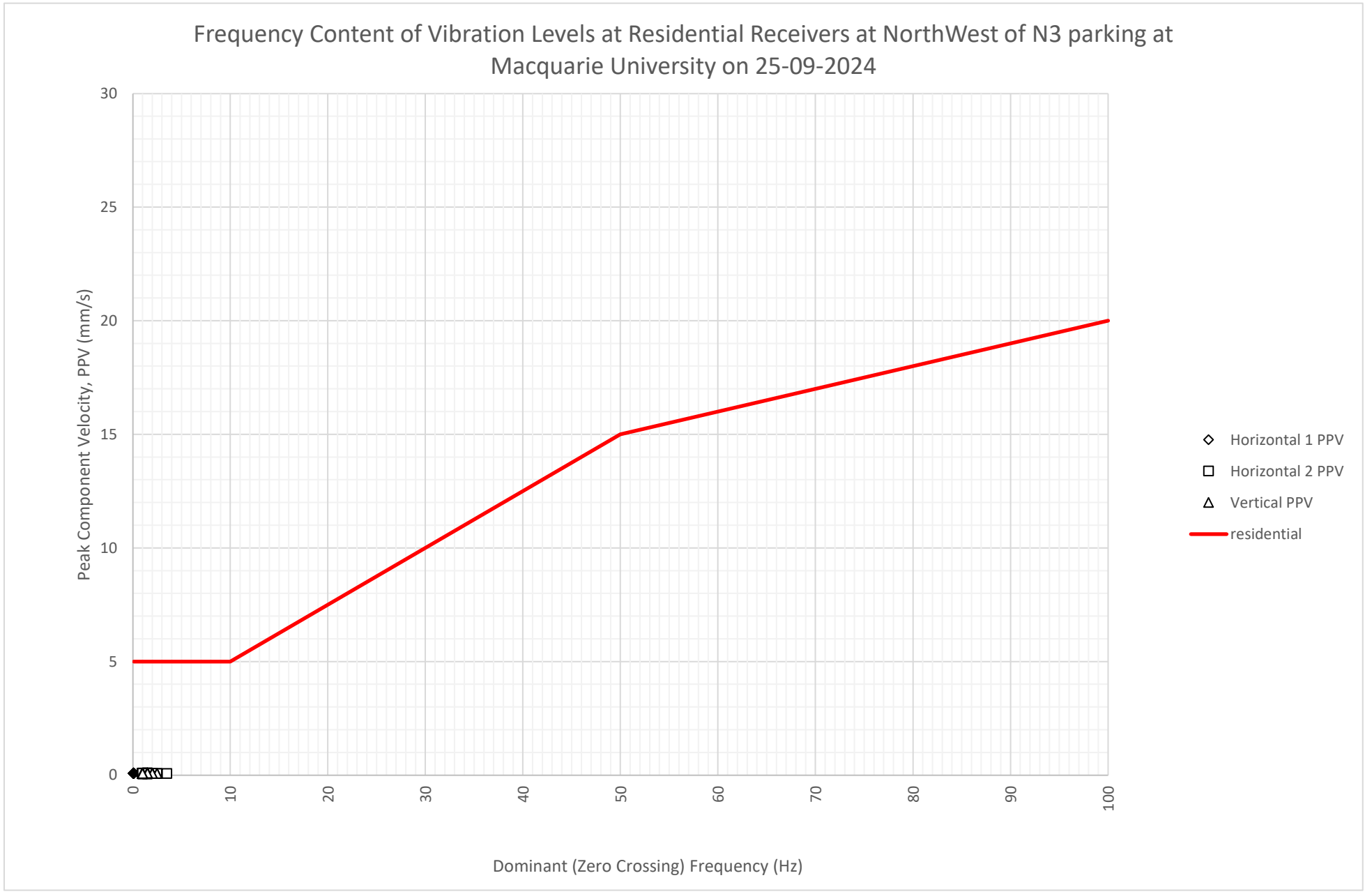

Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 23-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV

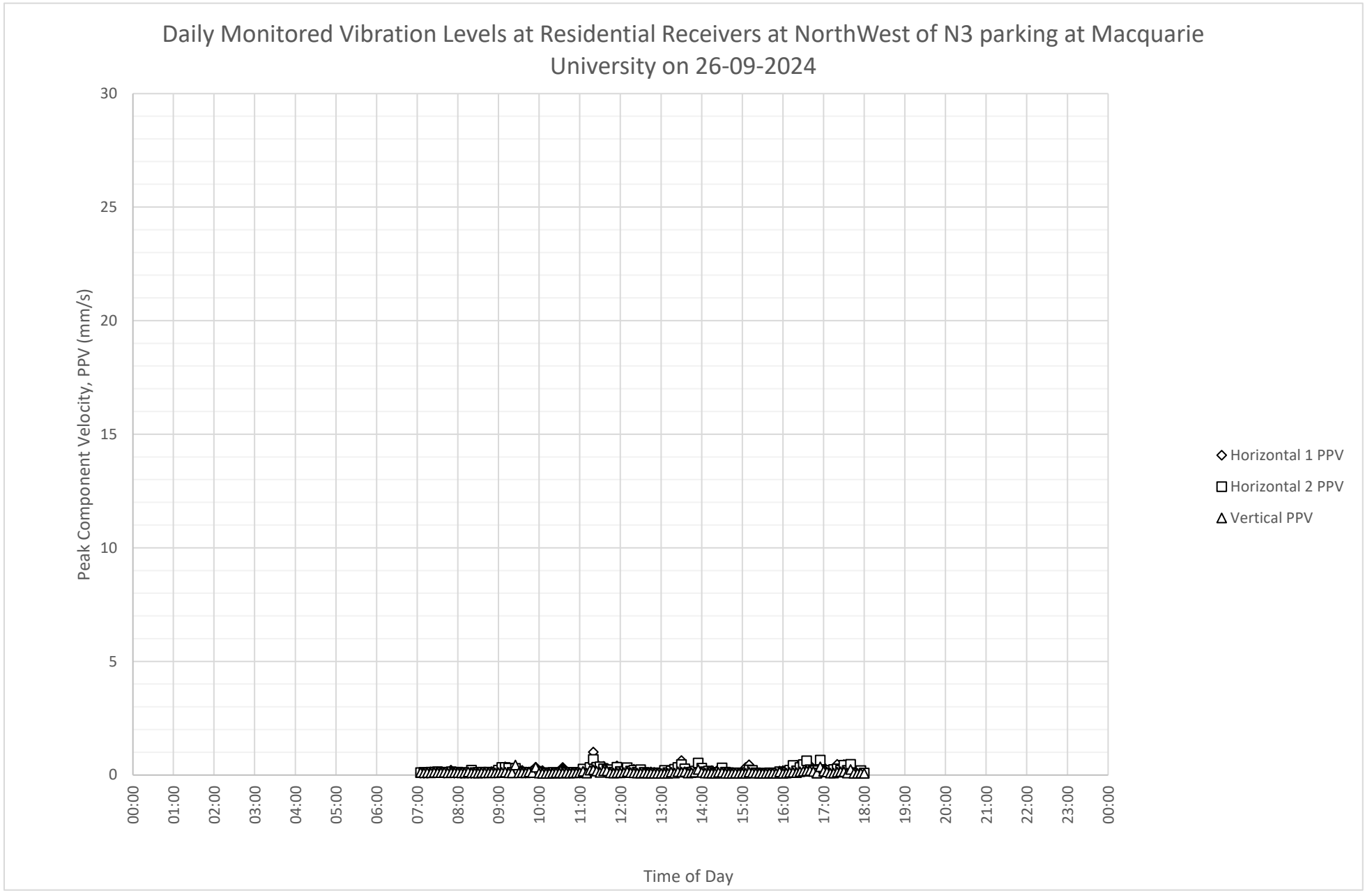

Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 23-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential

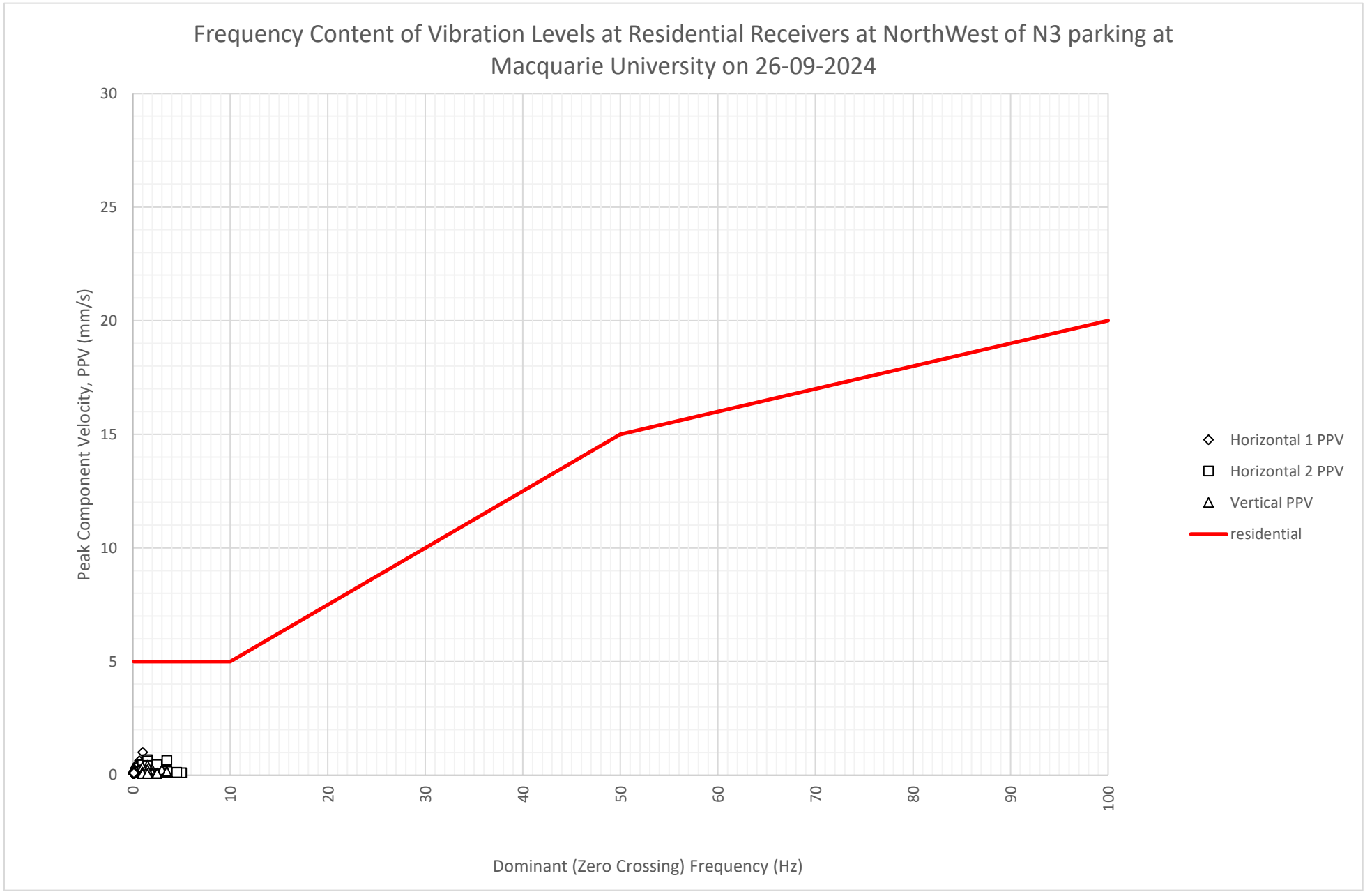

Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 24-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV

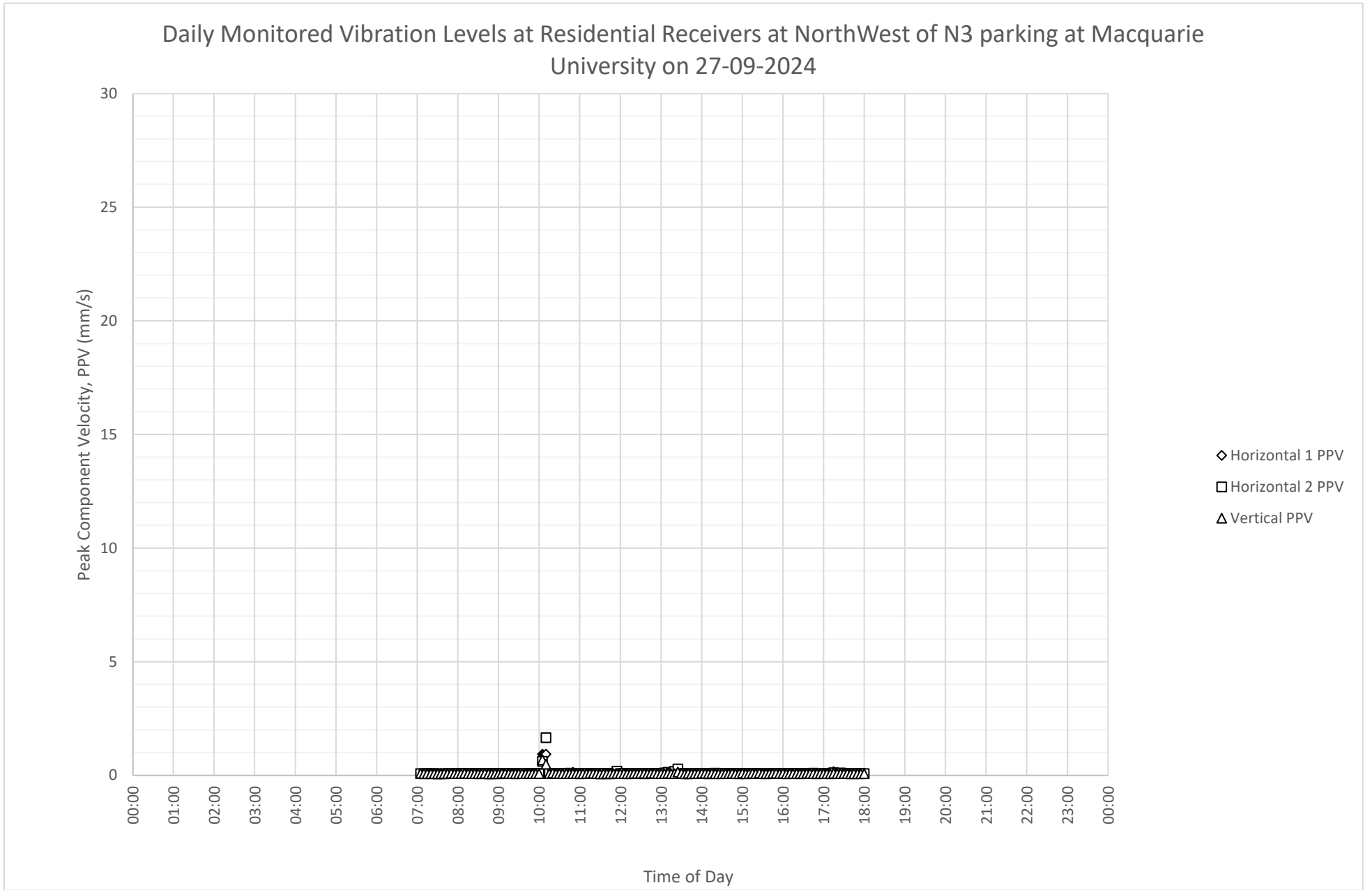

Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 24-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential

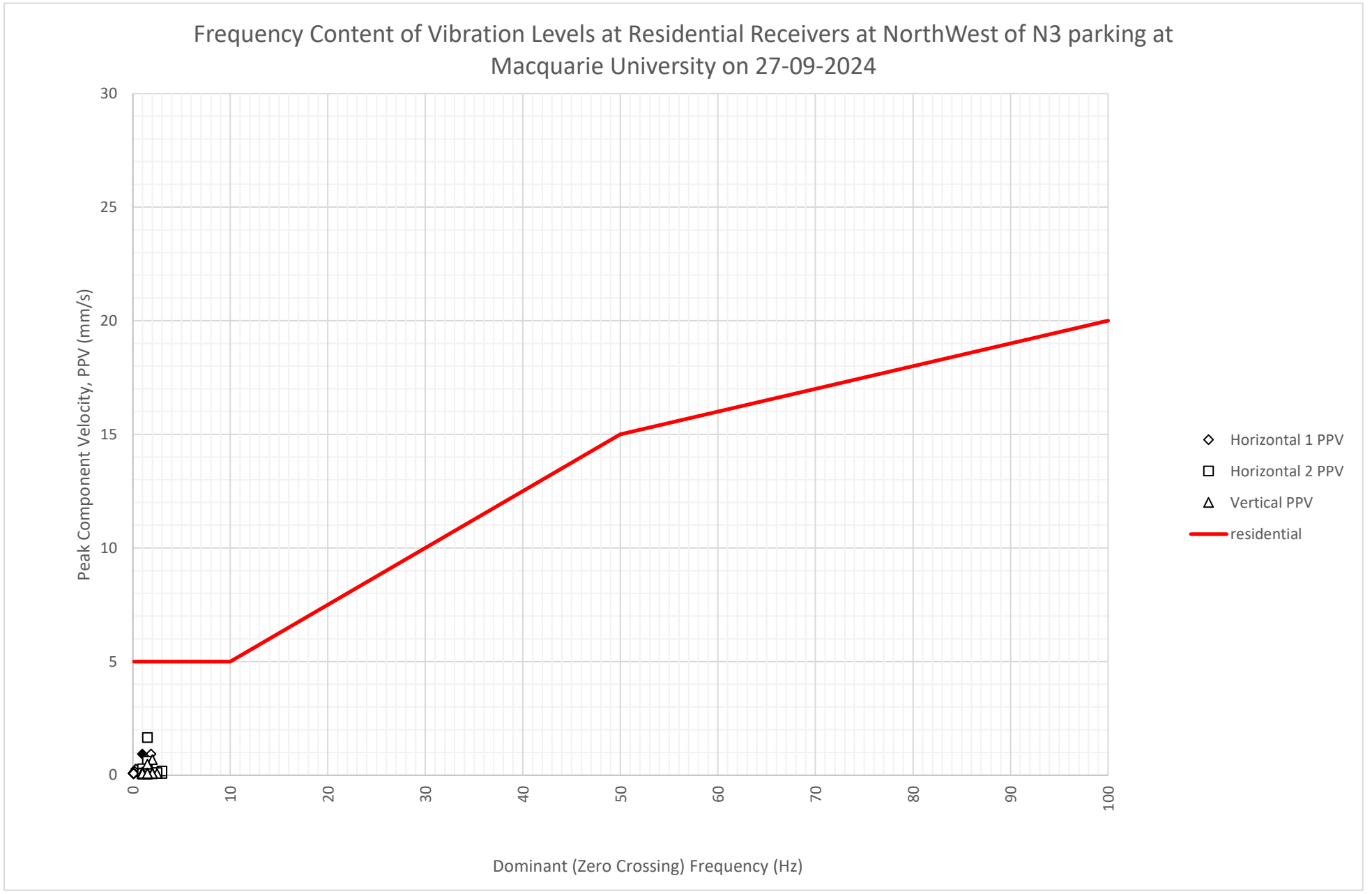

Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 25-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV


Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 25-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential

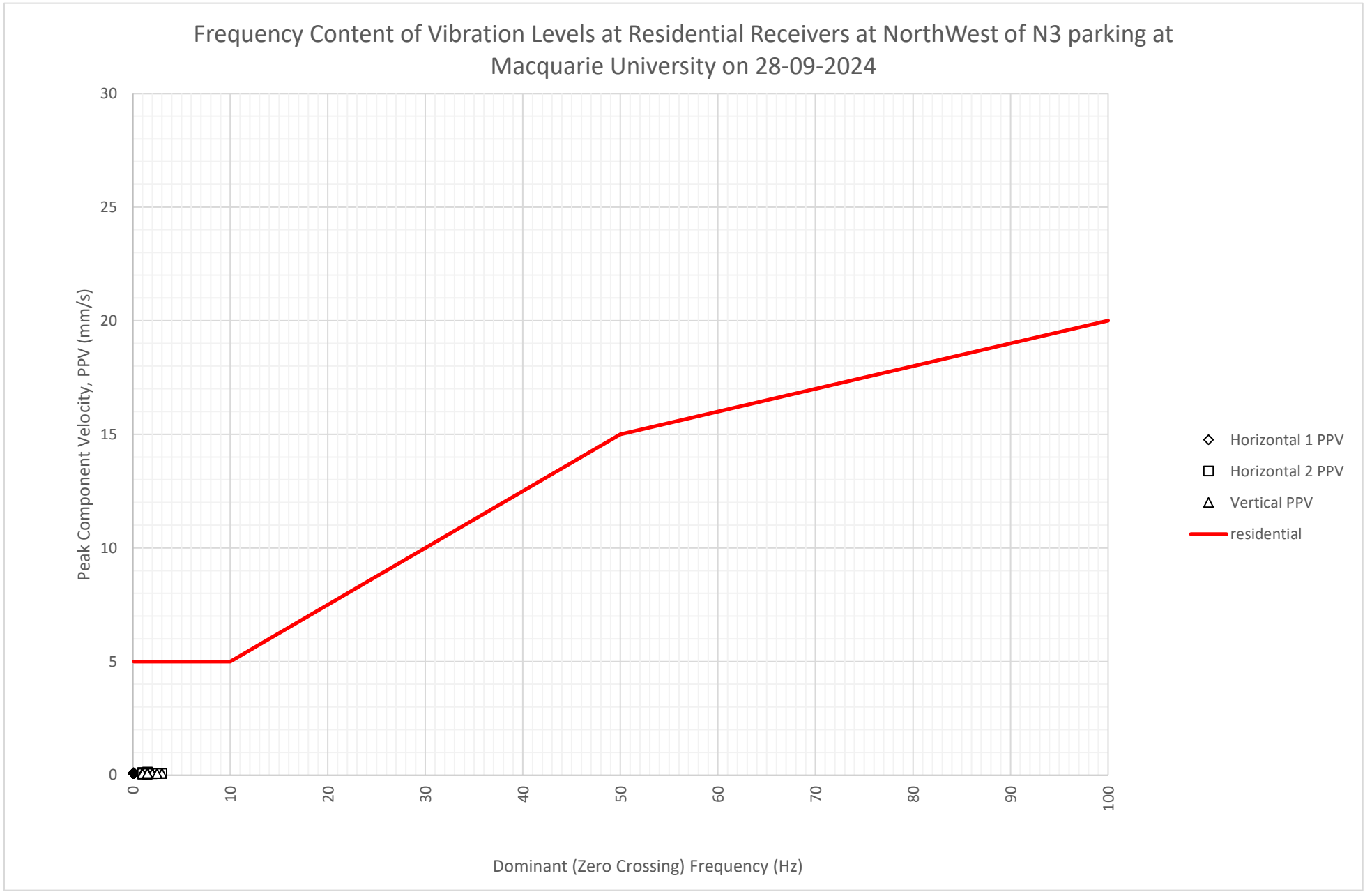

Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 26-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV


Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 26-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential

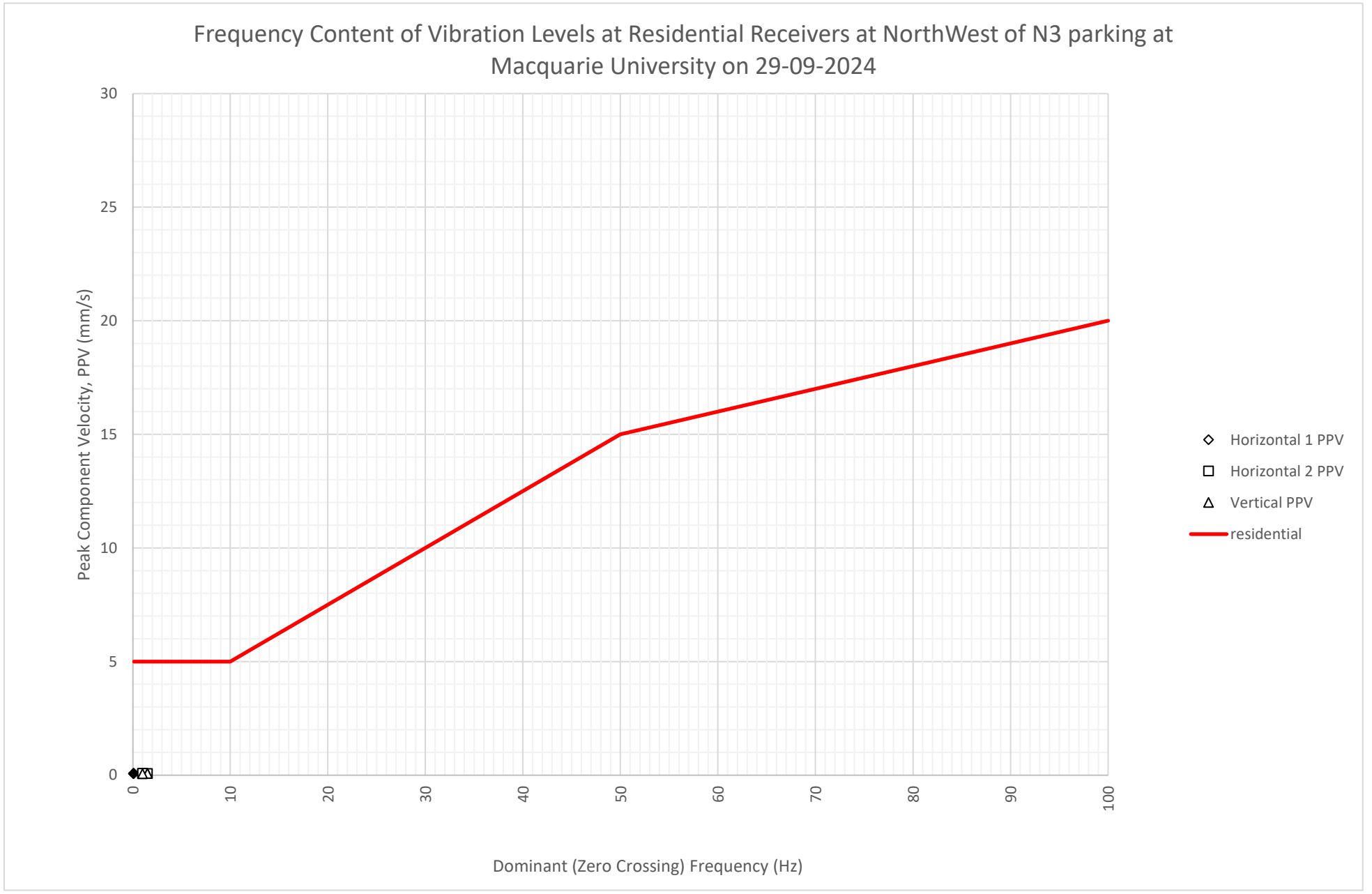

Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 27-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV


Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 27-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential

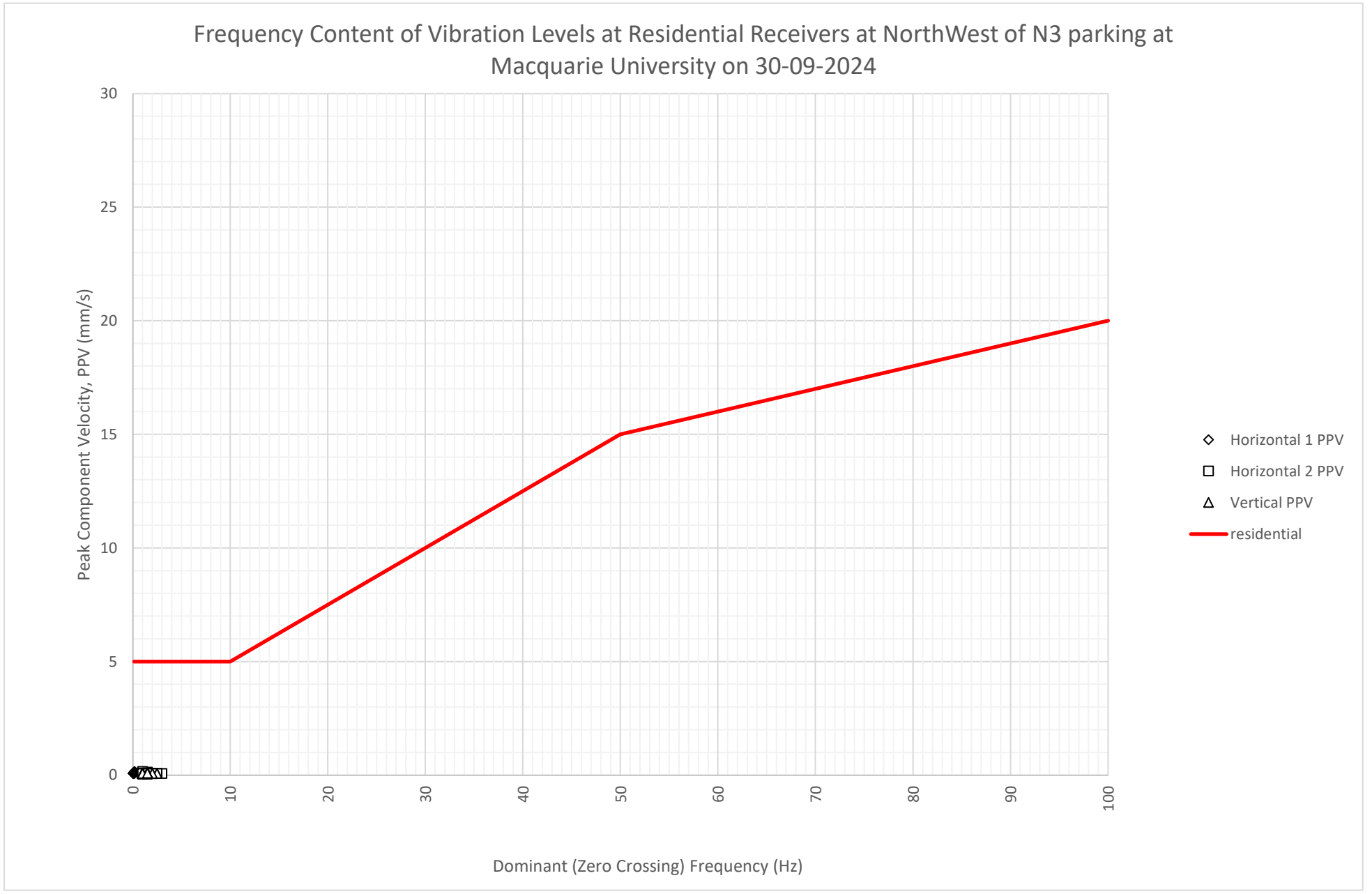

Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 28-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV


Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 28-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential

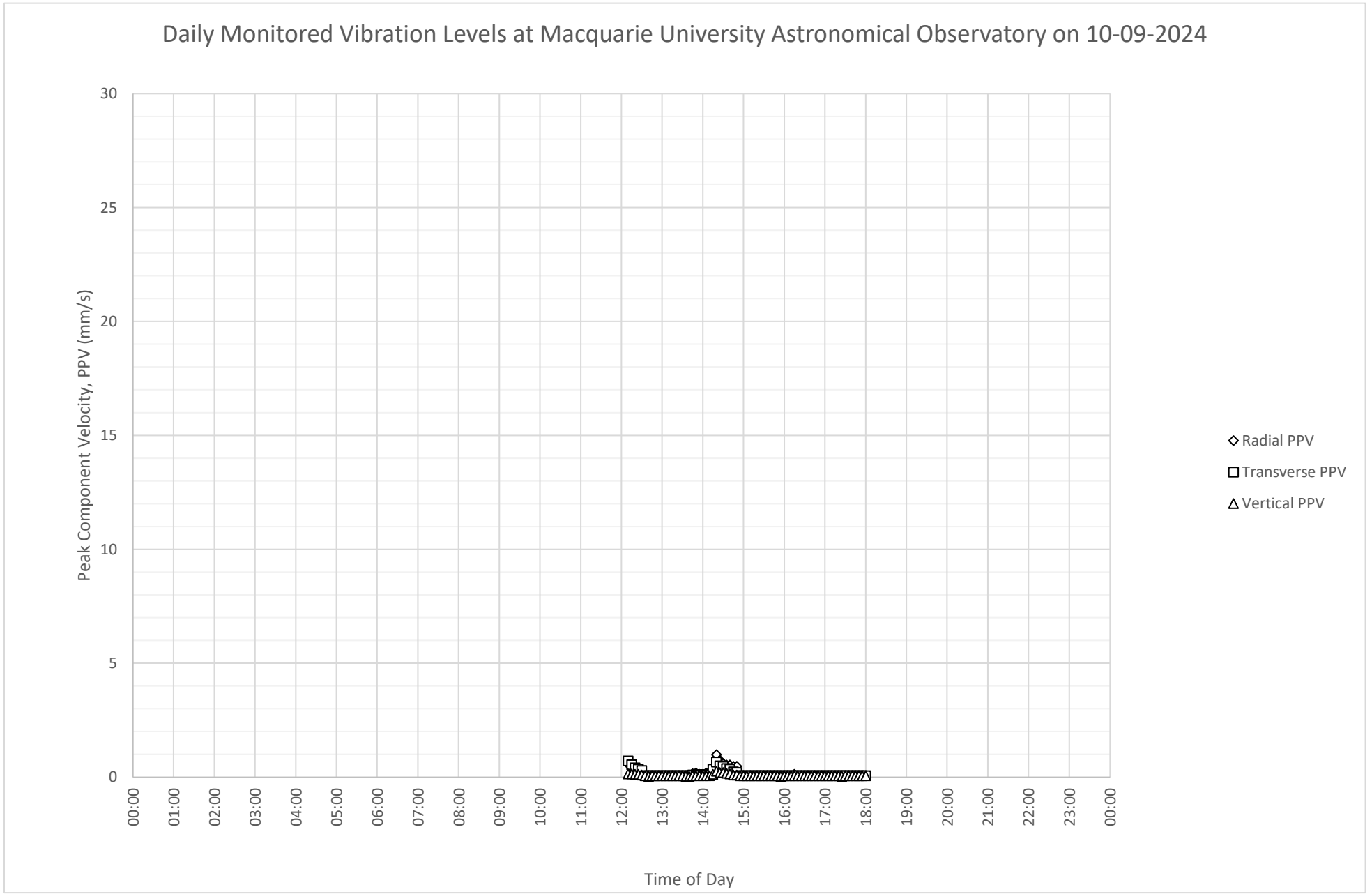

Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 29-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV

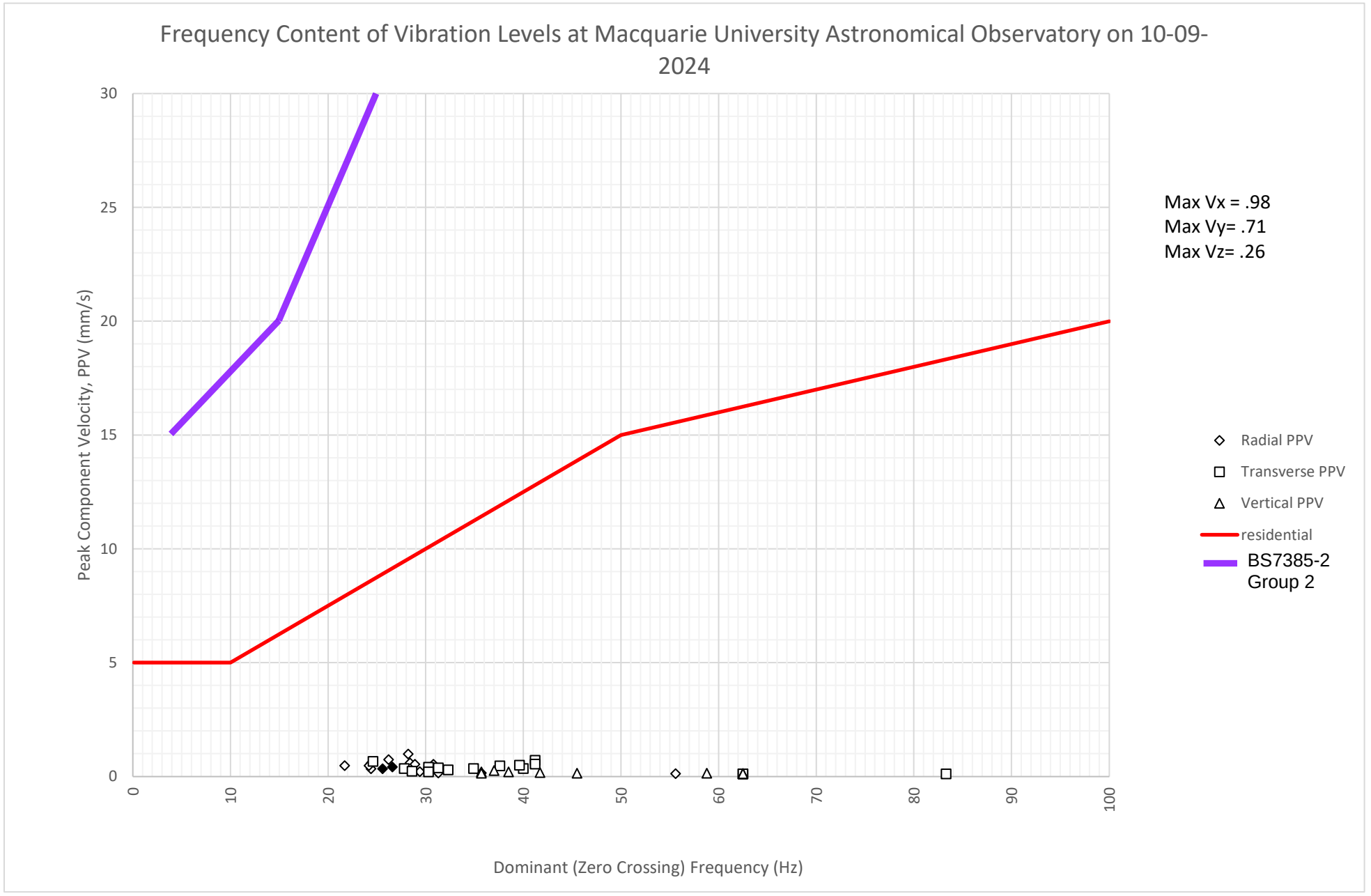

Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 29-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential

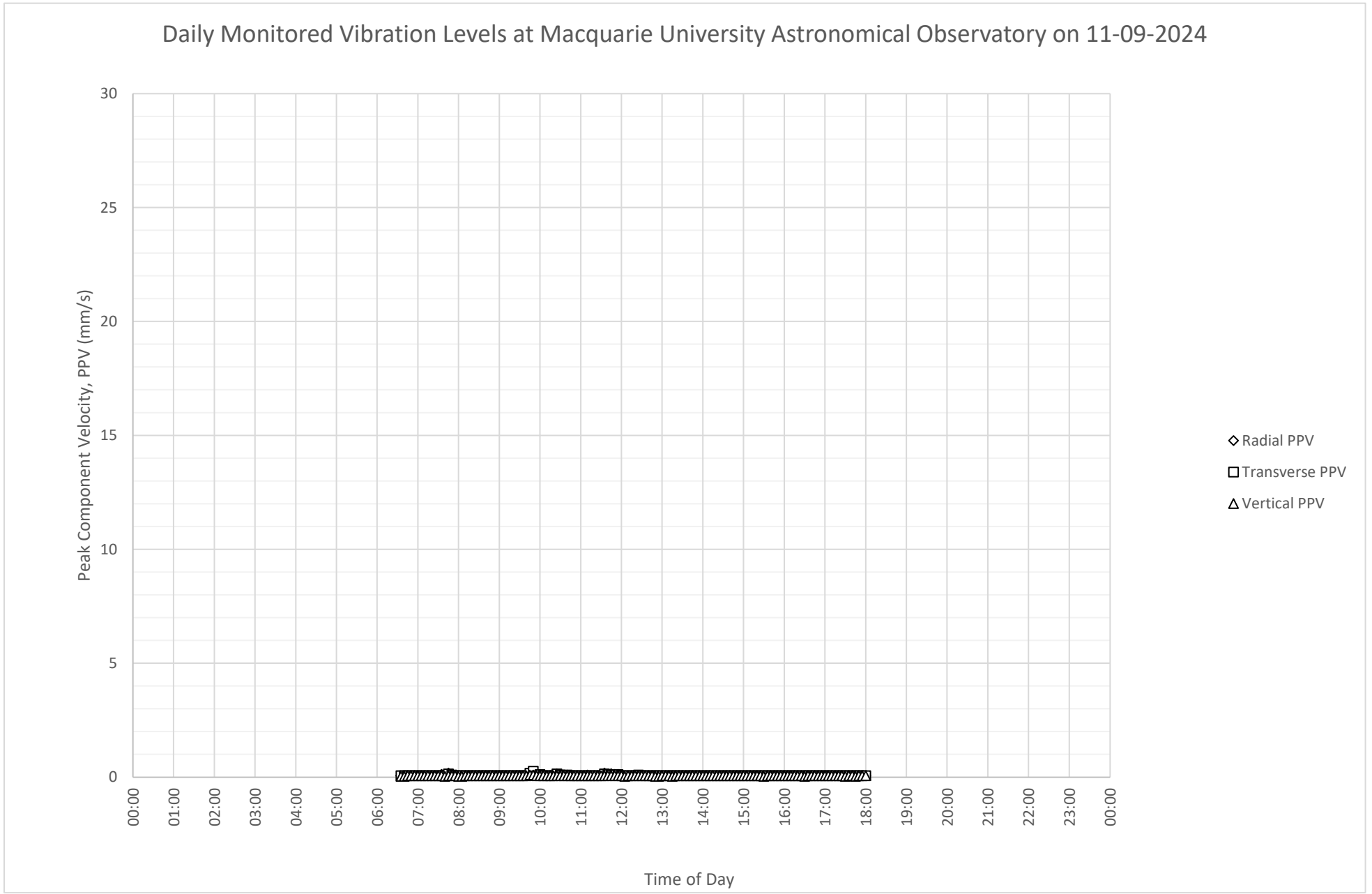

Daily Monitored Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 30-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV

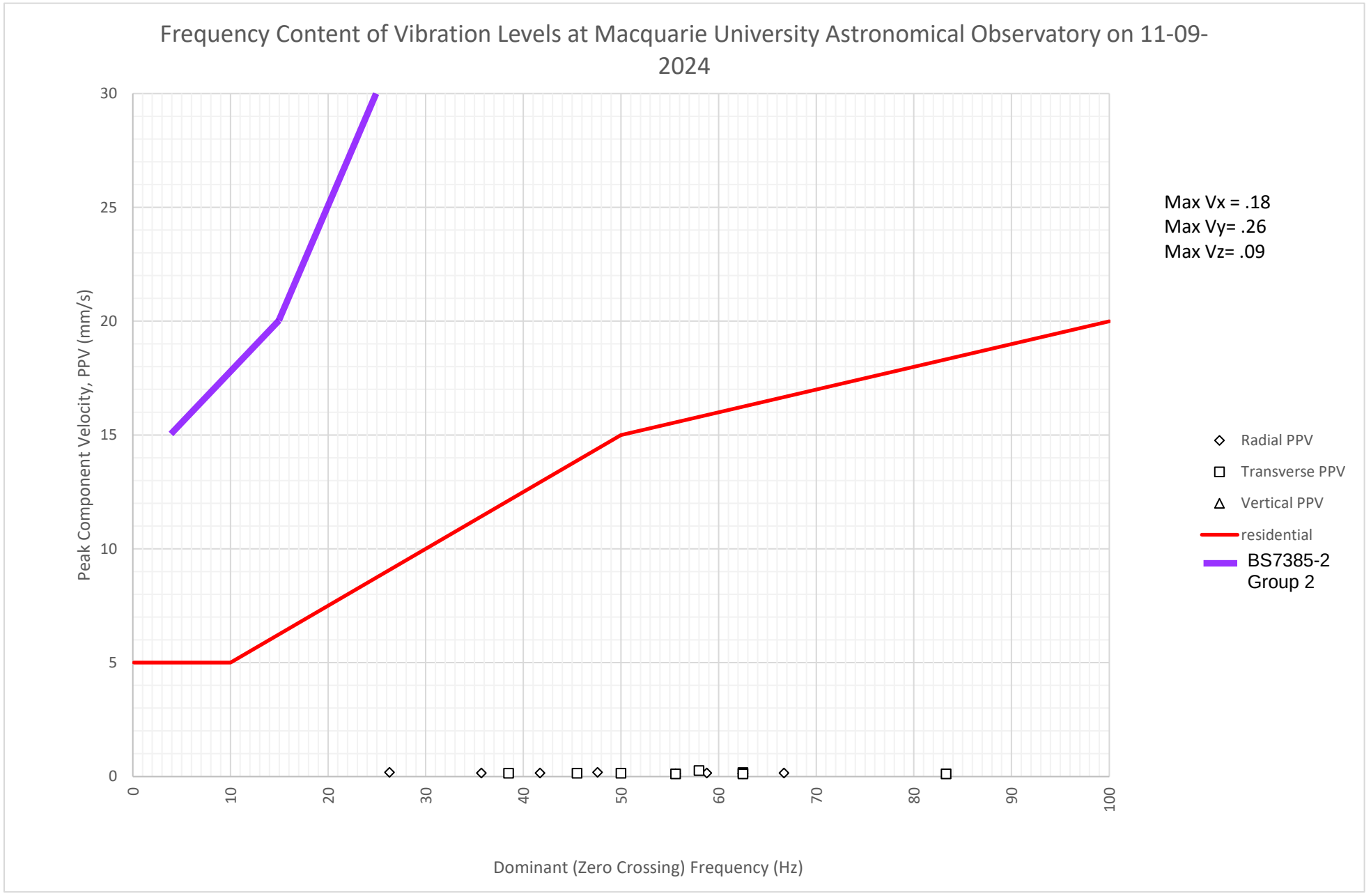

Frequency Content of Vibration Levels at Residential Receivers at NorthWest of N3 parking at Macquarie University on 30-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Horizontal 1 PPV
Horizontal 2 PPV
Vertical PPV
residential

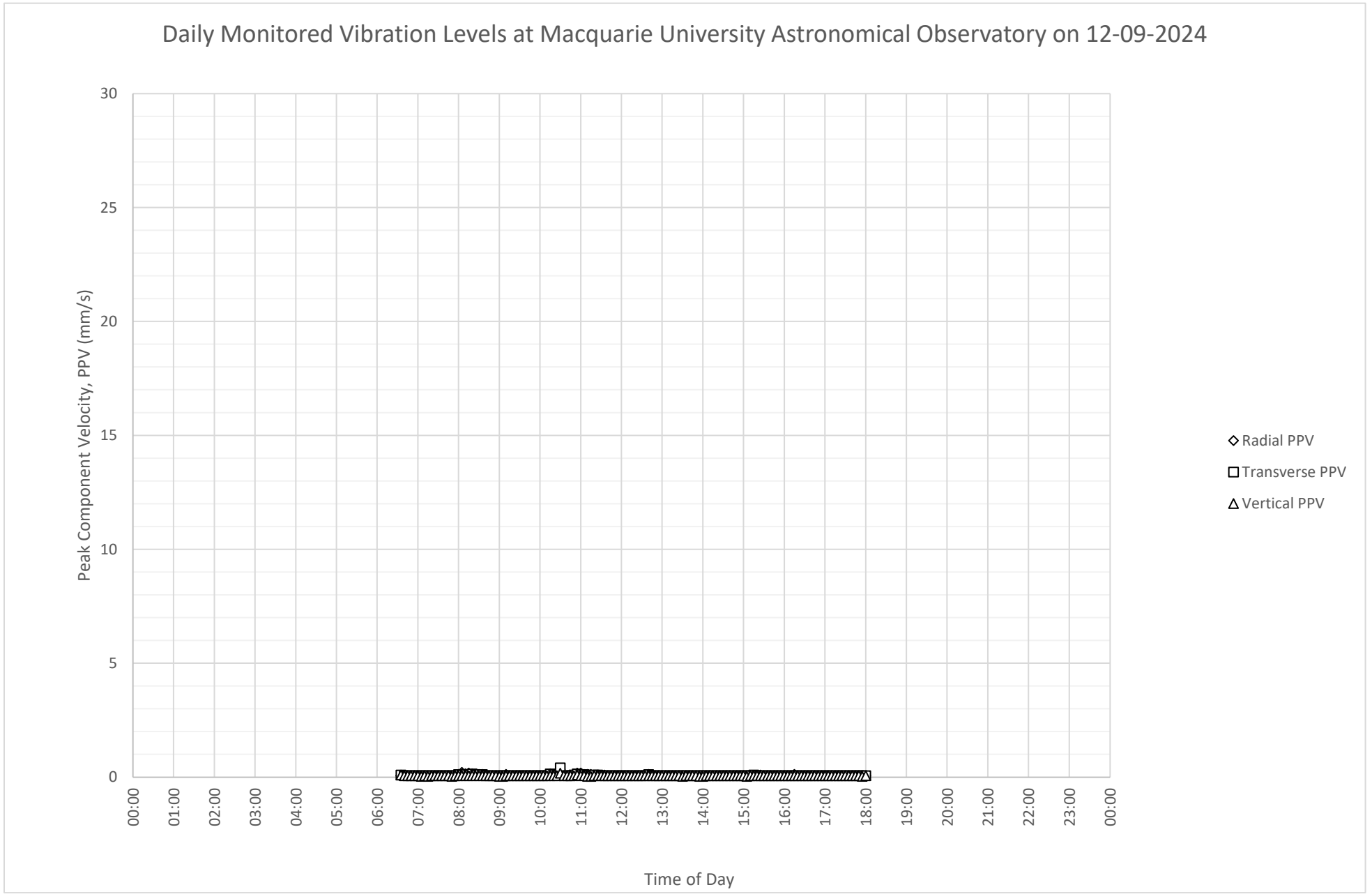
M7900 (GL, NORTH-EAST OF THE SITE)

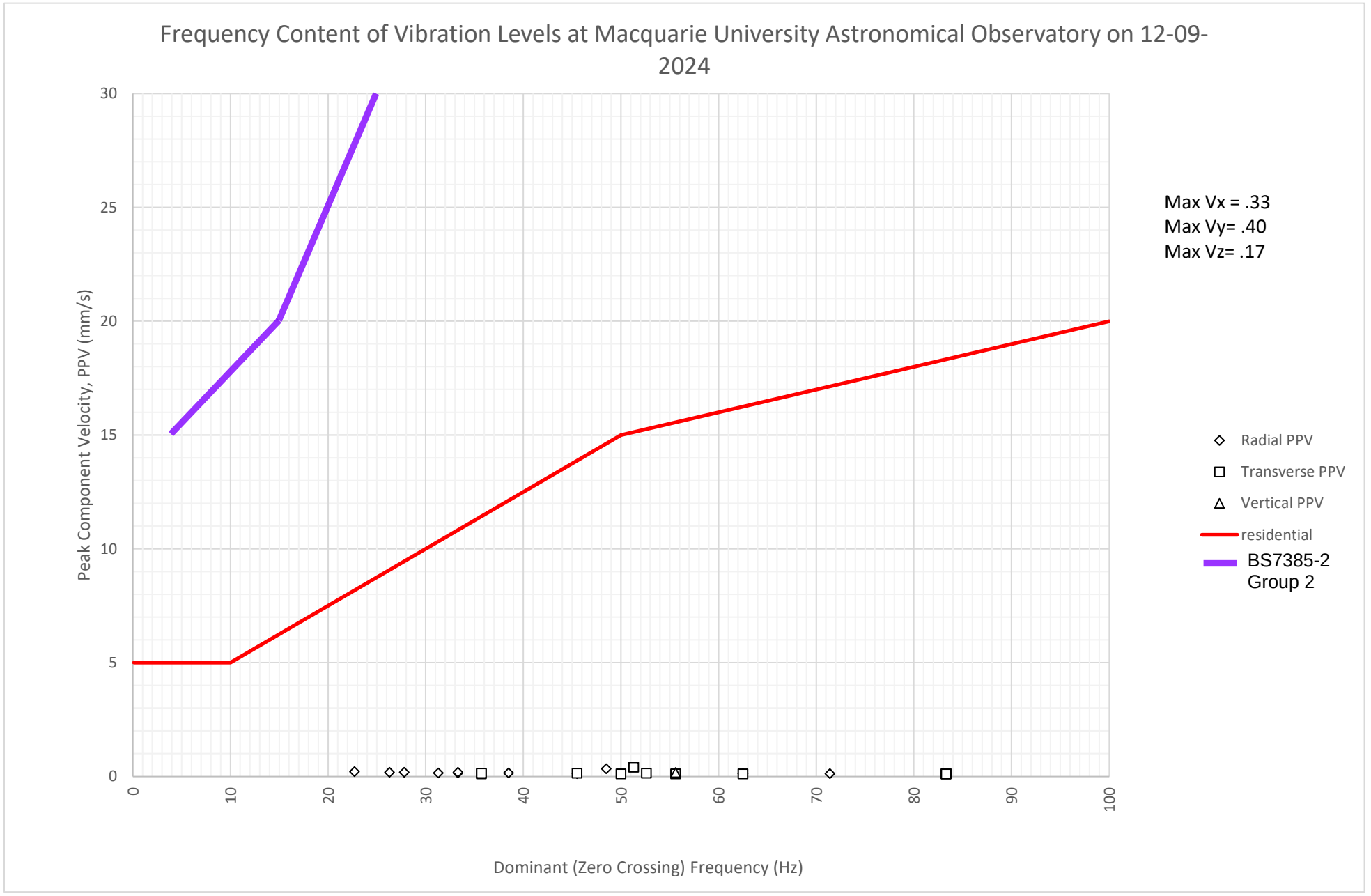

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 10-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

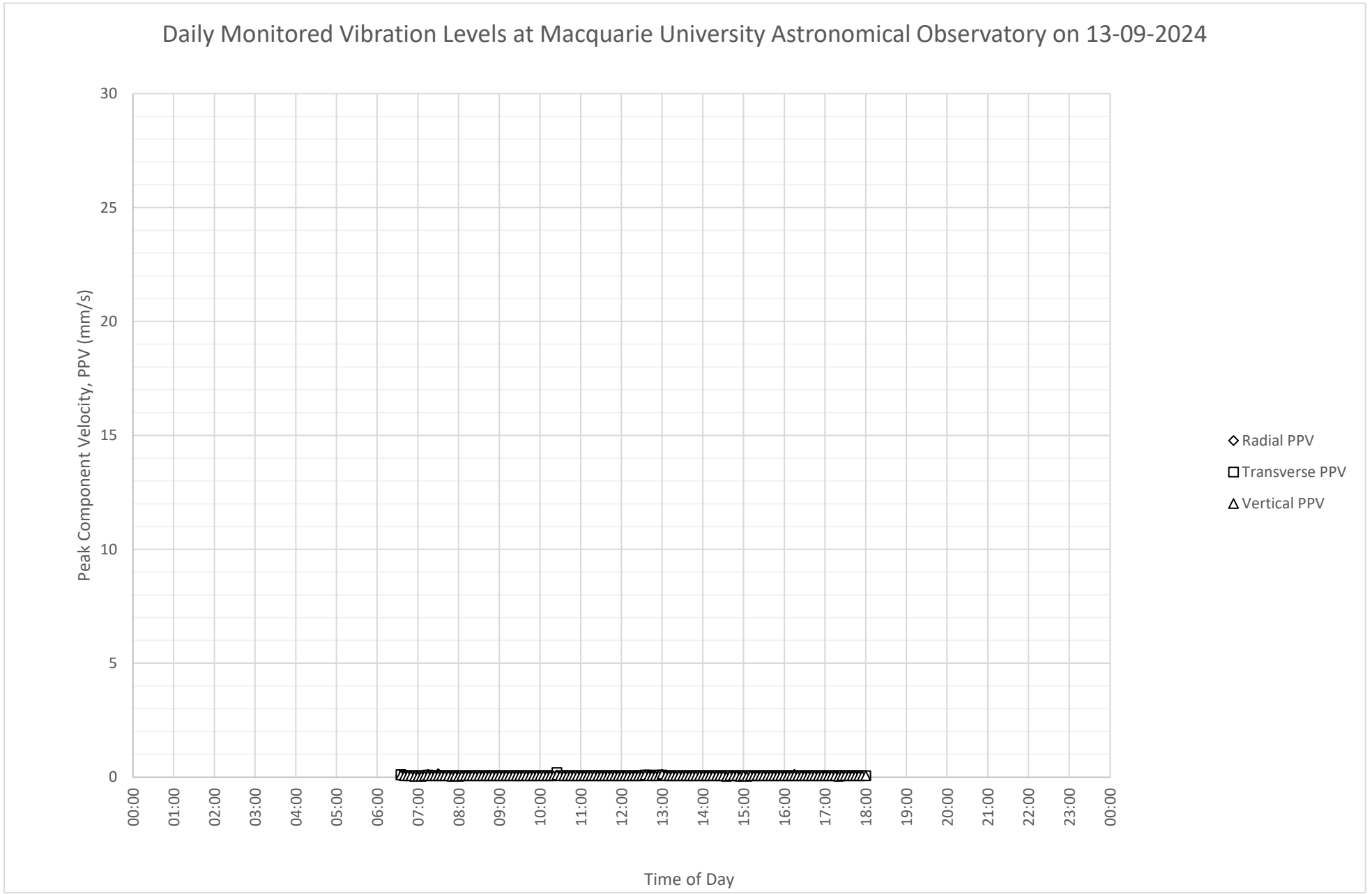

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 10-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .98
Max Vy= .71
Max Vz= .26
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

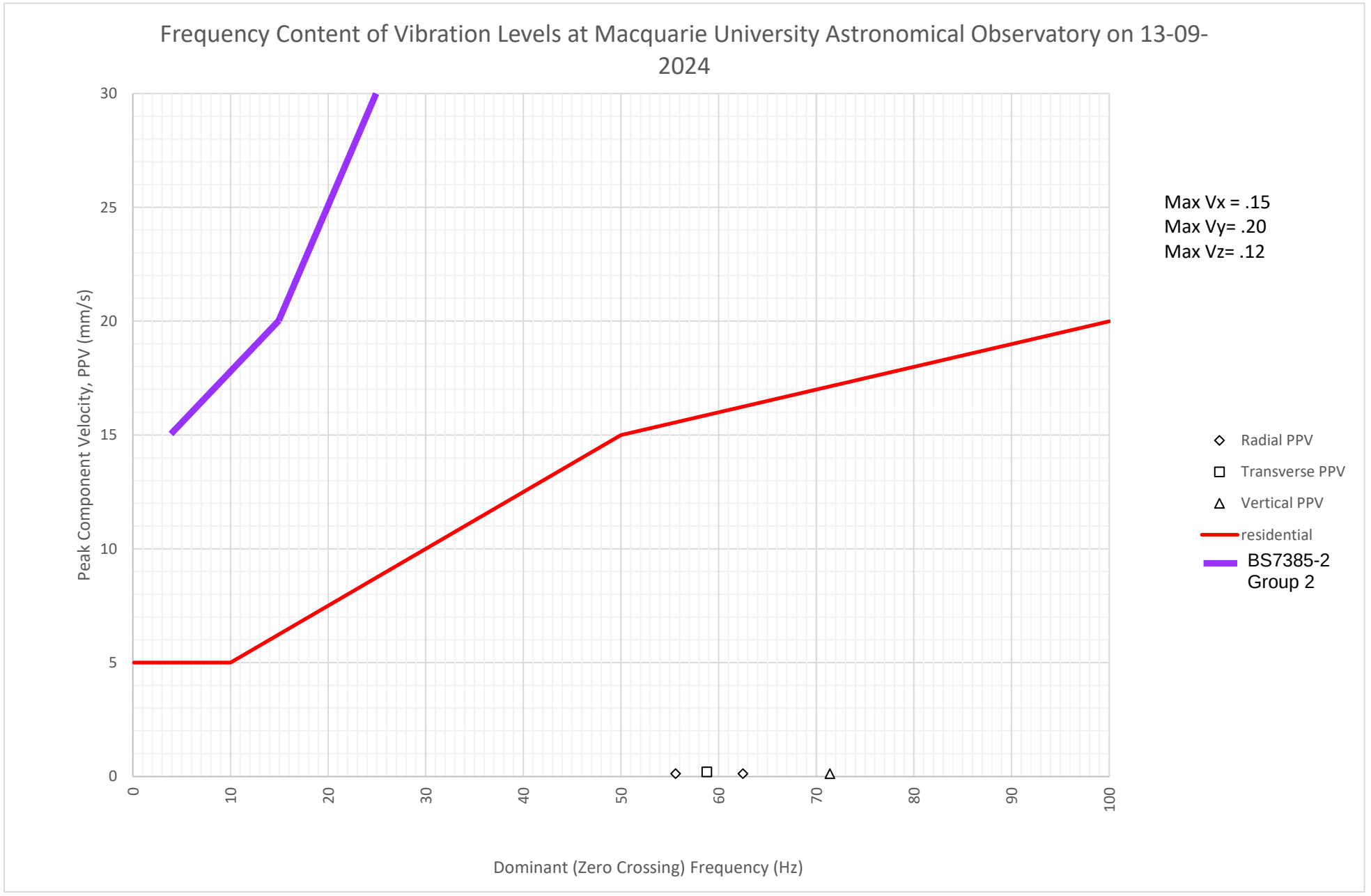

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 11-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

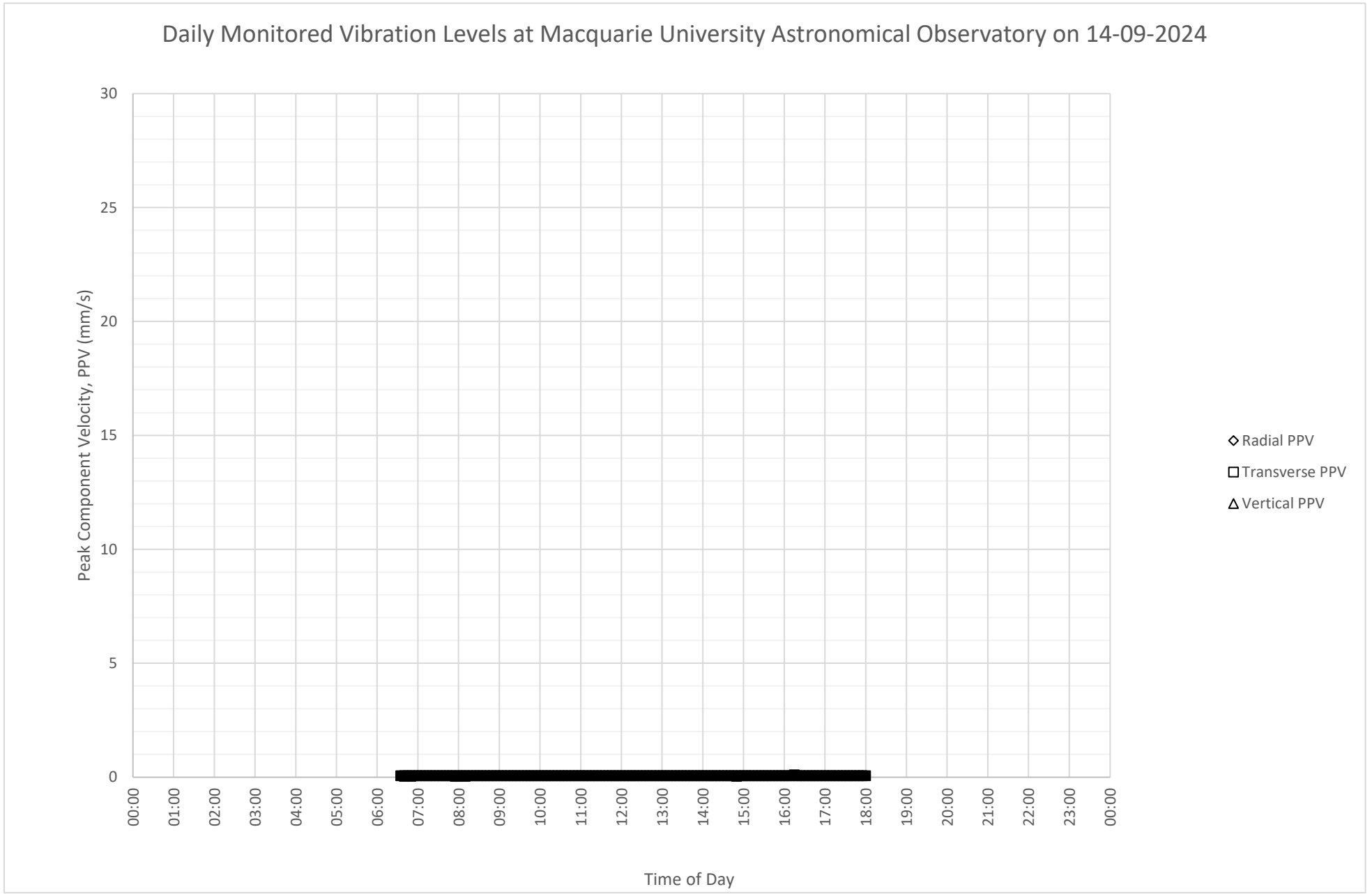

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 11-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .18
Max Vy= .26
Max Vz= .09
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

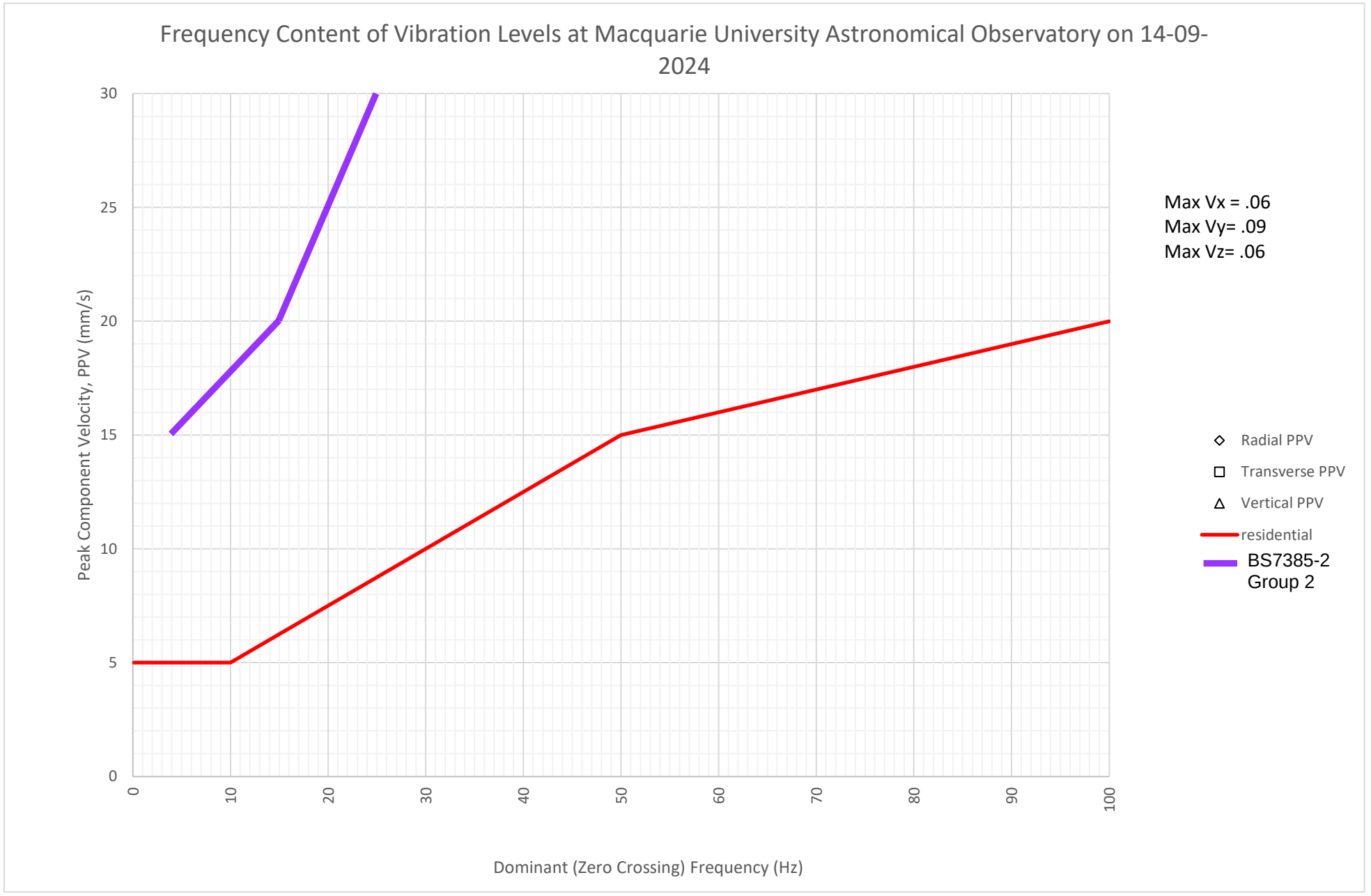

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 12-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

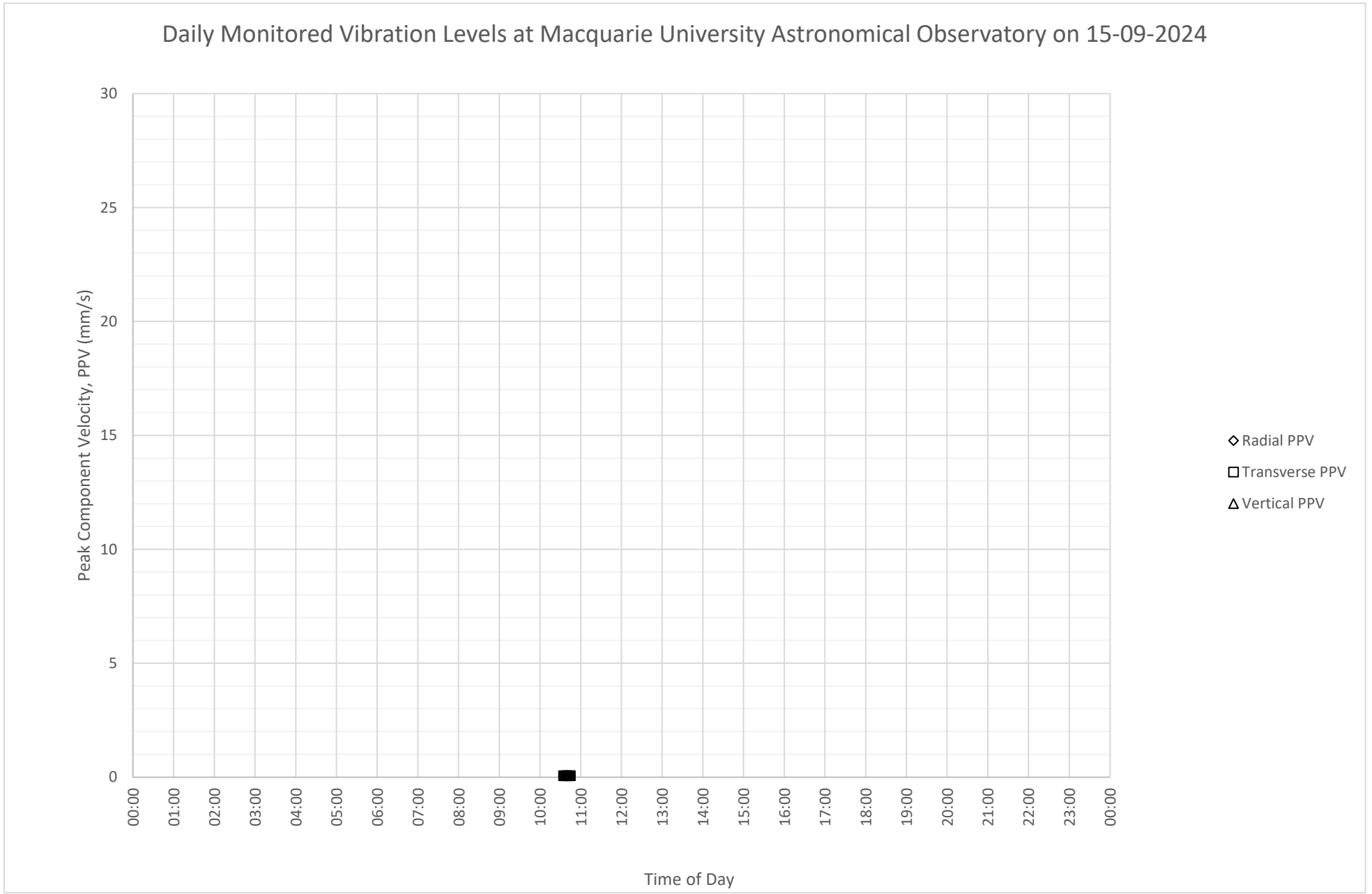

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 12-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .33
Max Vy= .40
Max Vz= .17
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

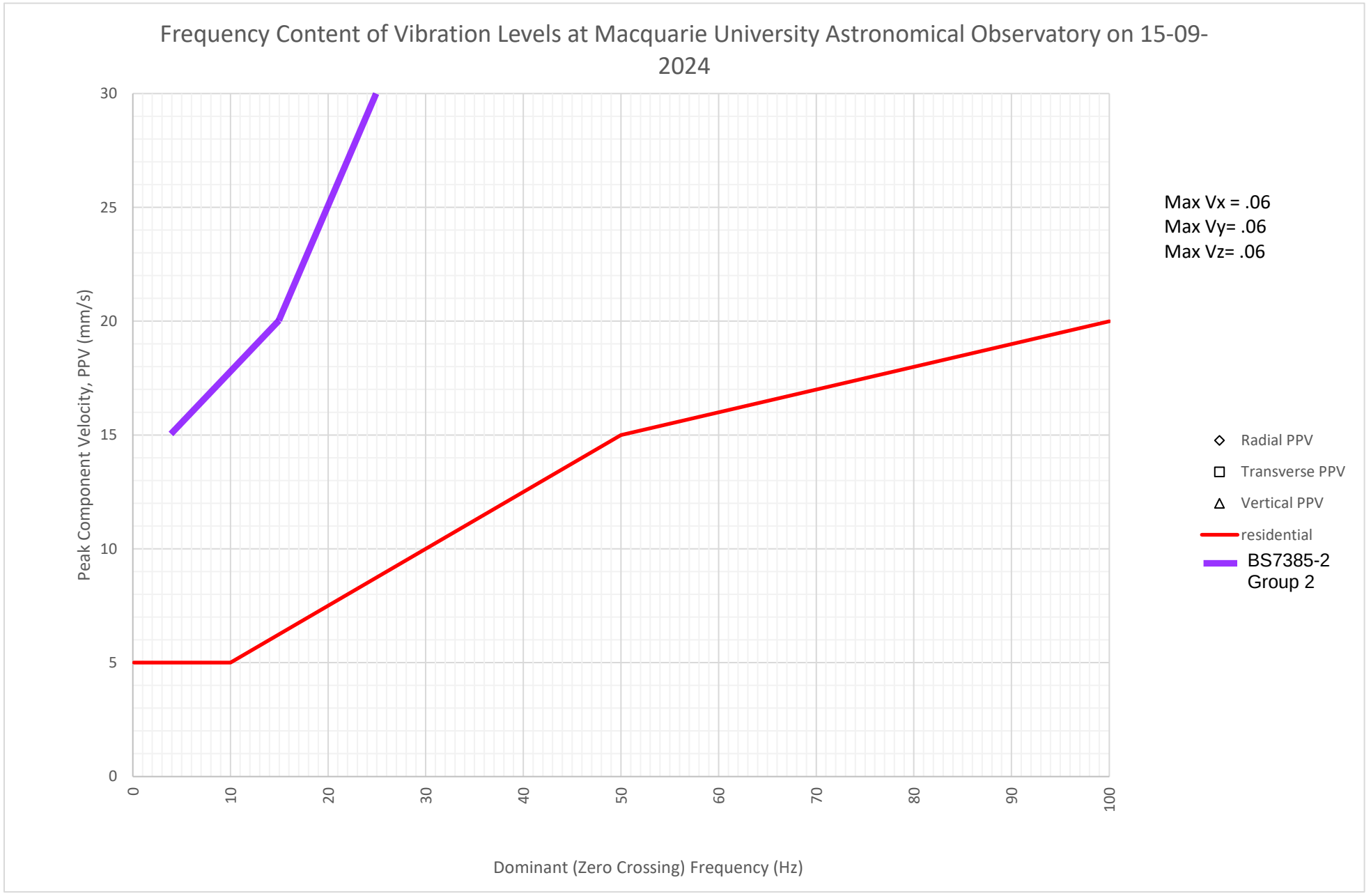

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 13-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

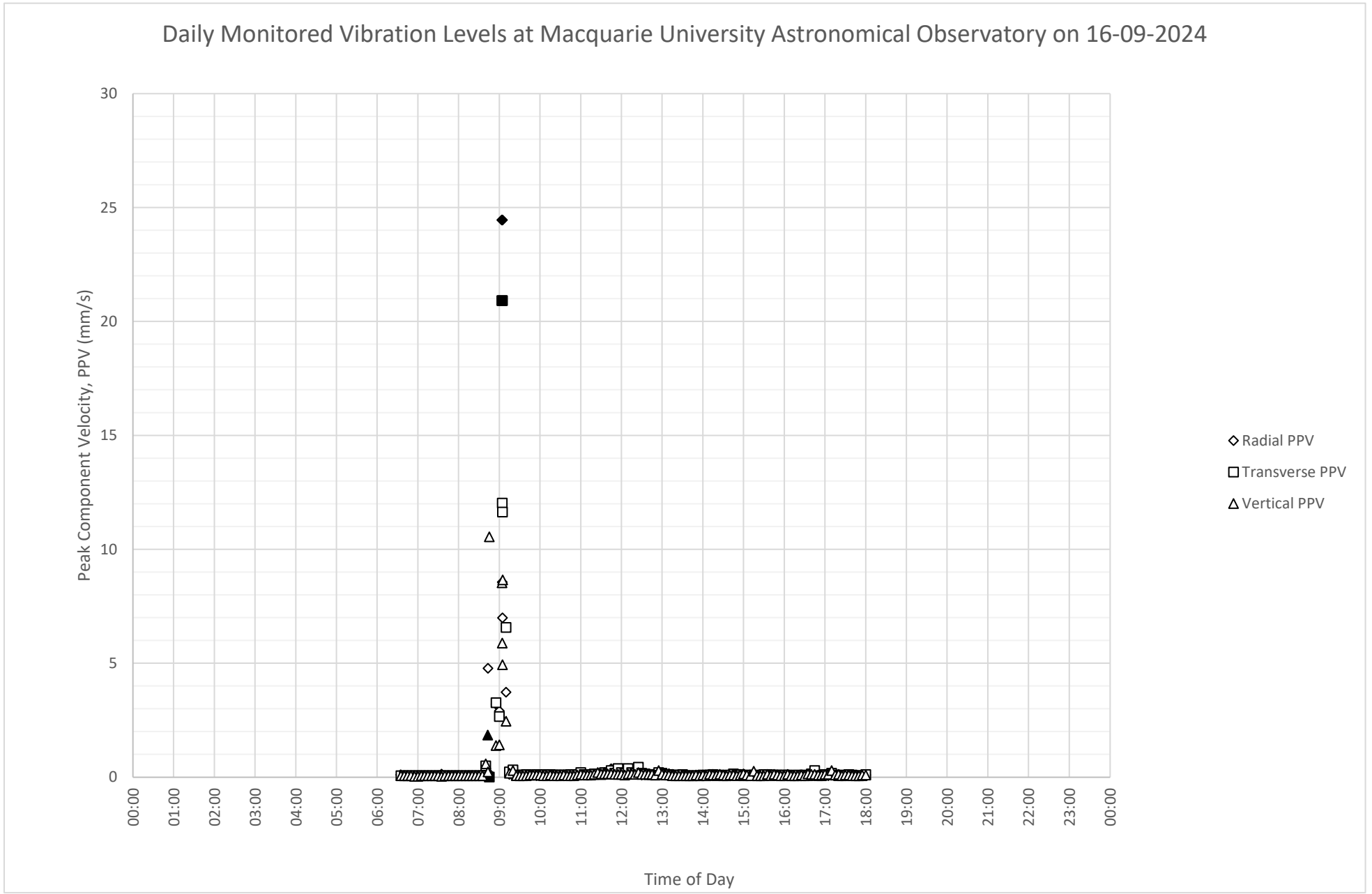

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 13-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .15
Max Vy= .20
Max Vz= .12
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

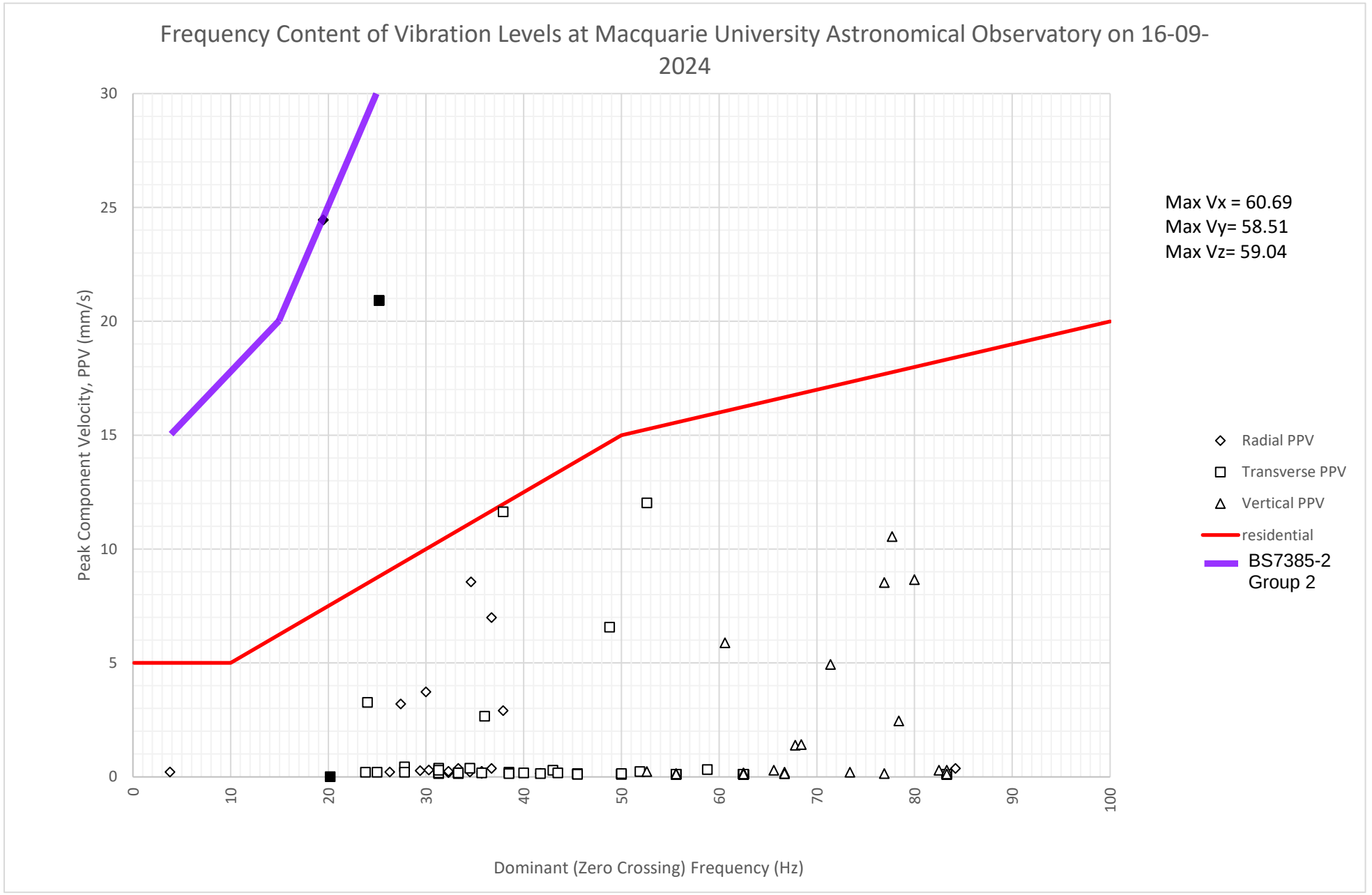

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 14-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

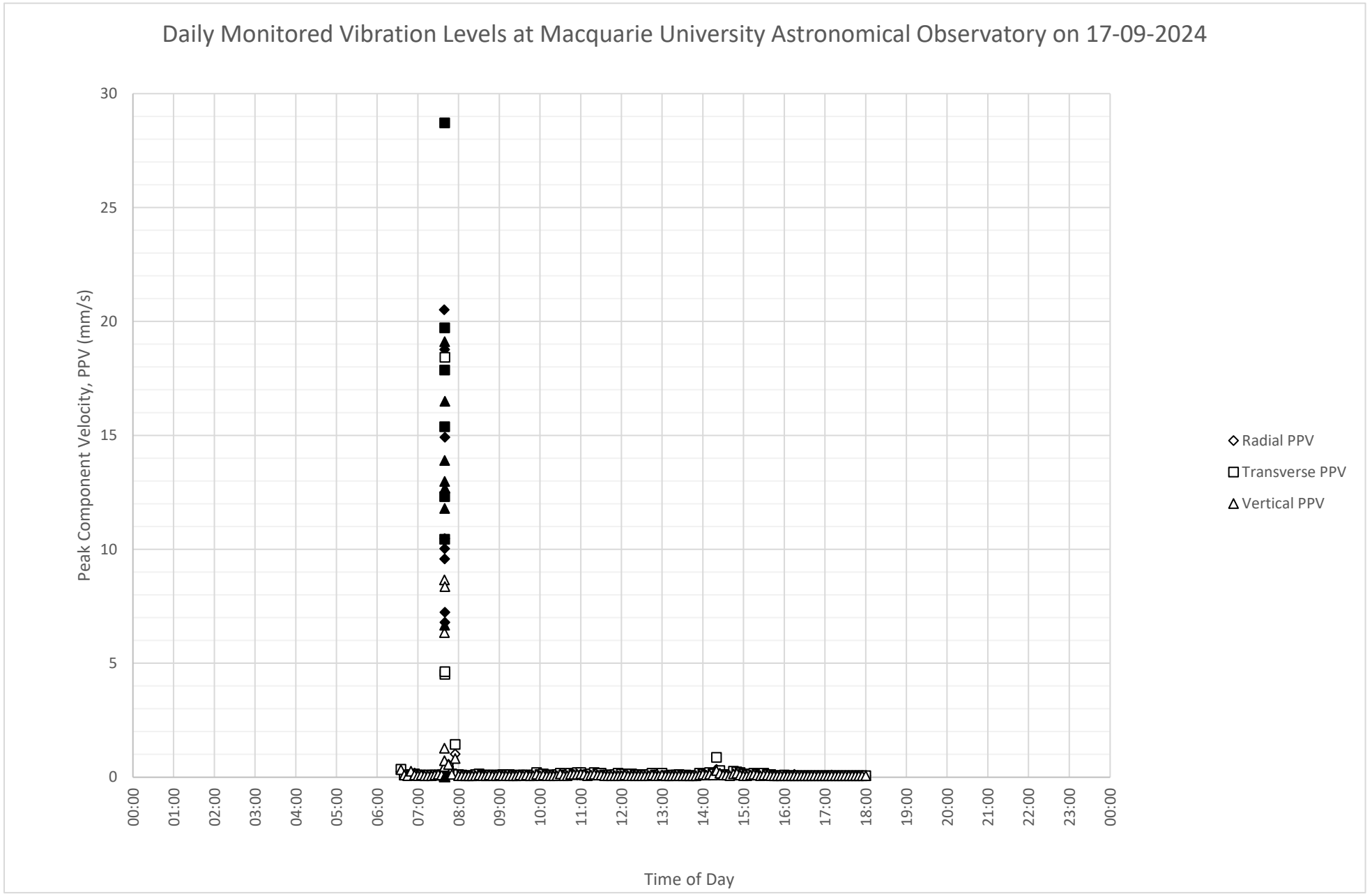

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 14-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .06
Max Vy= .09
Max Vz= .06
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

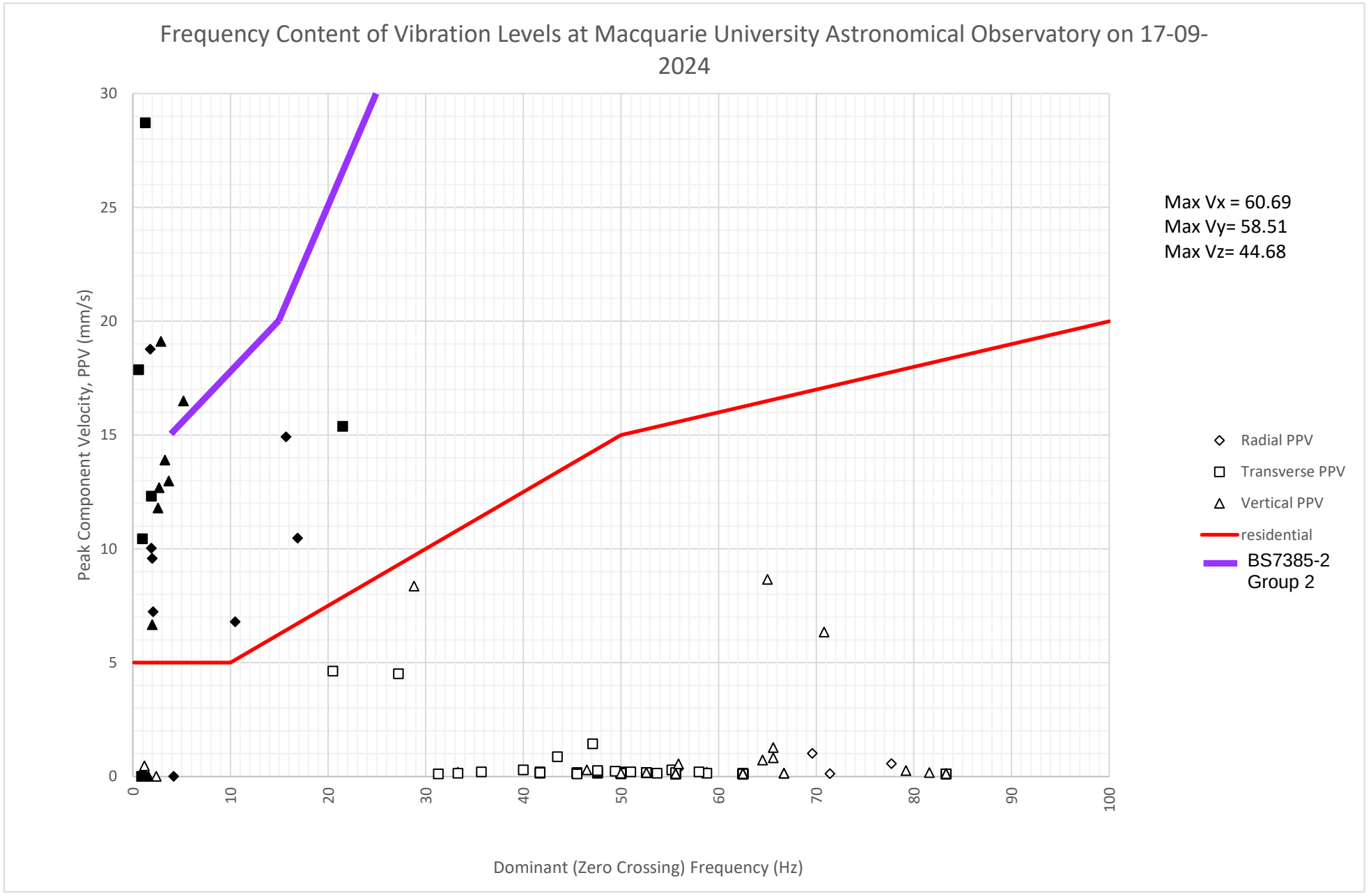

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 15-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

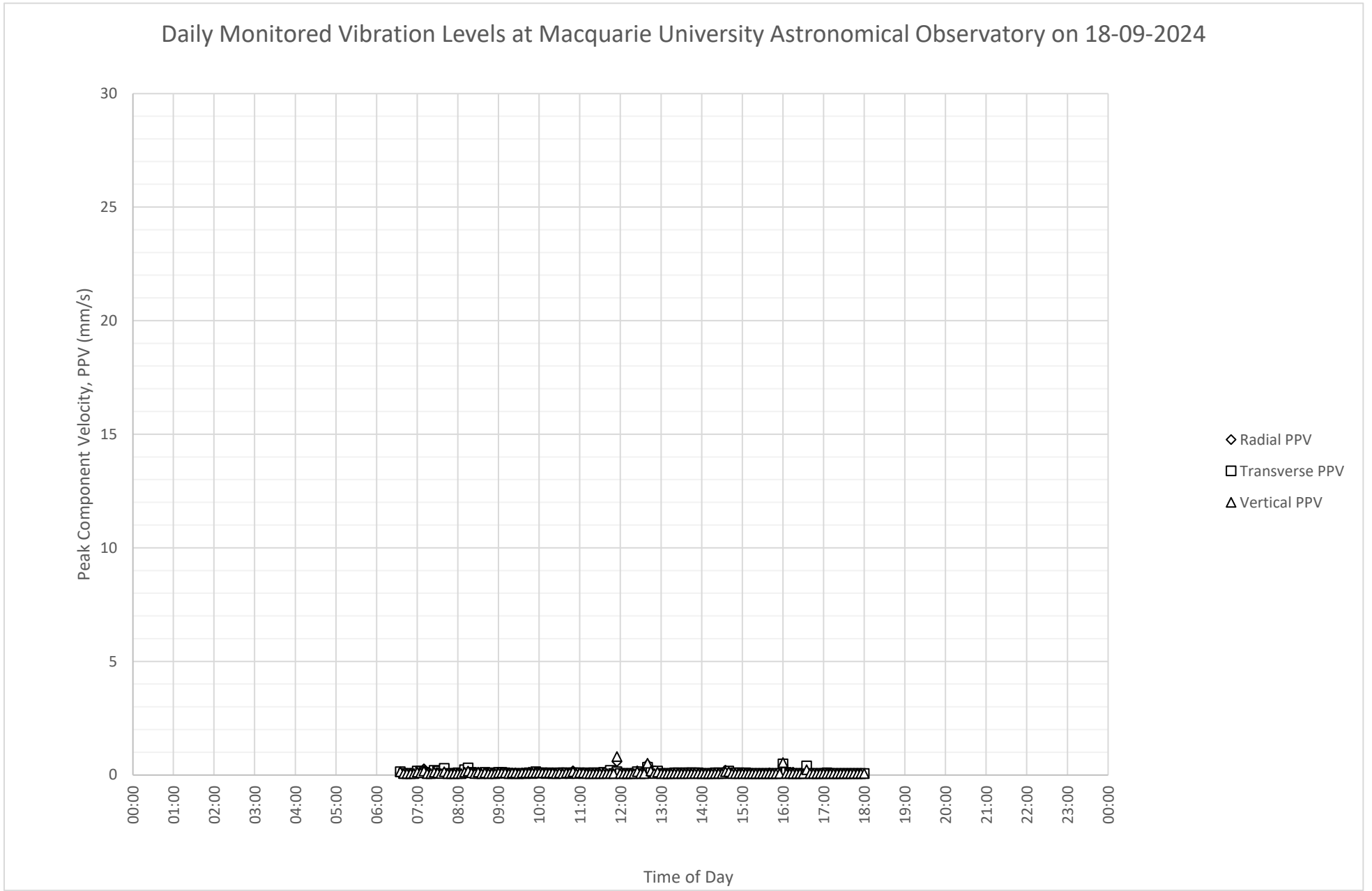

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 15-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .06
Max Vy= .06
Max Vz= .06
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

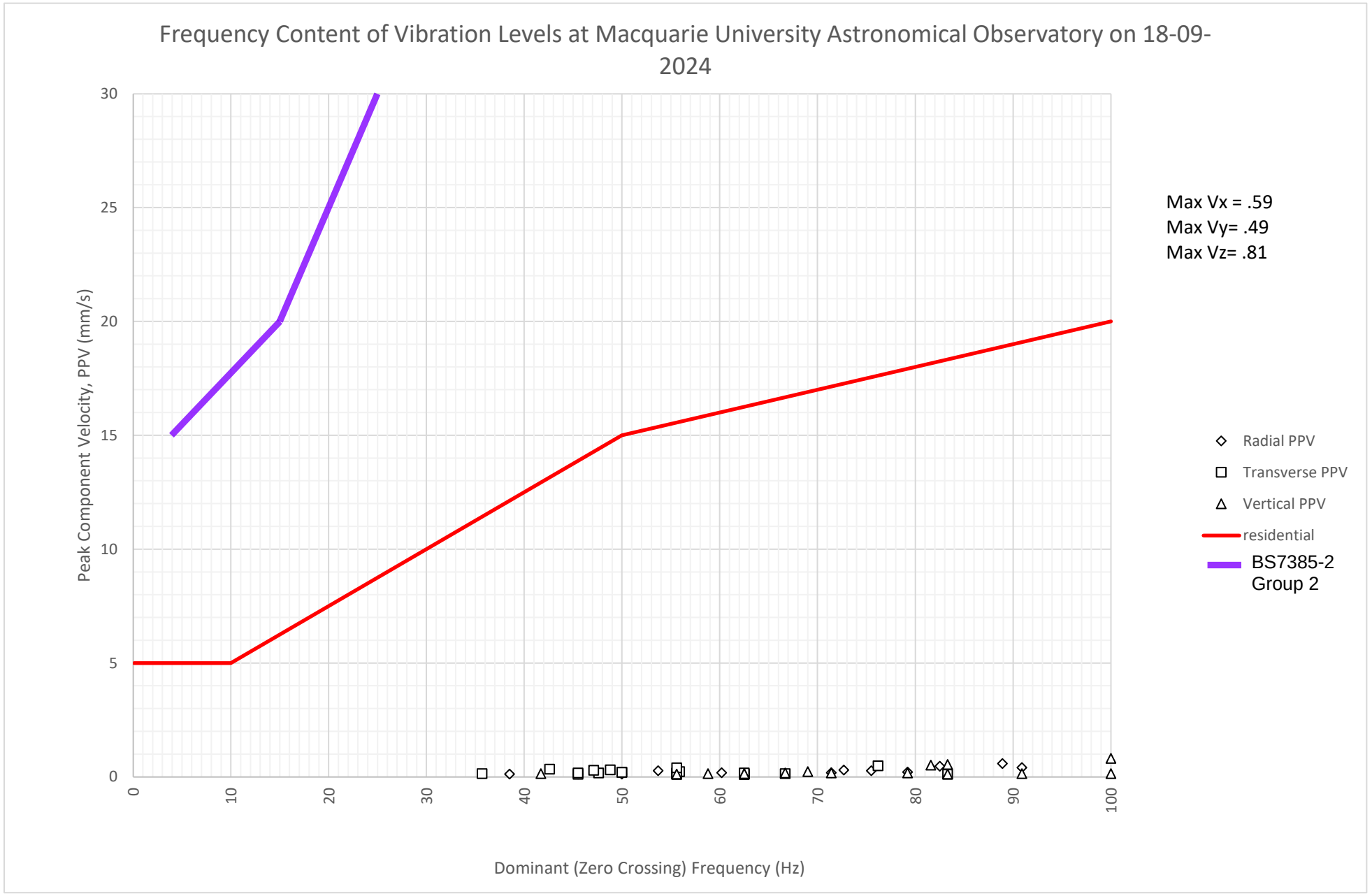

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 16-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

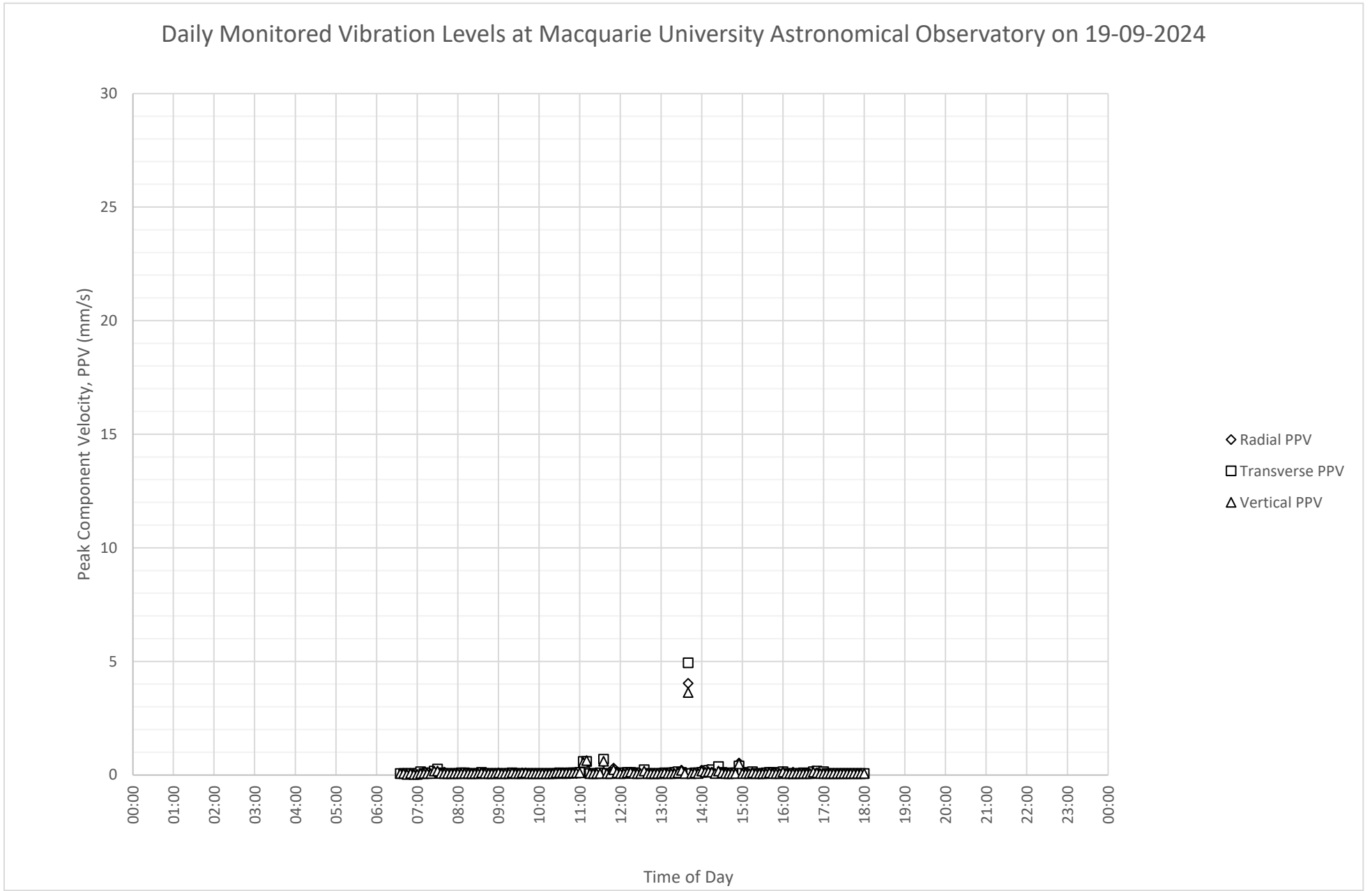

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 16-09-2024
Peak Component Velocity, PPV (mm/s)
Dominant (Zero Crossing) Frequency (Hz)
0
5
10
15
20
25
30
0
10
20
30
40
50
60
70
80
90
100
Max Vx = 60.69
Max Vy= 58.51
Max Vz= 59.04
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

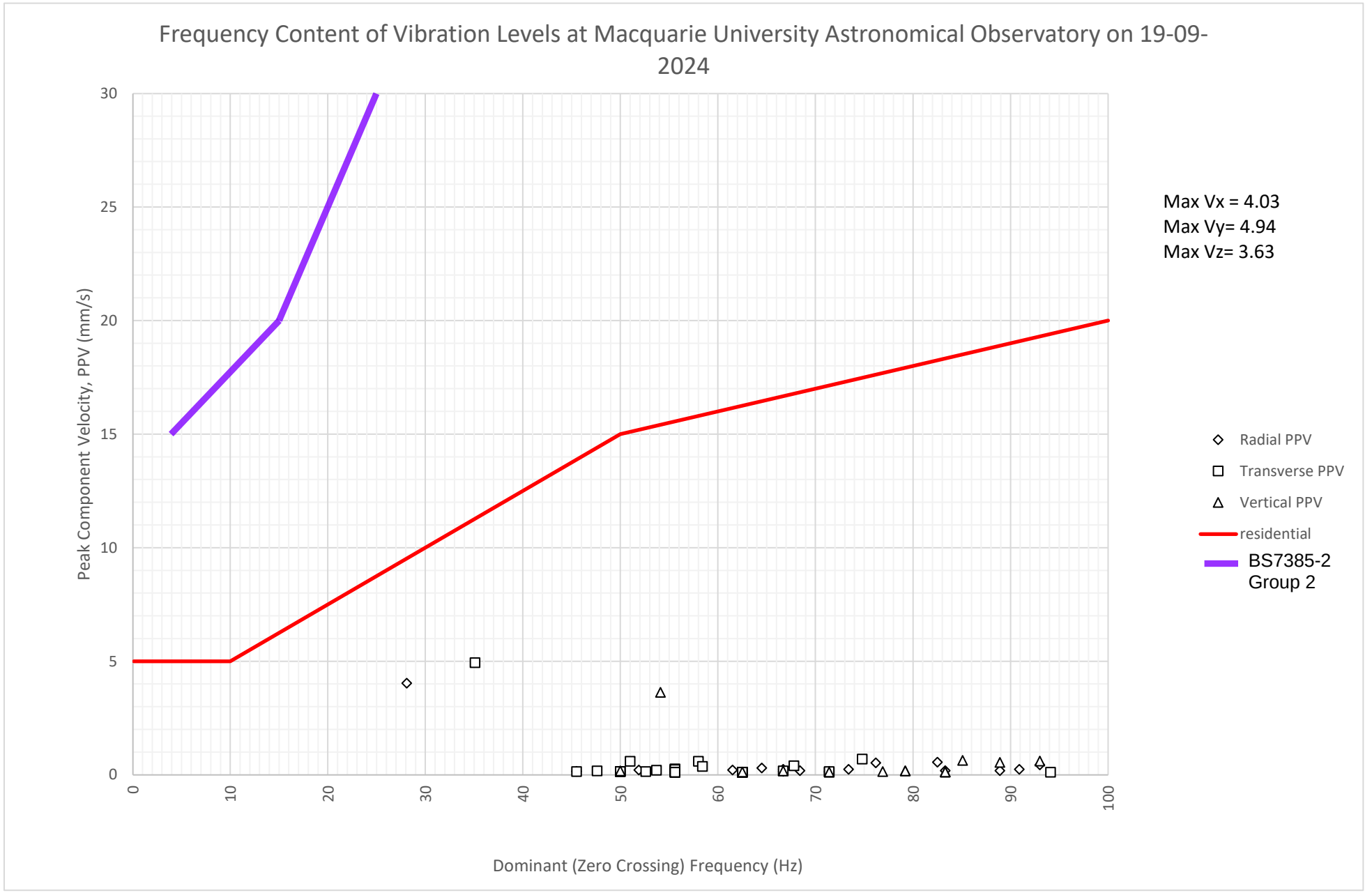

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 17-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

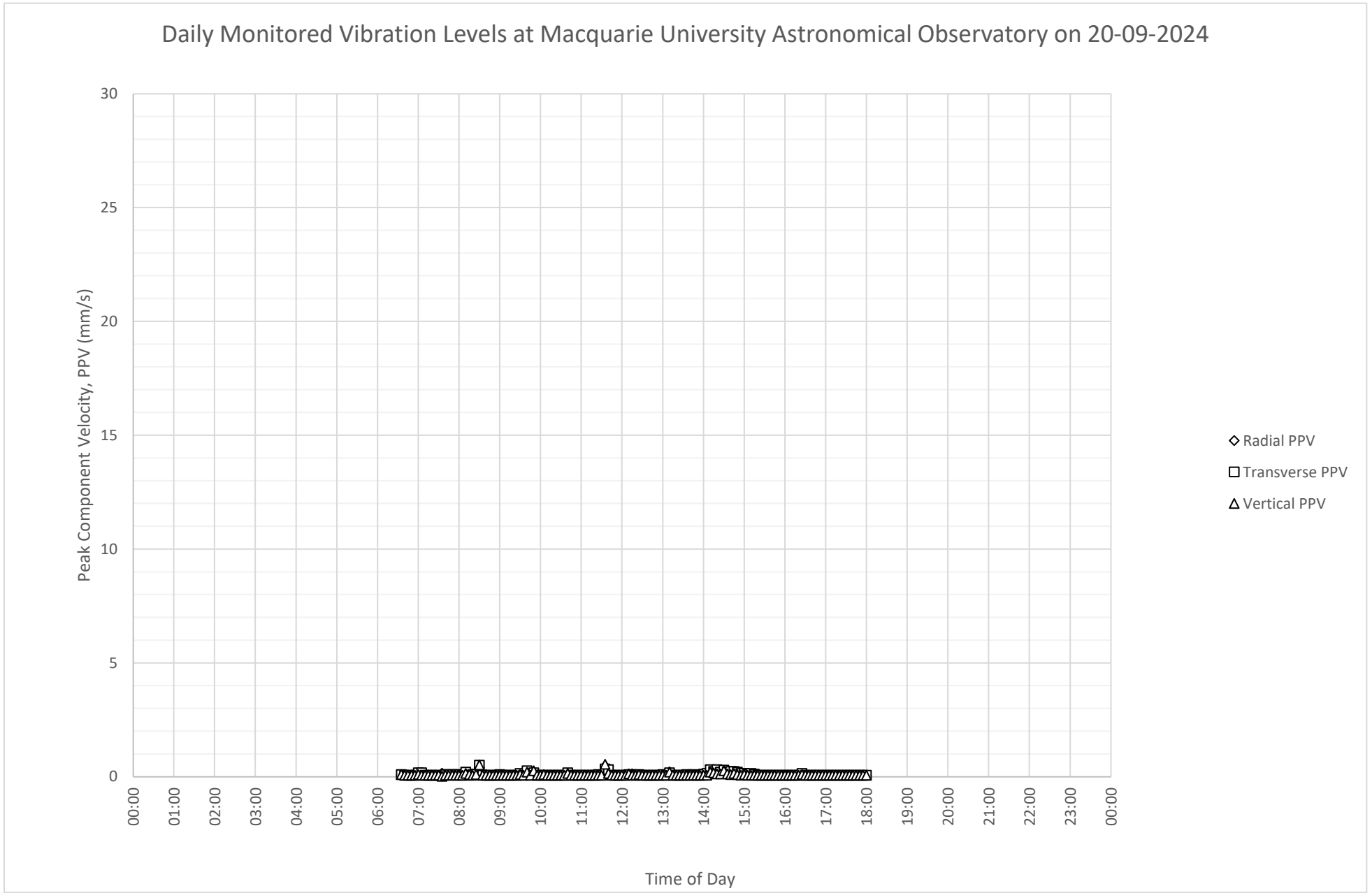

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 17-09-2024
Peak Component Velocity, PPV (mm/s)
Dominant (Zero Crossing) Frequency (Hz)
0
5
10
15
20
25
30
0
10
20
30
40
50
60
70
80
90
100
Max Vx = 60.69
Max Vy= 58.51
Max Vz= 44.68
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

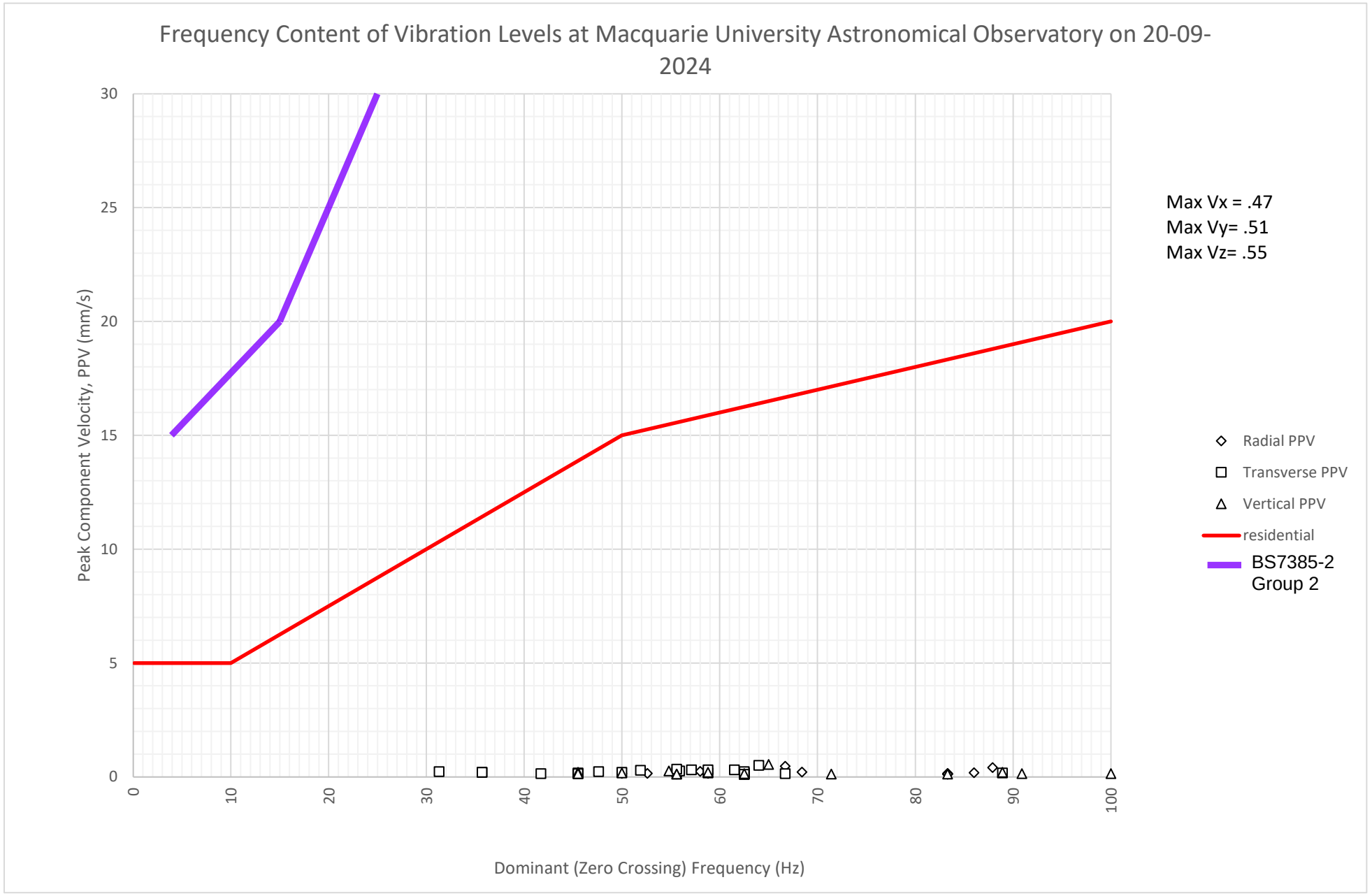

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 18-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

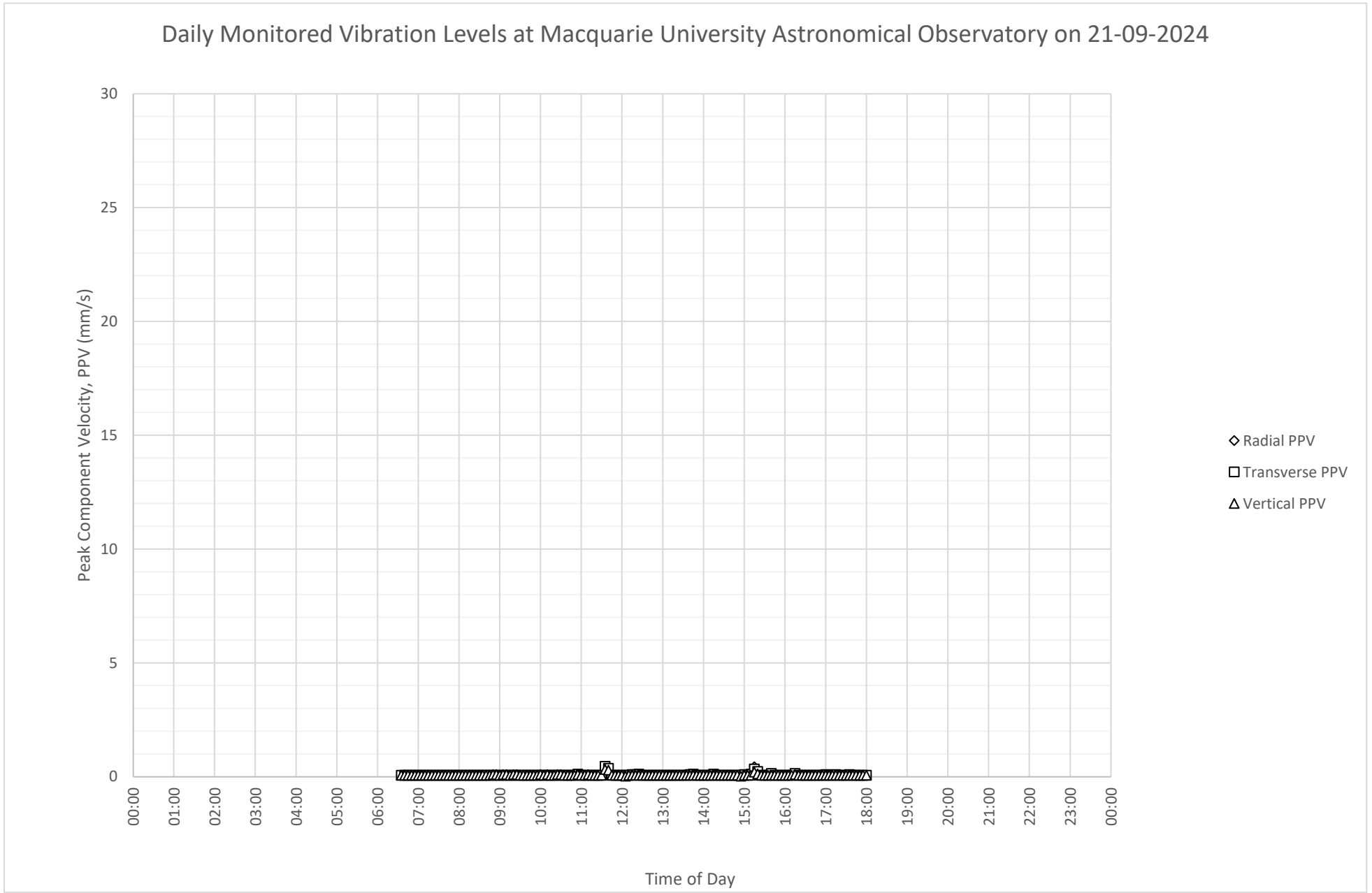

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 18-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .59
Max Vy= .49
Max Vz= .81
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

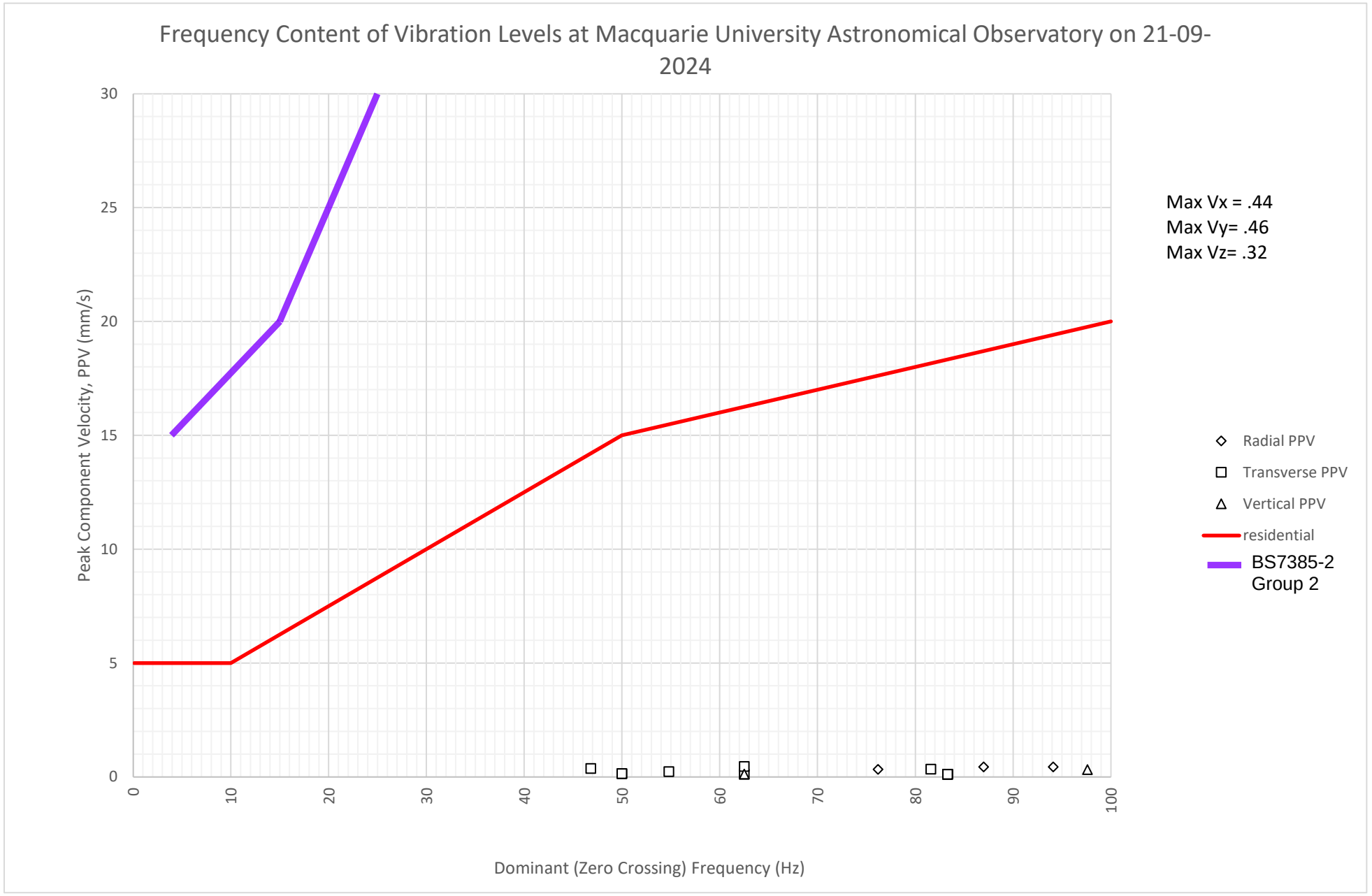

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 19-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

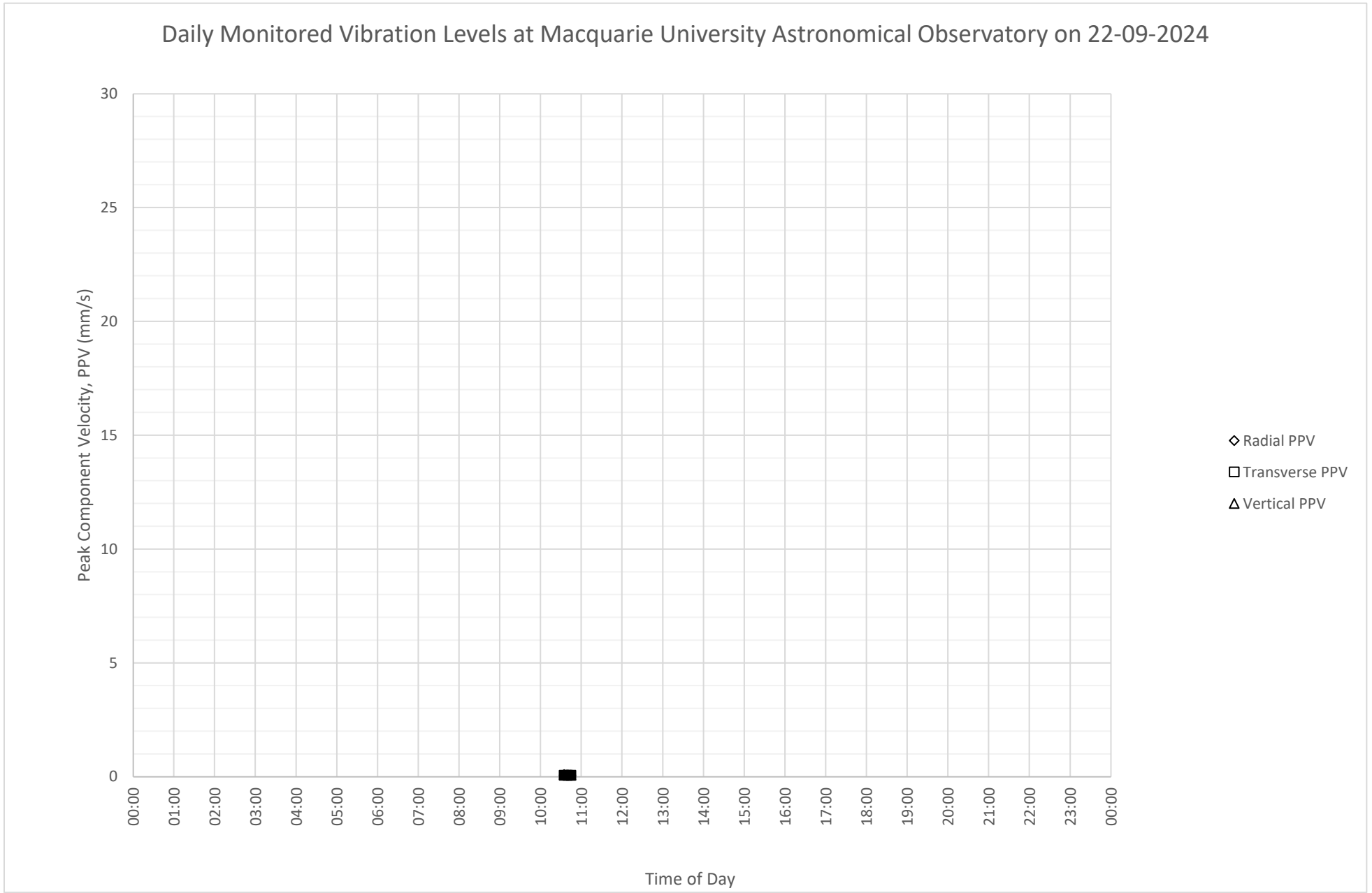

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 19-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = 4.03
Max Vy= 4.94
Max Vz= 3.63
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

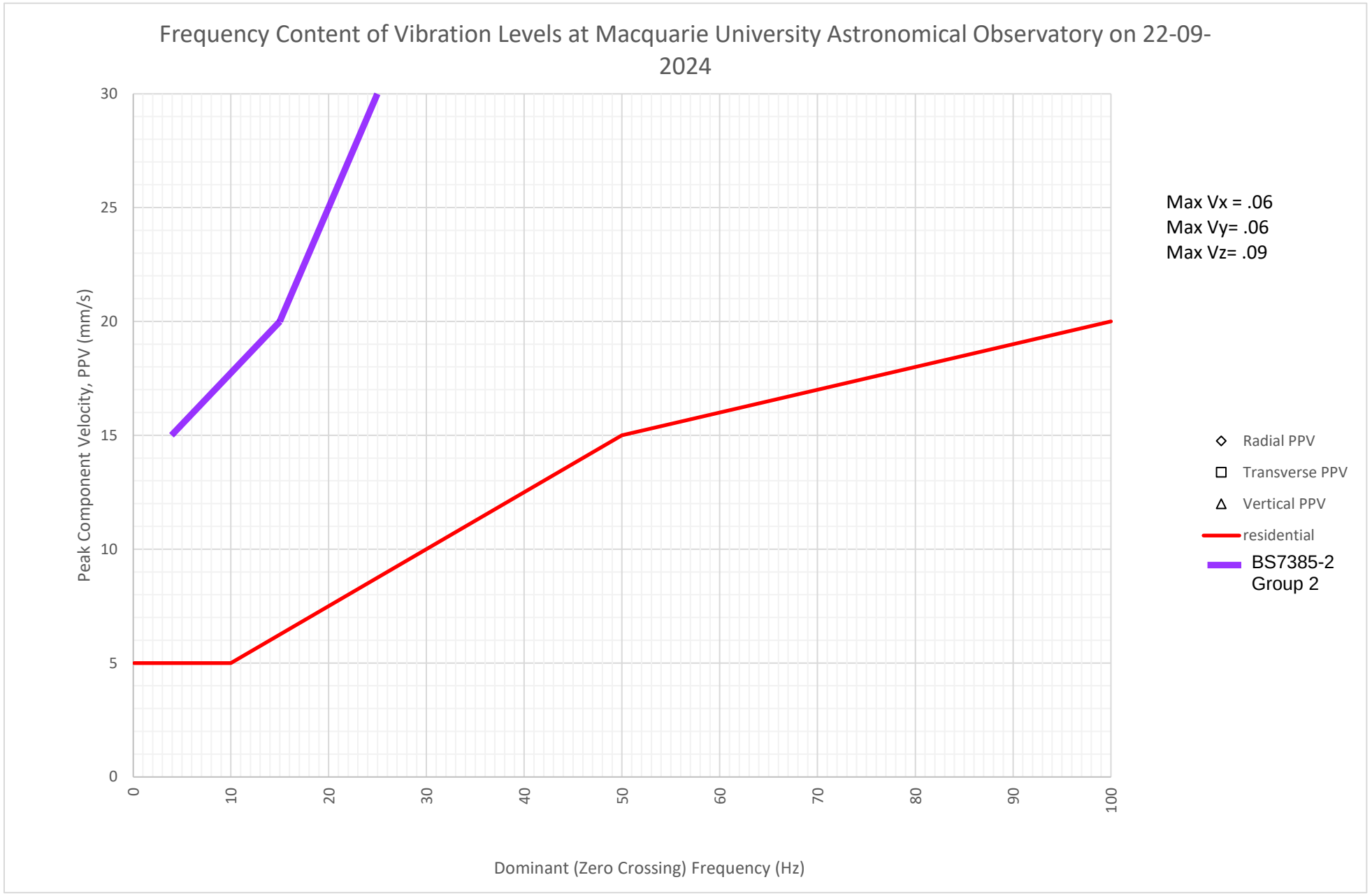

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 20-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

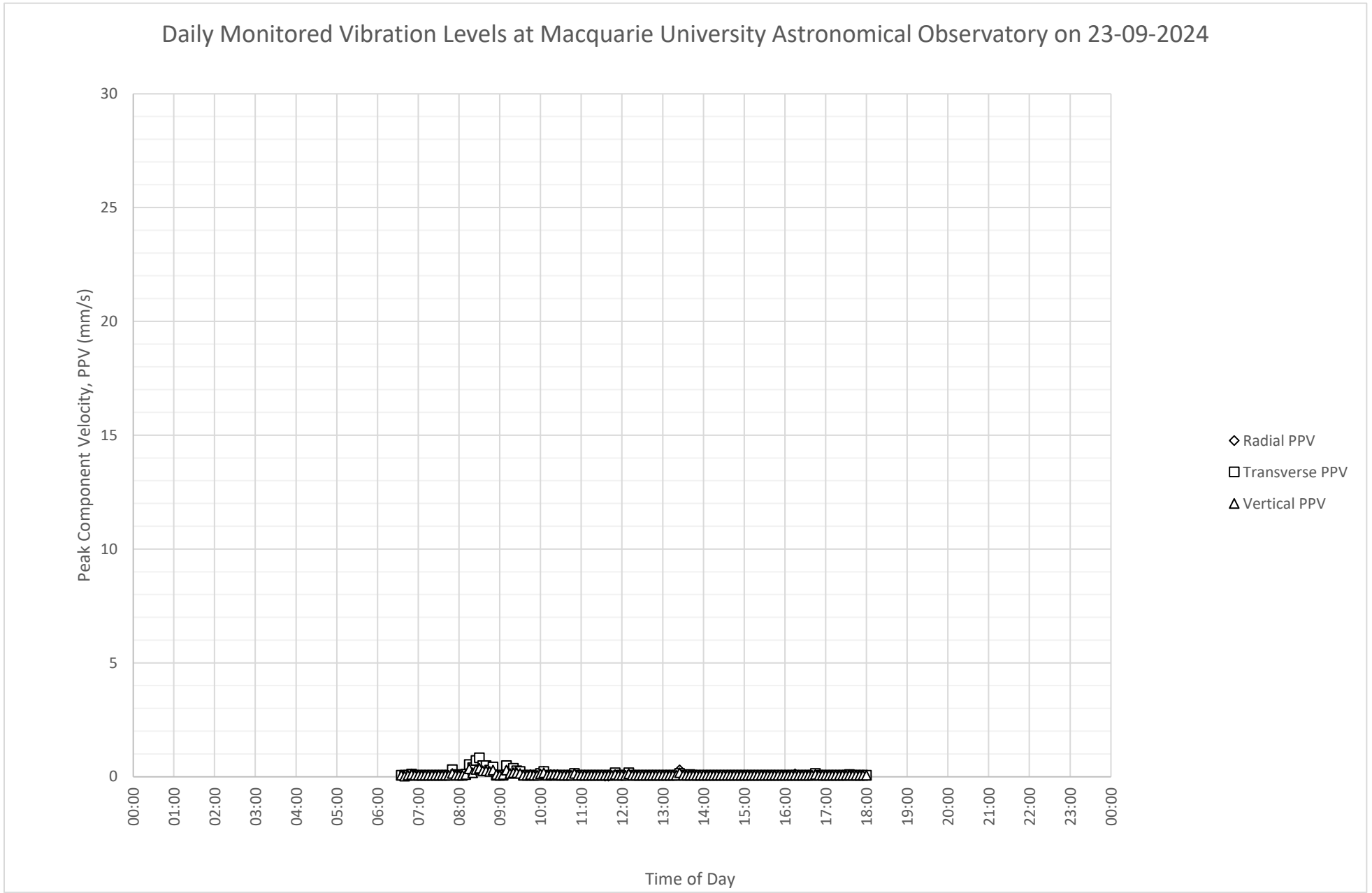

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 20-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .47
Max Vy= .51
Max Vz= .55
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

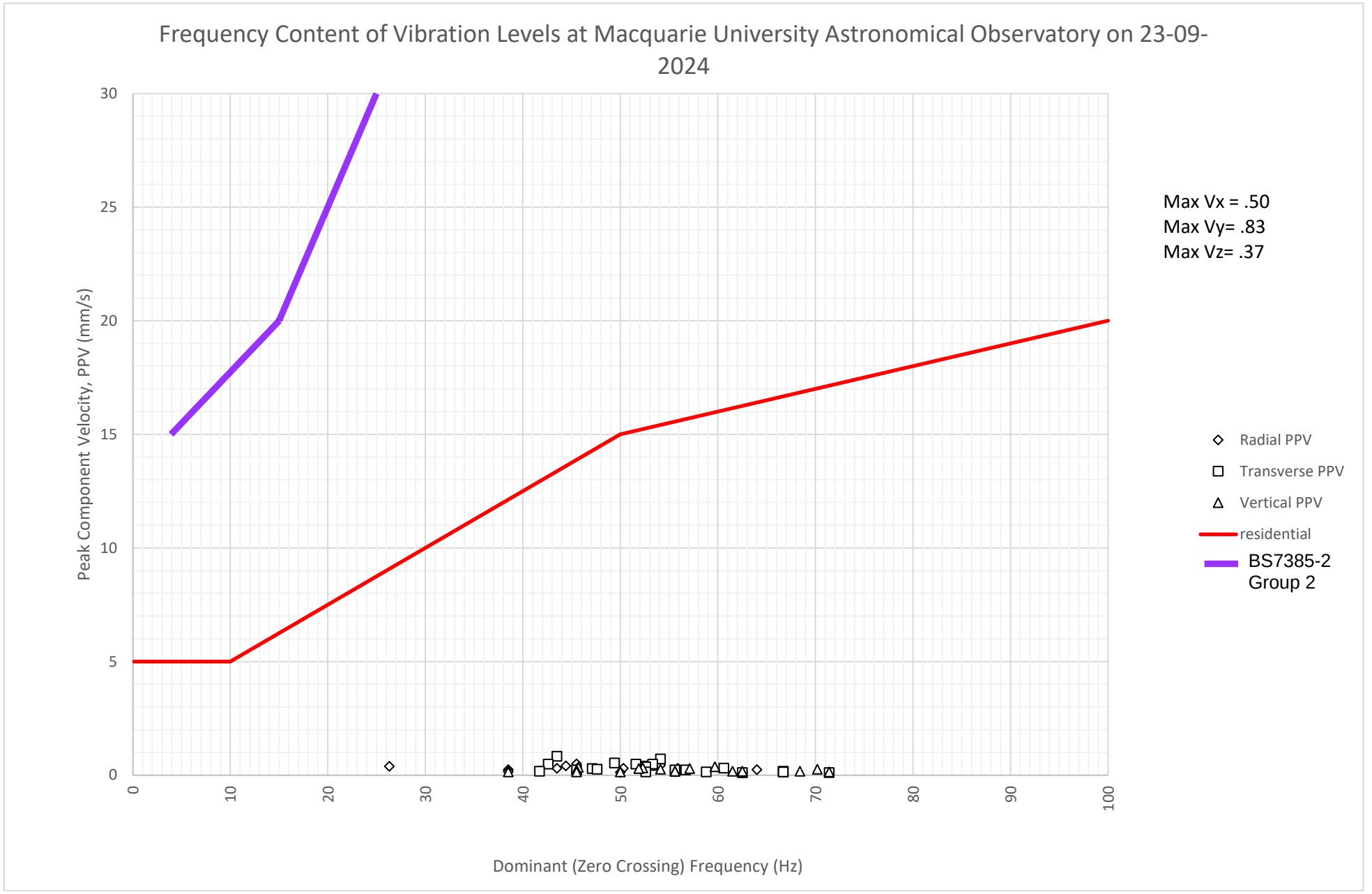

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 21-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

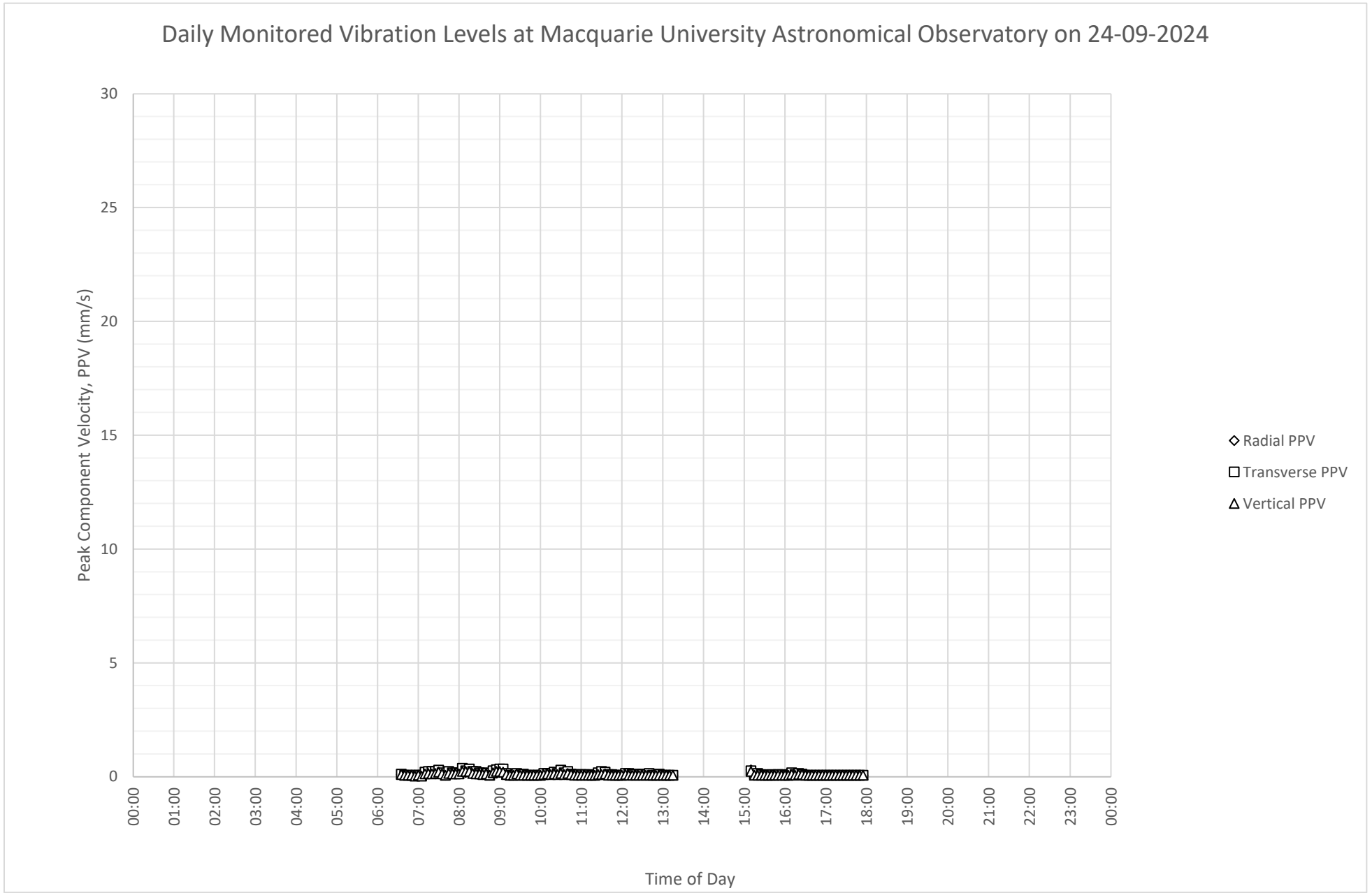

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 21-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .44
Max Vy= .46
Max Vz= .32
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

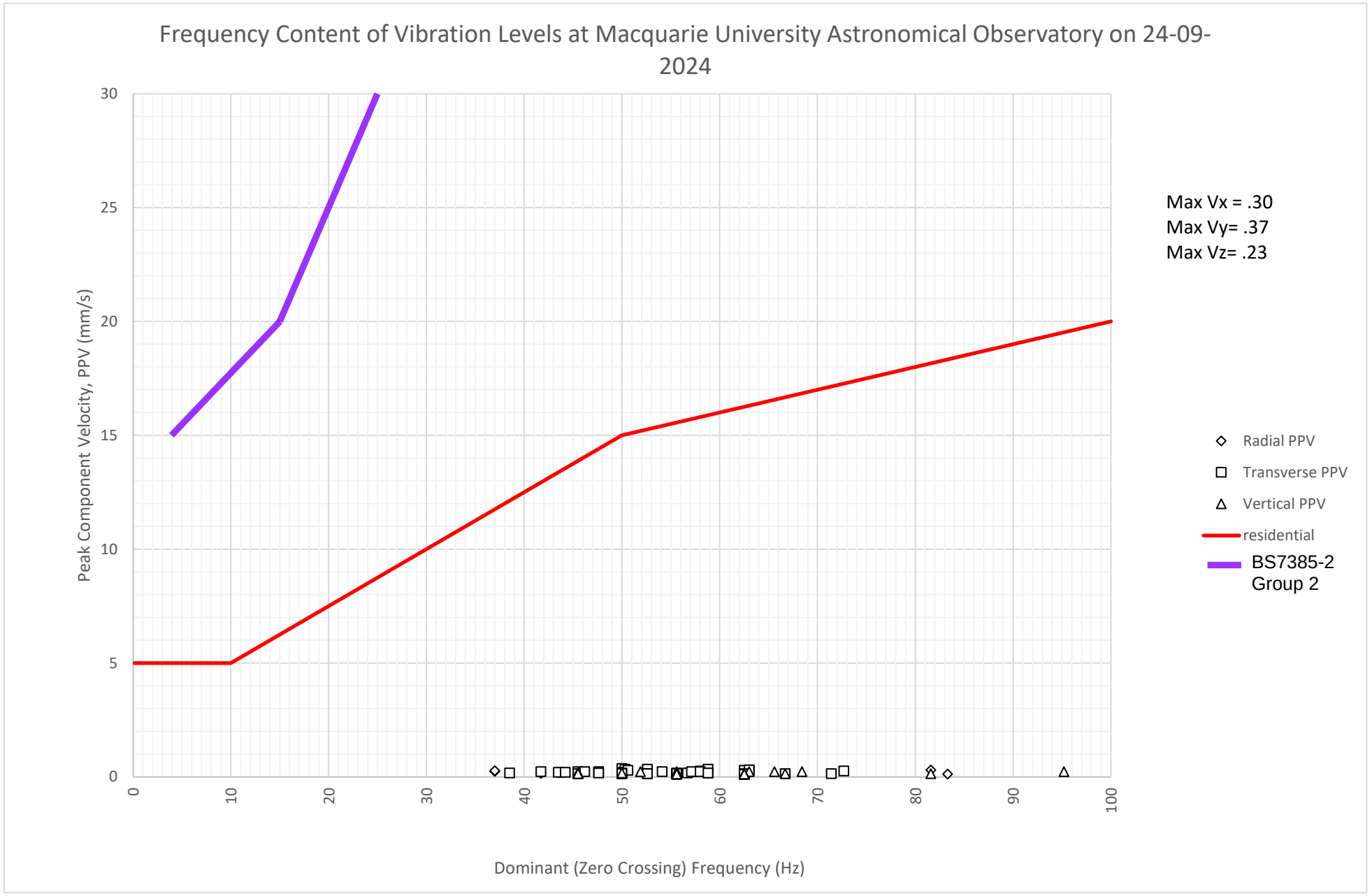

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 22-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

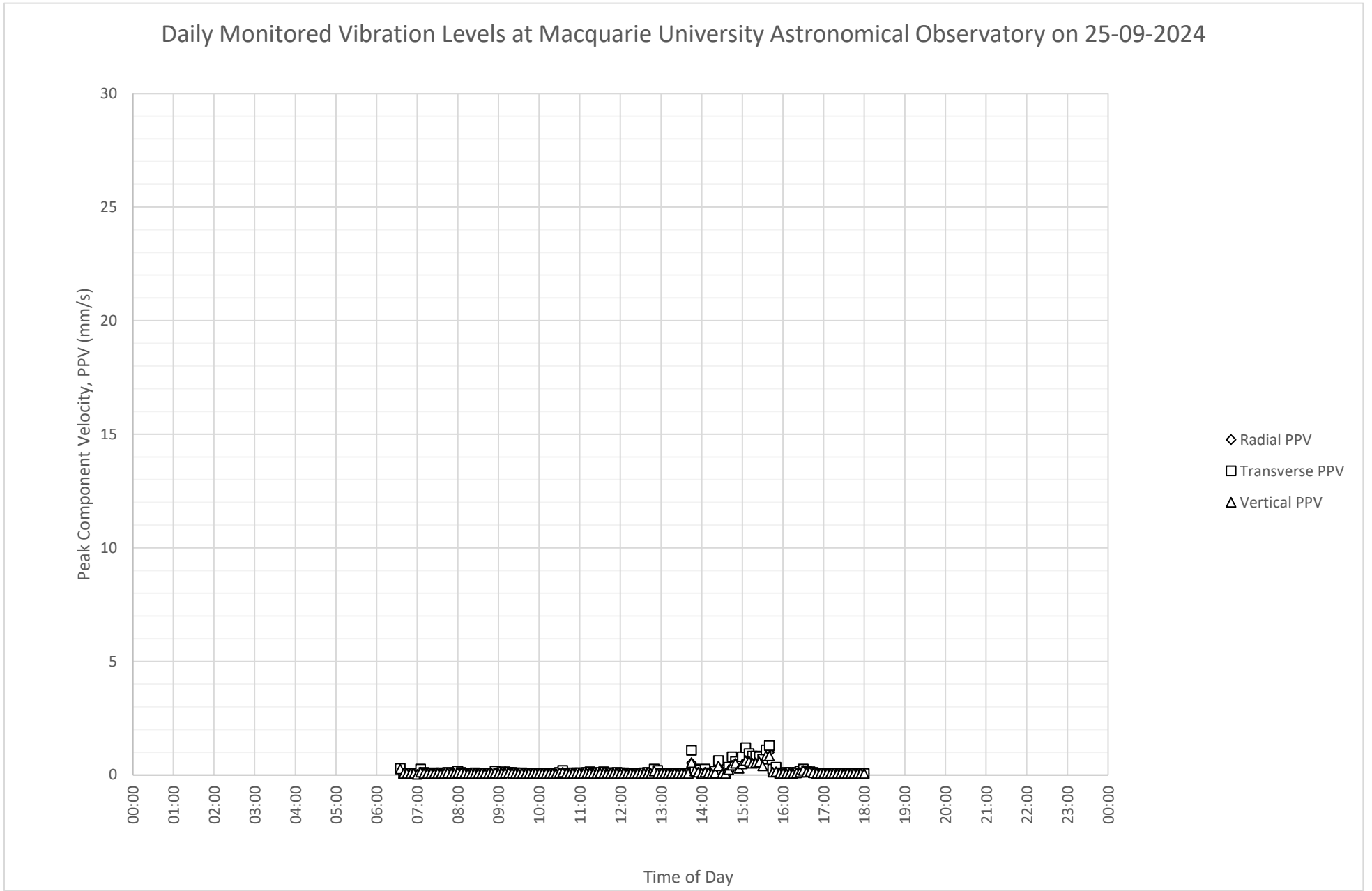

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 22-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .06
Max Vy= .06
Max Vz= .09
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

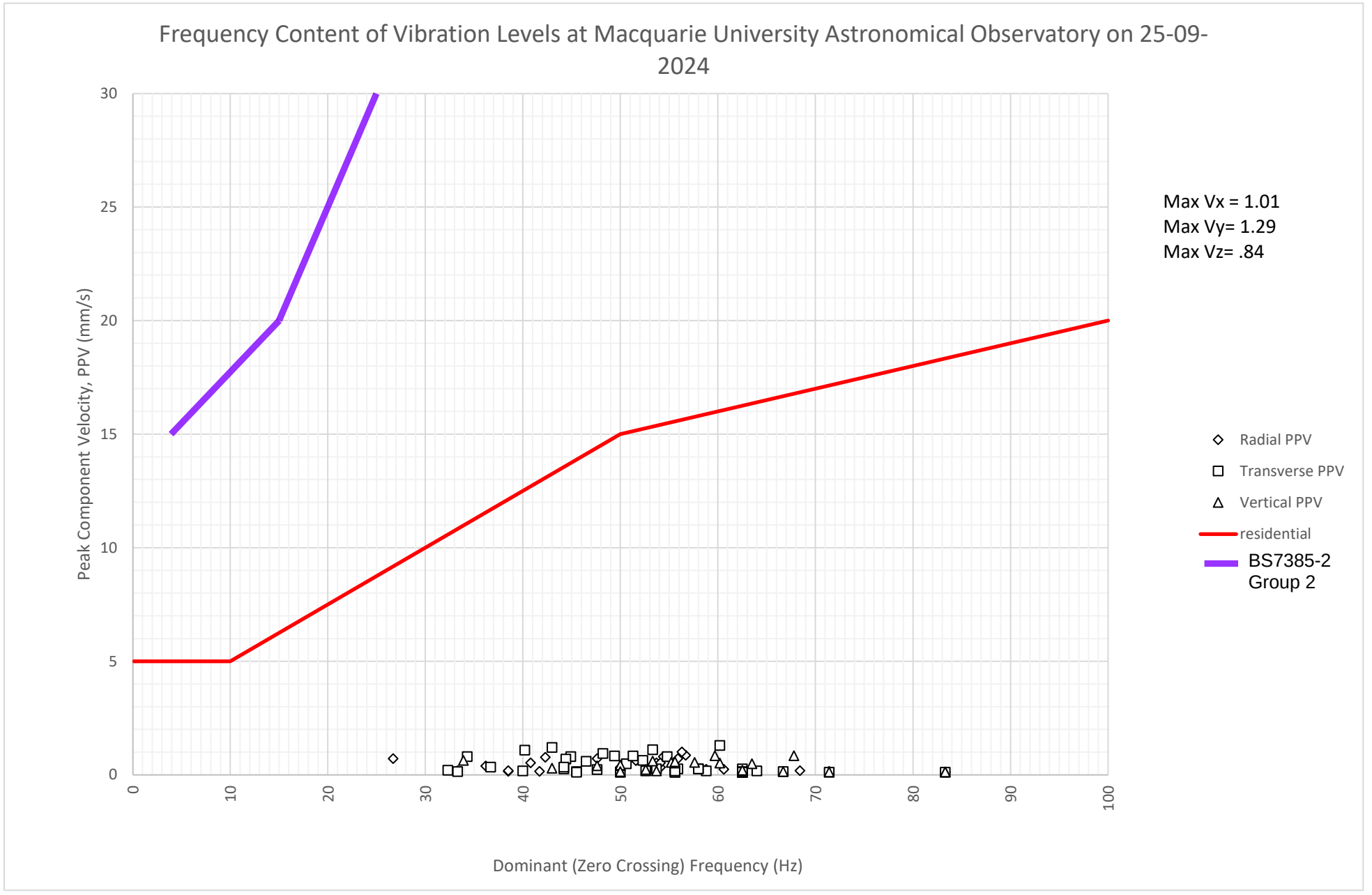

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 23-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

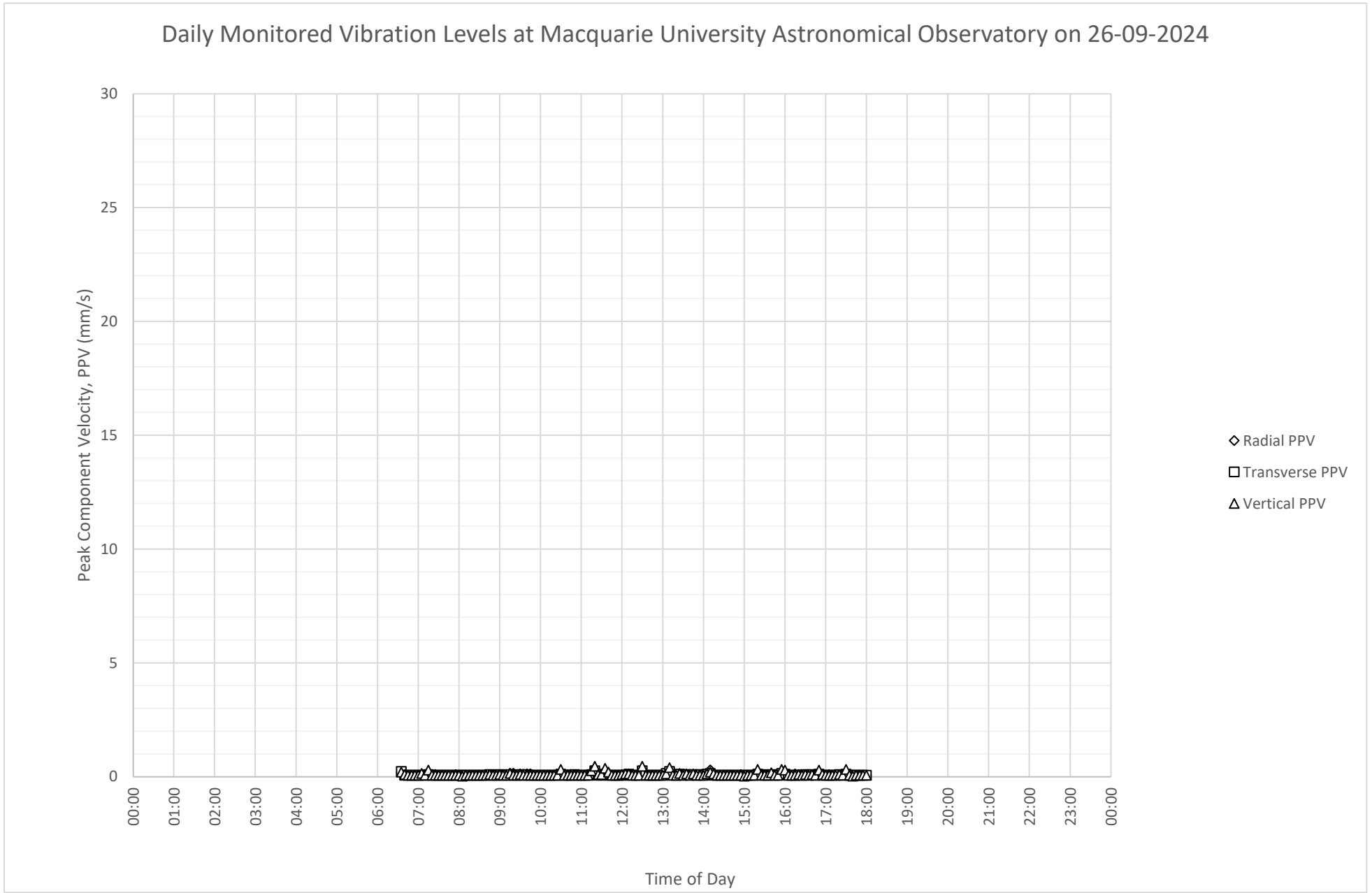

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 23-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .50
Max Vy= .83
Max Vz= .37
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

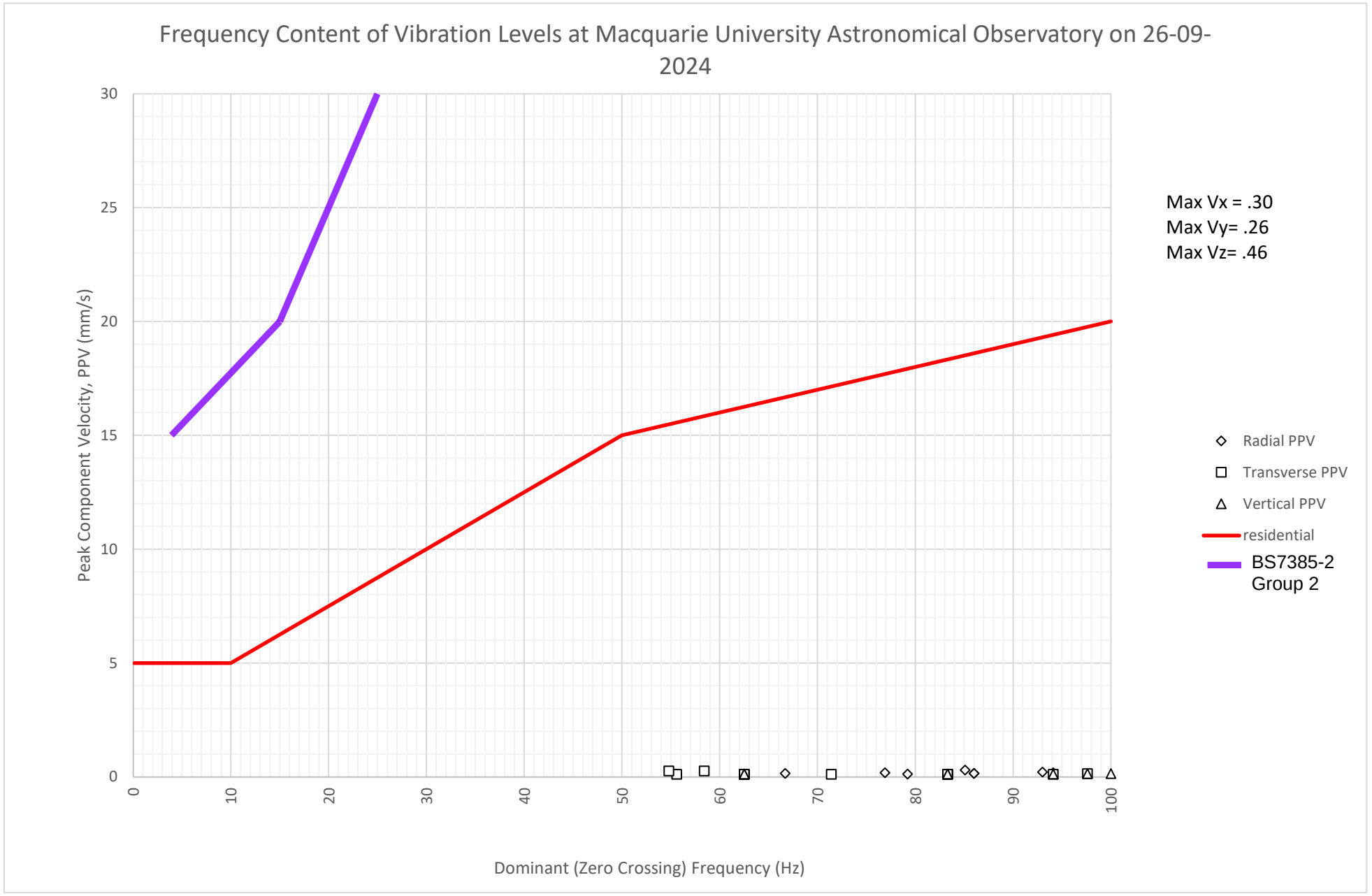

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 24-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

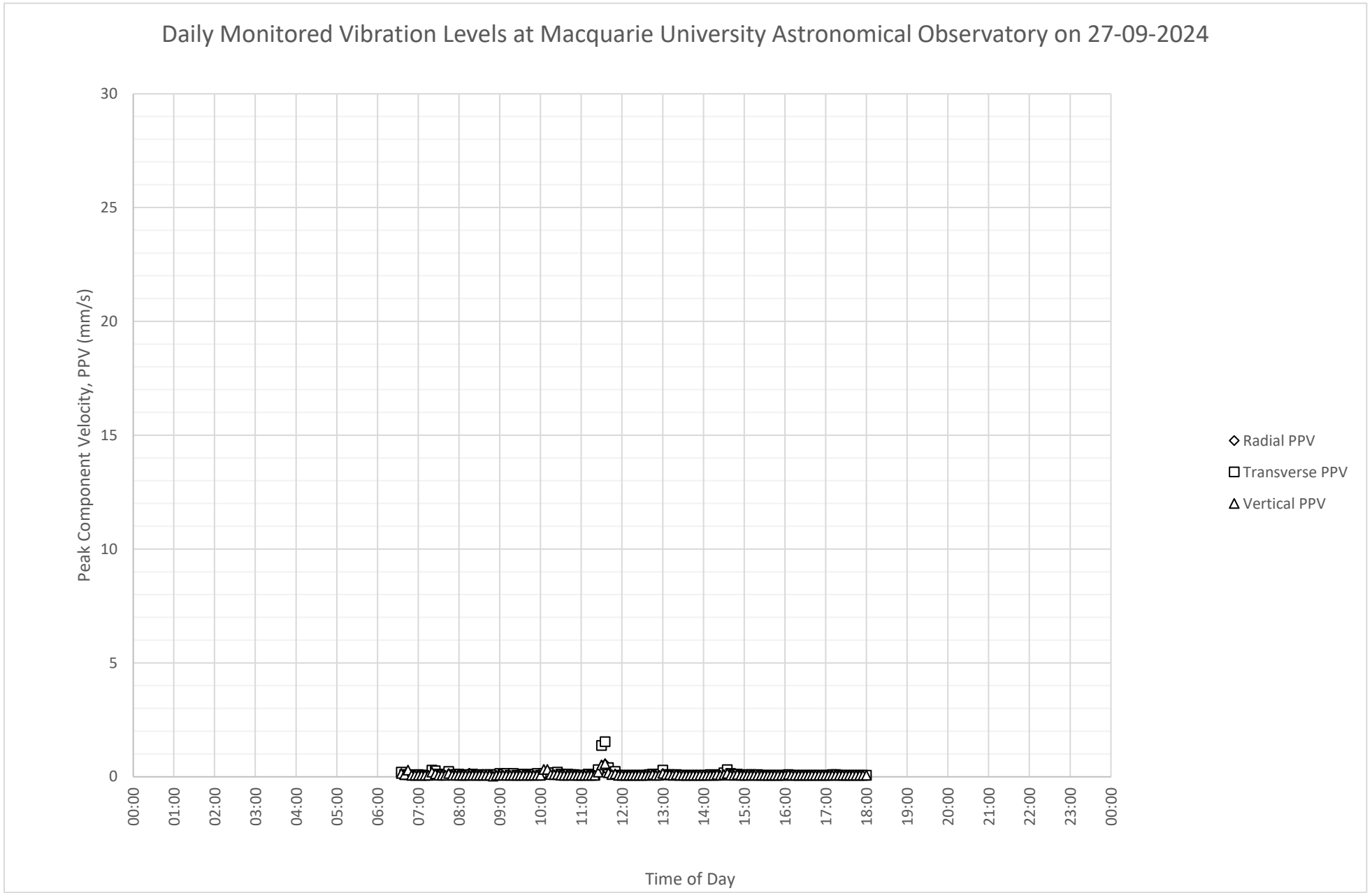

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 24-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .30
Max Vy= .37
Max Vz= .23
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

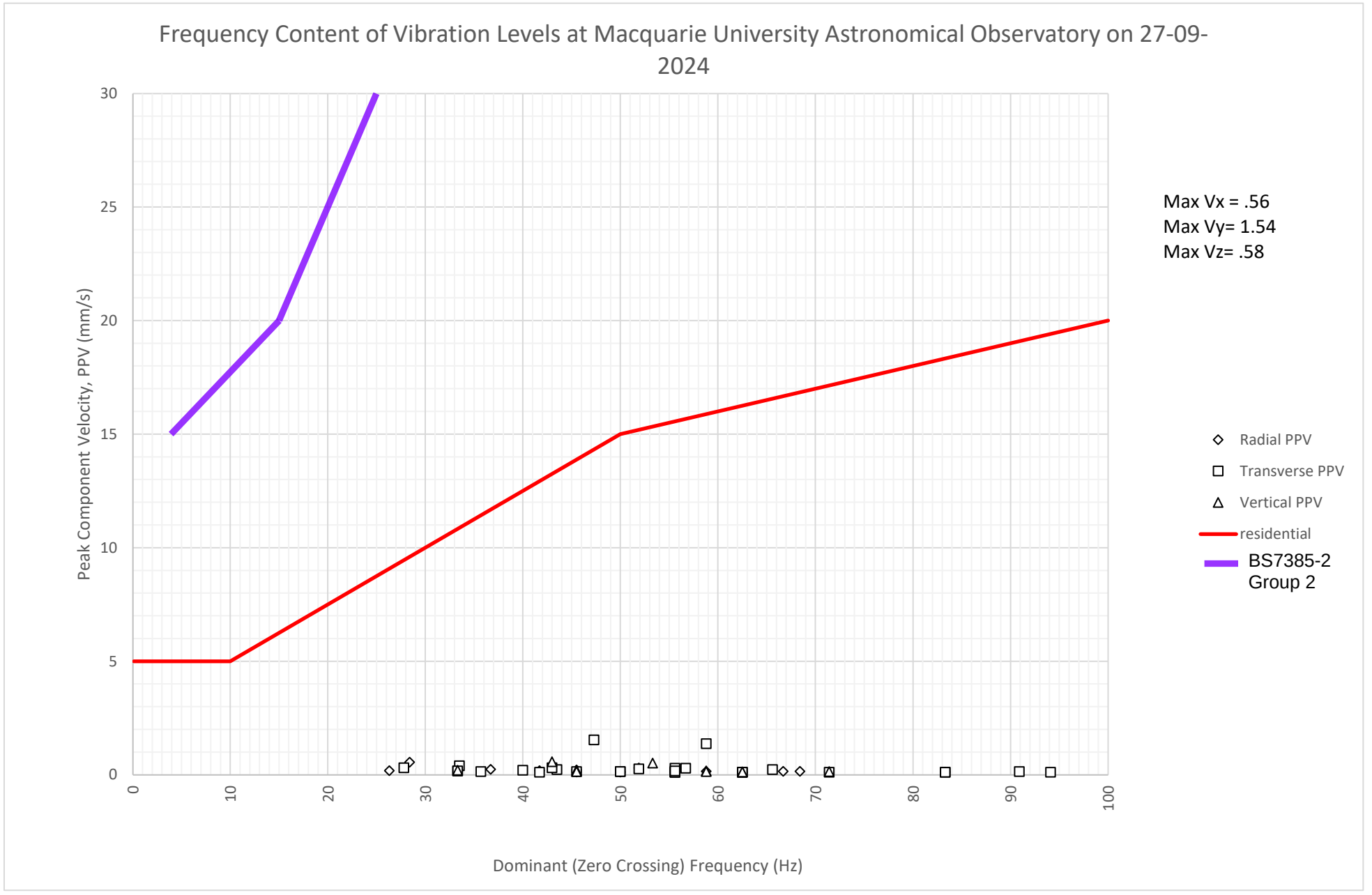

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 25-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

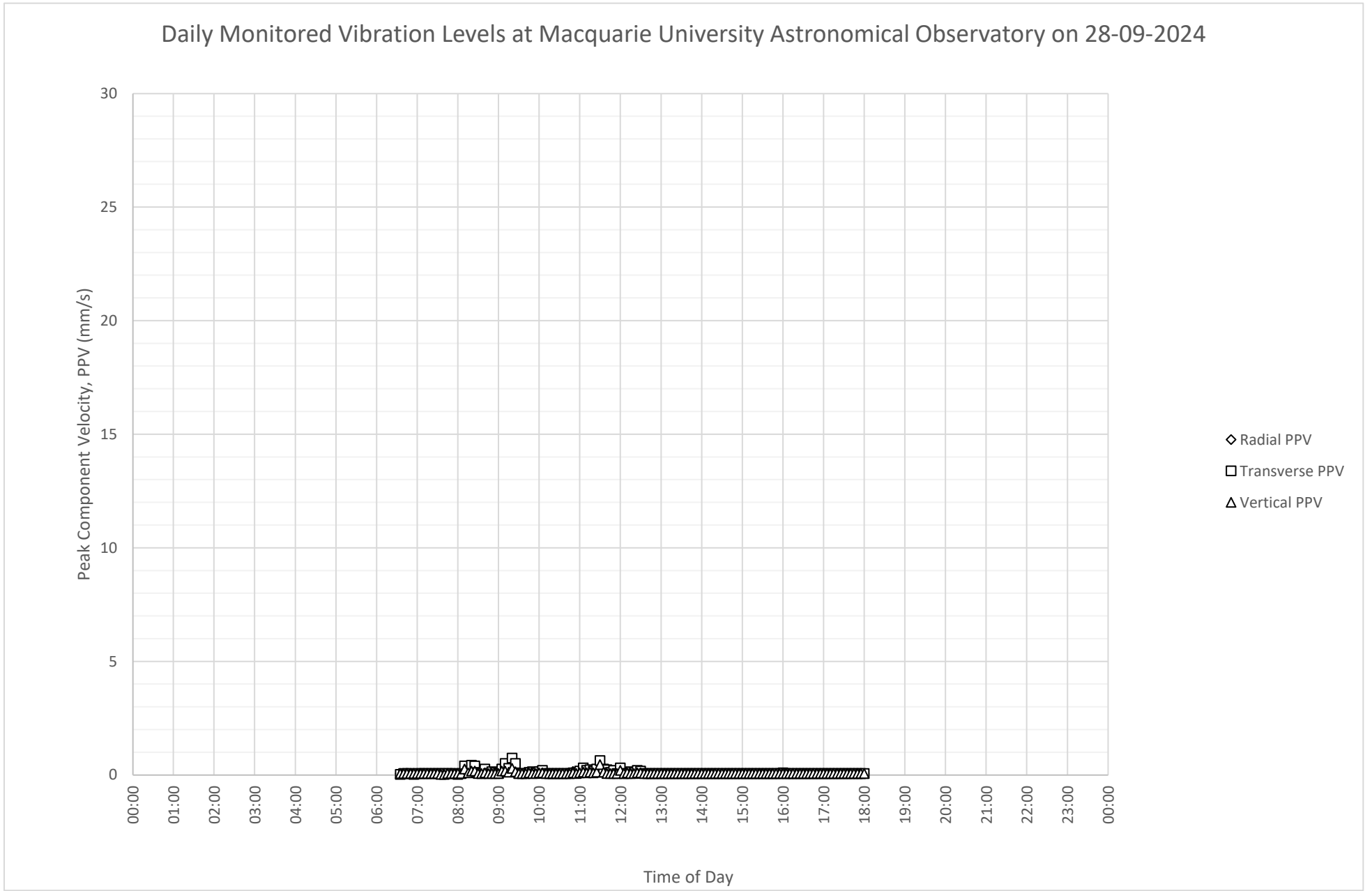

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 25-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = 1.01
Max Vy= 1.29
Max Vz= .84
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

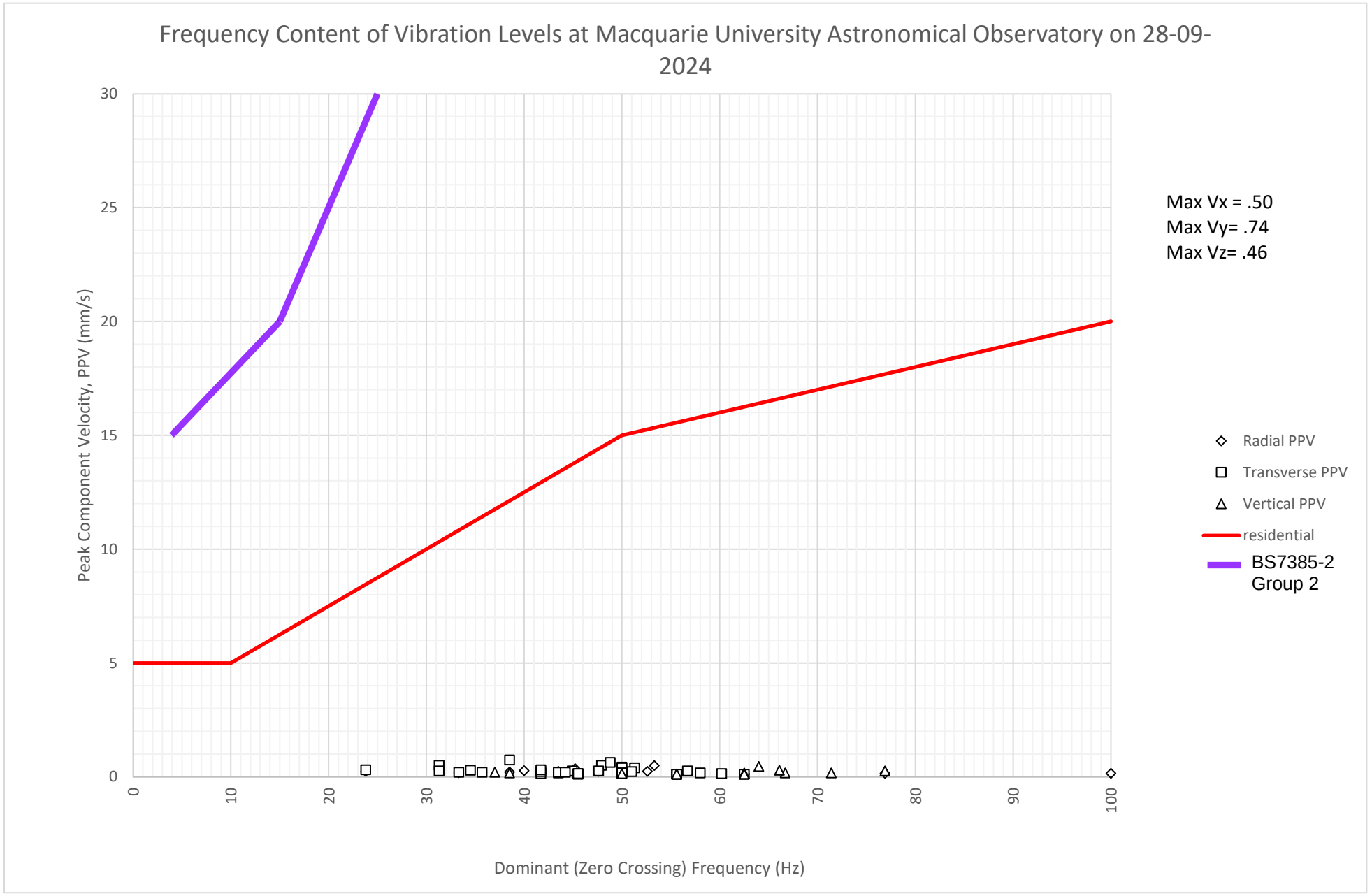

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 26-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

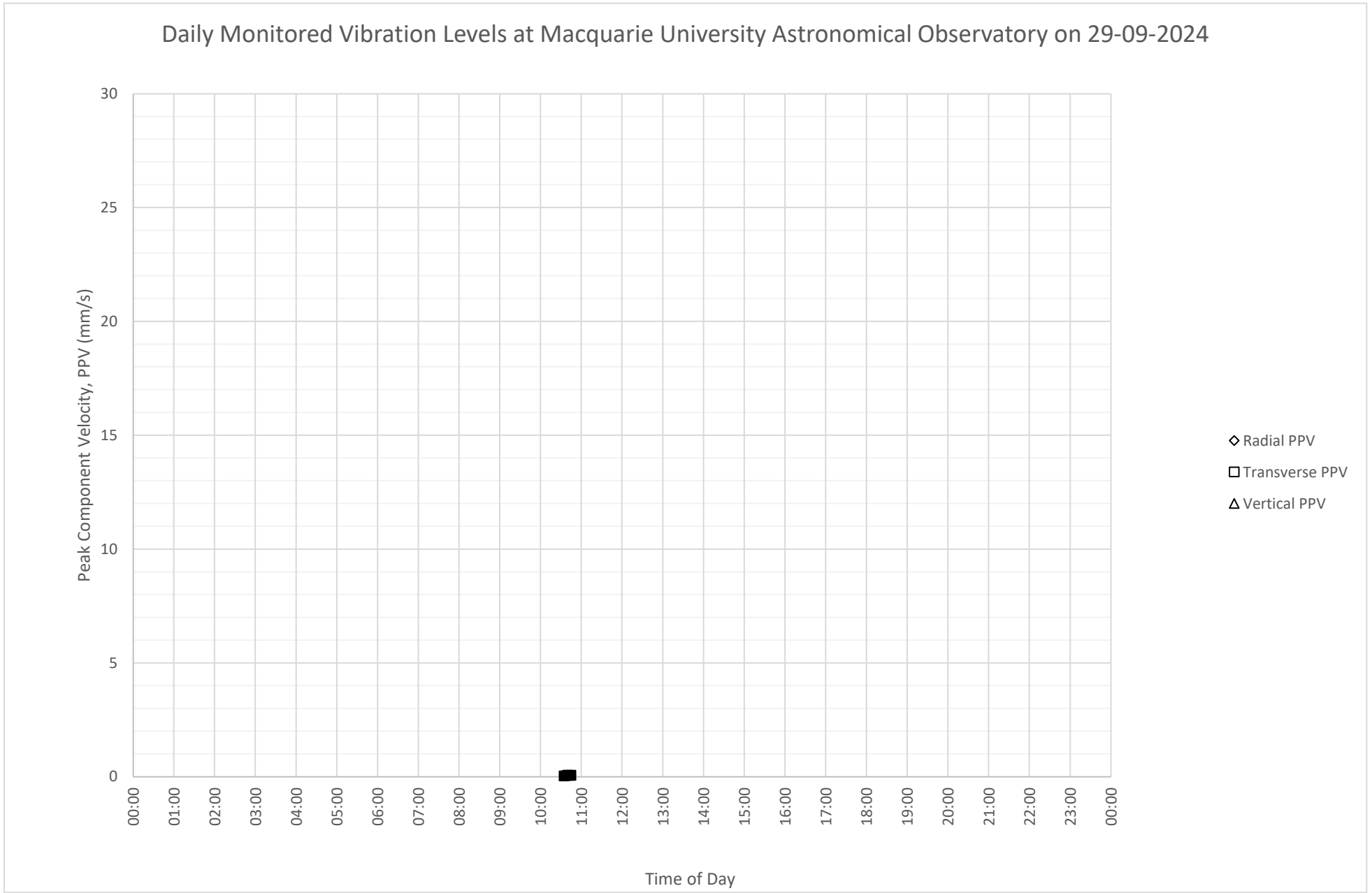

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 26-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .30
Max Vy= .26
Max Vz= .46
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

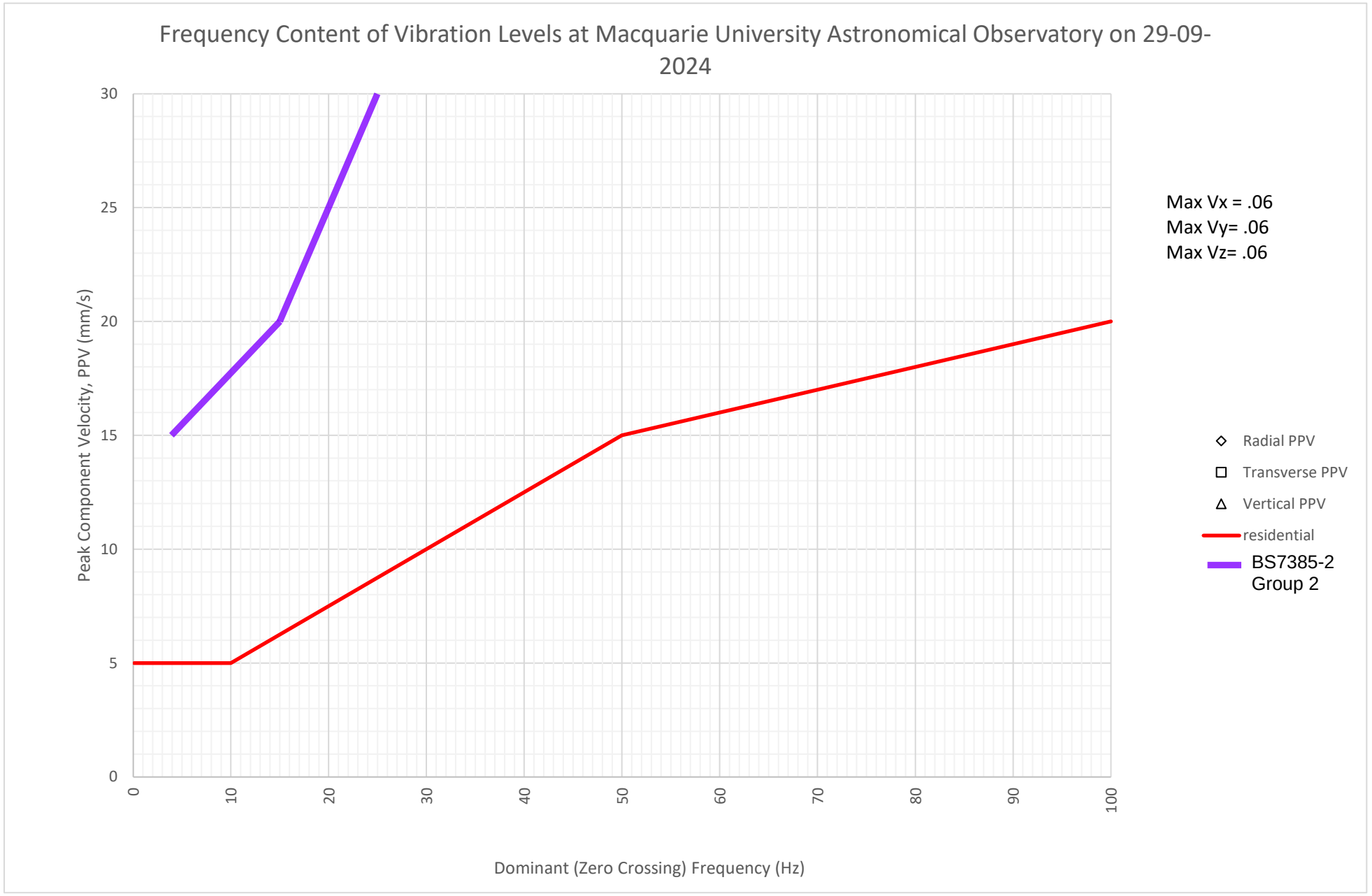

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 27-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

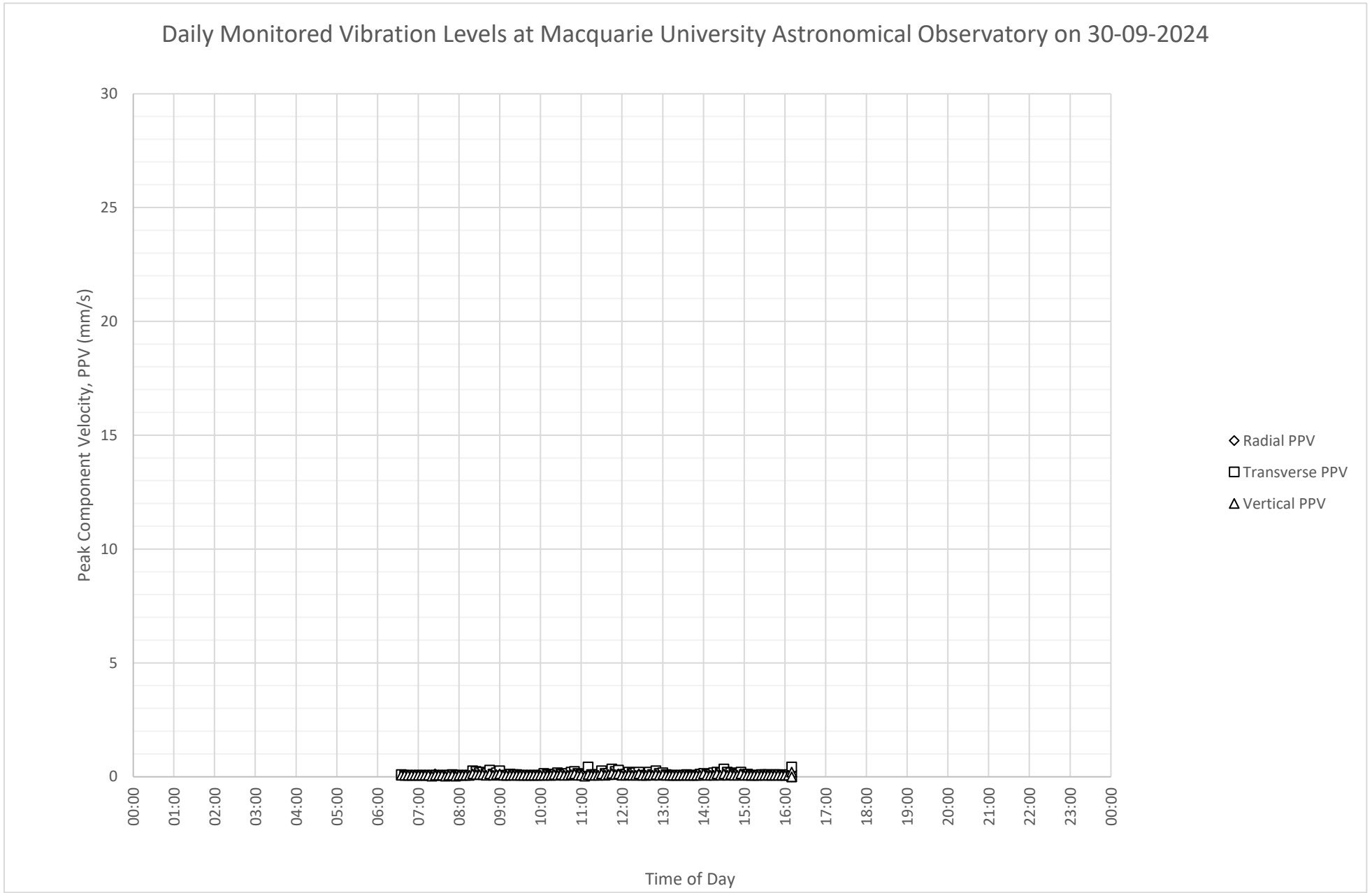

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 27-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .56
Max Vy= 1.54
Max Vz= .58
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

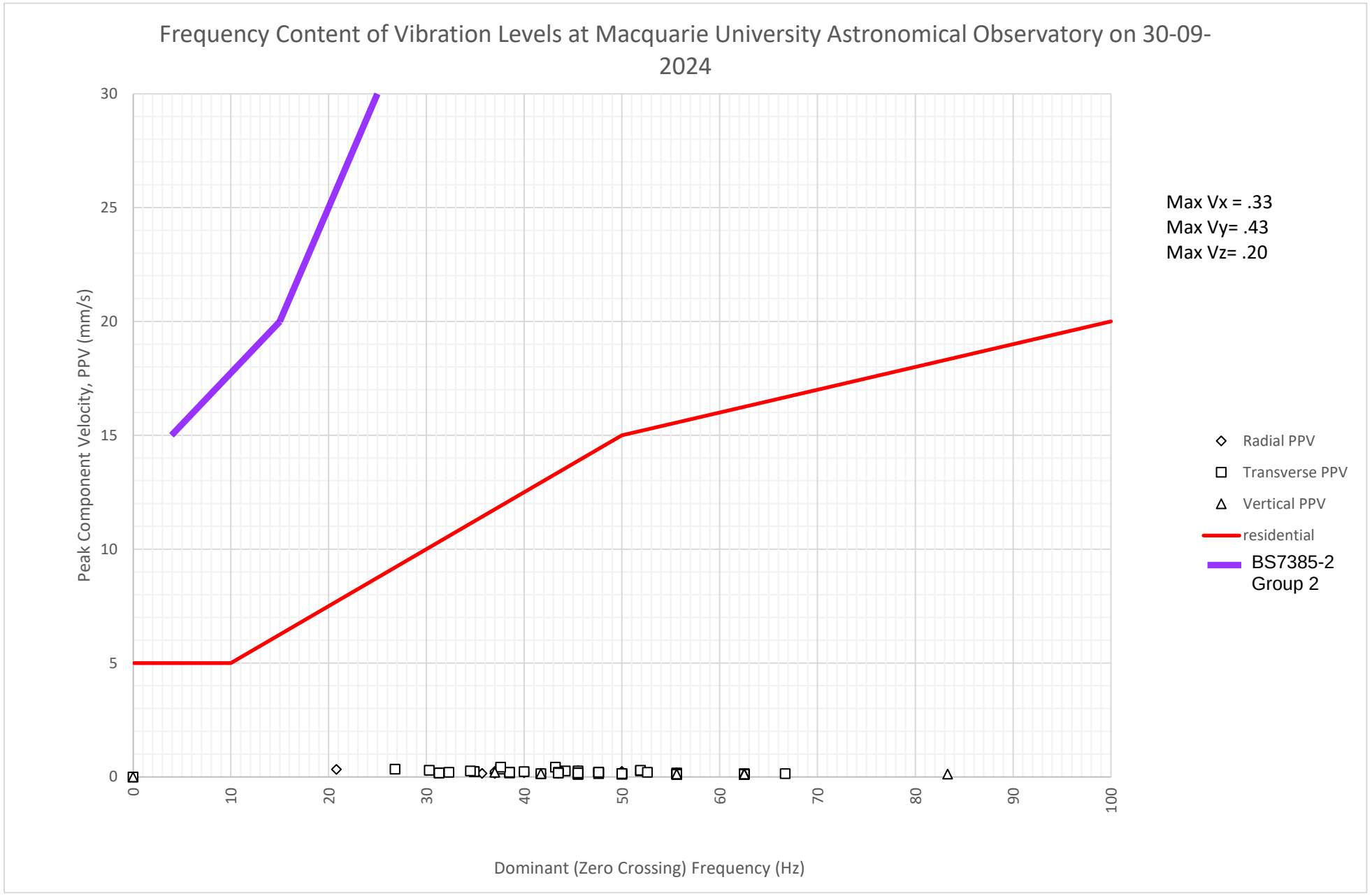

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 28-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 28-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .50
Max Vy= .74
Max Vz= .46
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

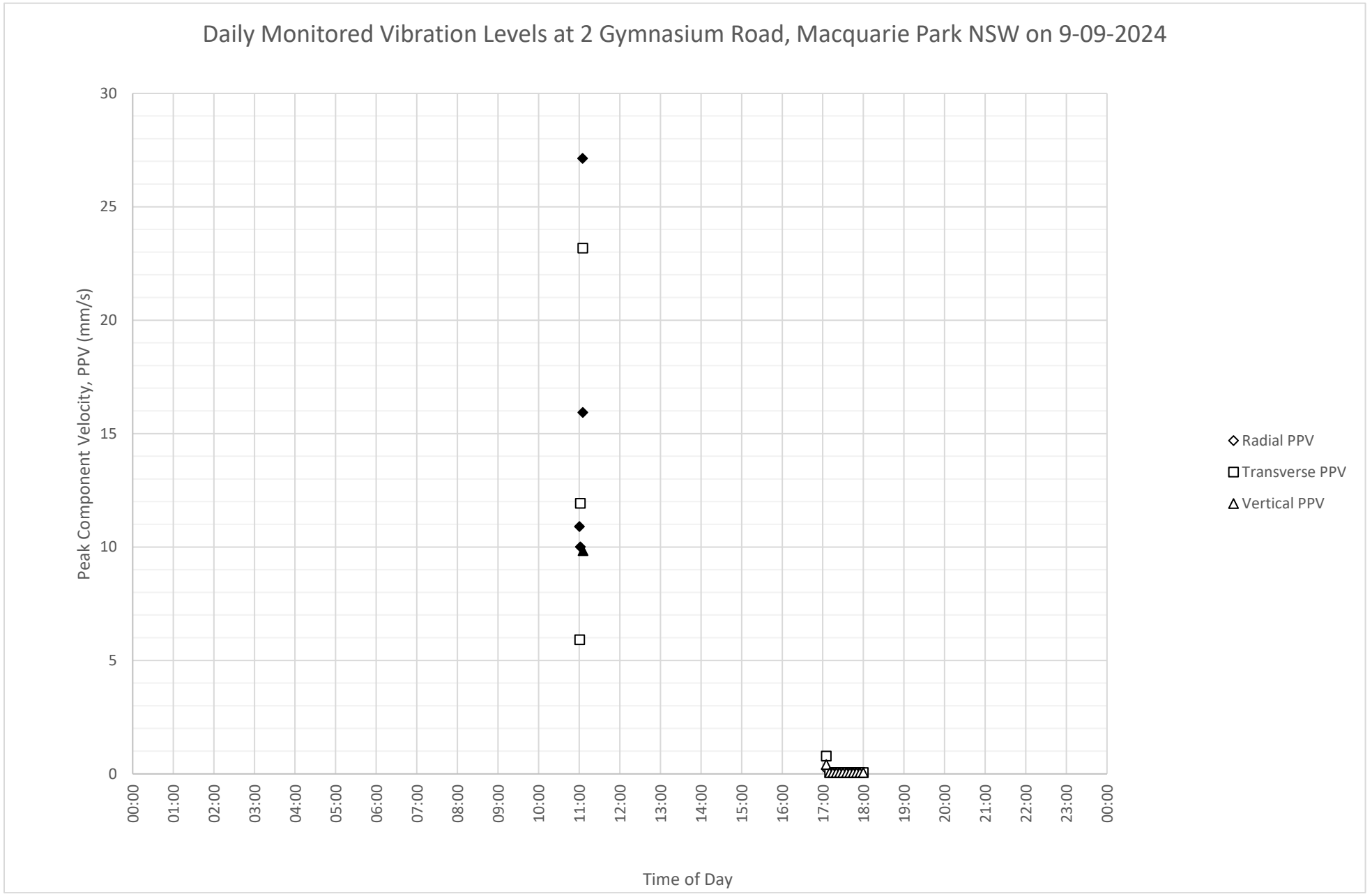

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 29-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

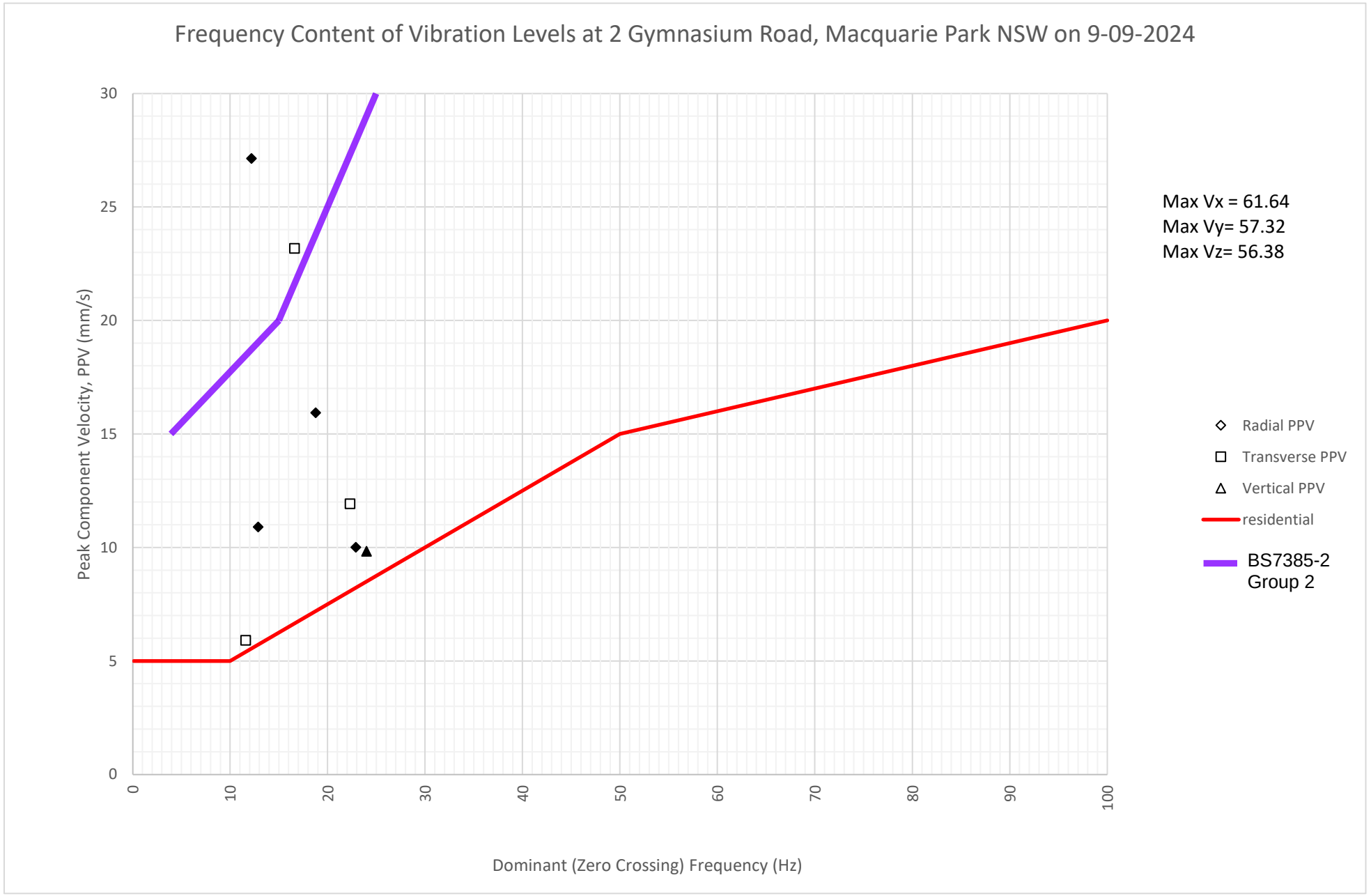

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 29-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .06
Max Vy= .06
Max Vz= .06
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

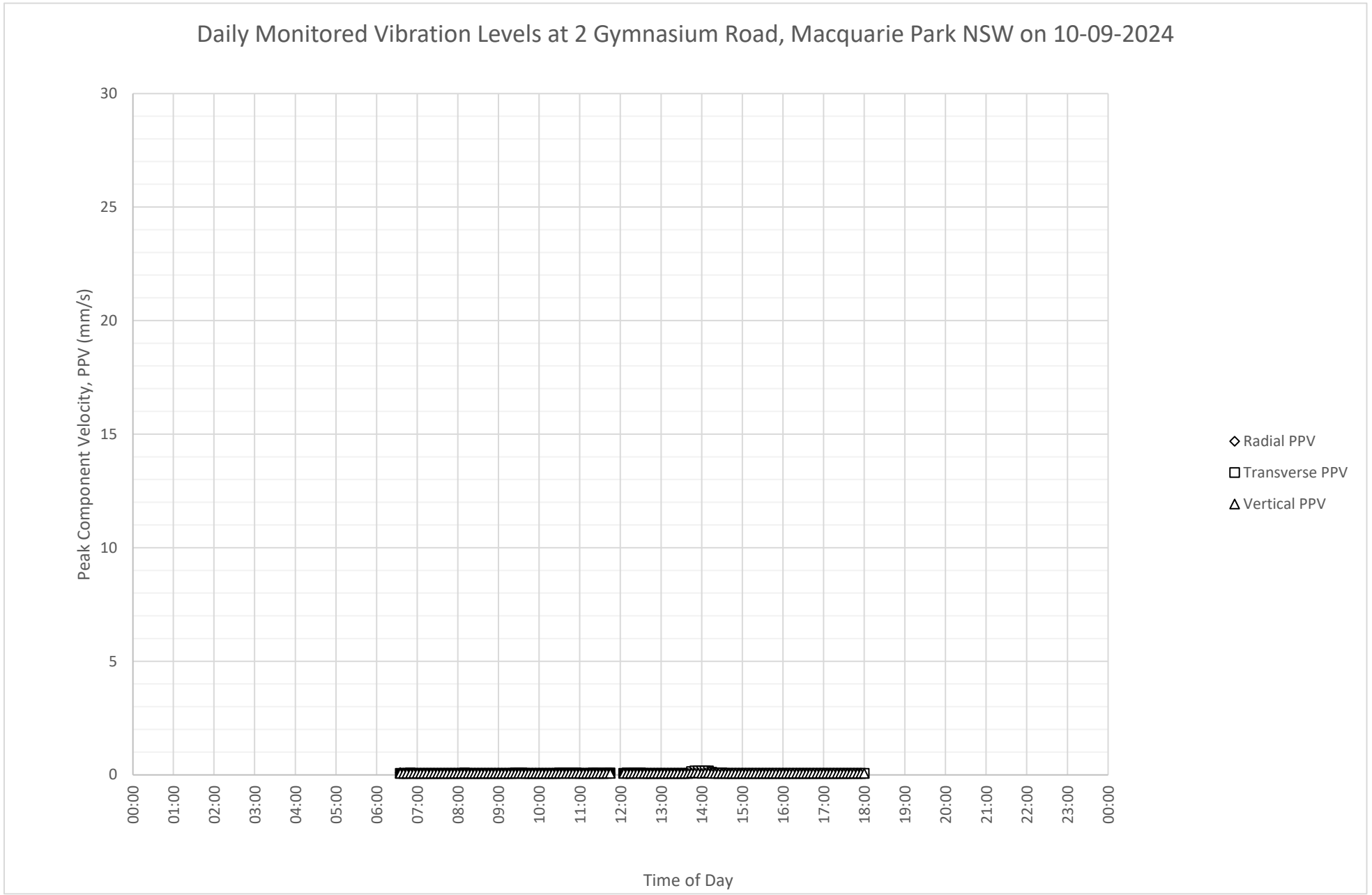

Daily Monitored Vibration Levels at Macquarie University Astronomical Observatory on 30-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

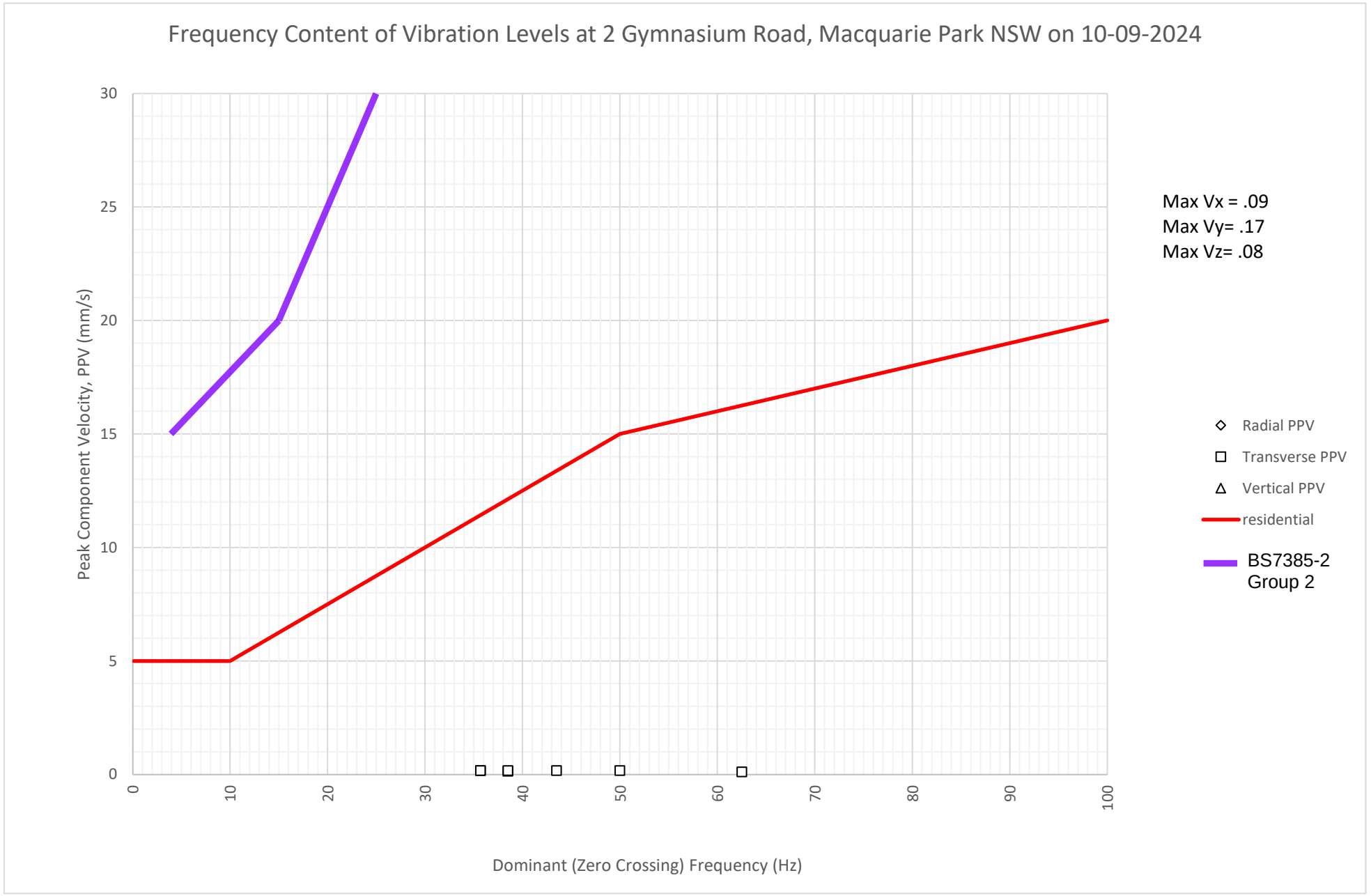

Frequency Content of Vibration Levels at Macquarie University Astronomical Observatory on 30-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .33
Max Vy= .43
Max Vz= .20
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2 Group 2

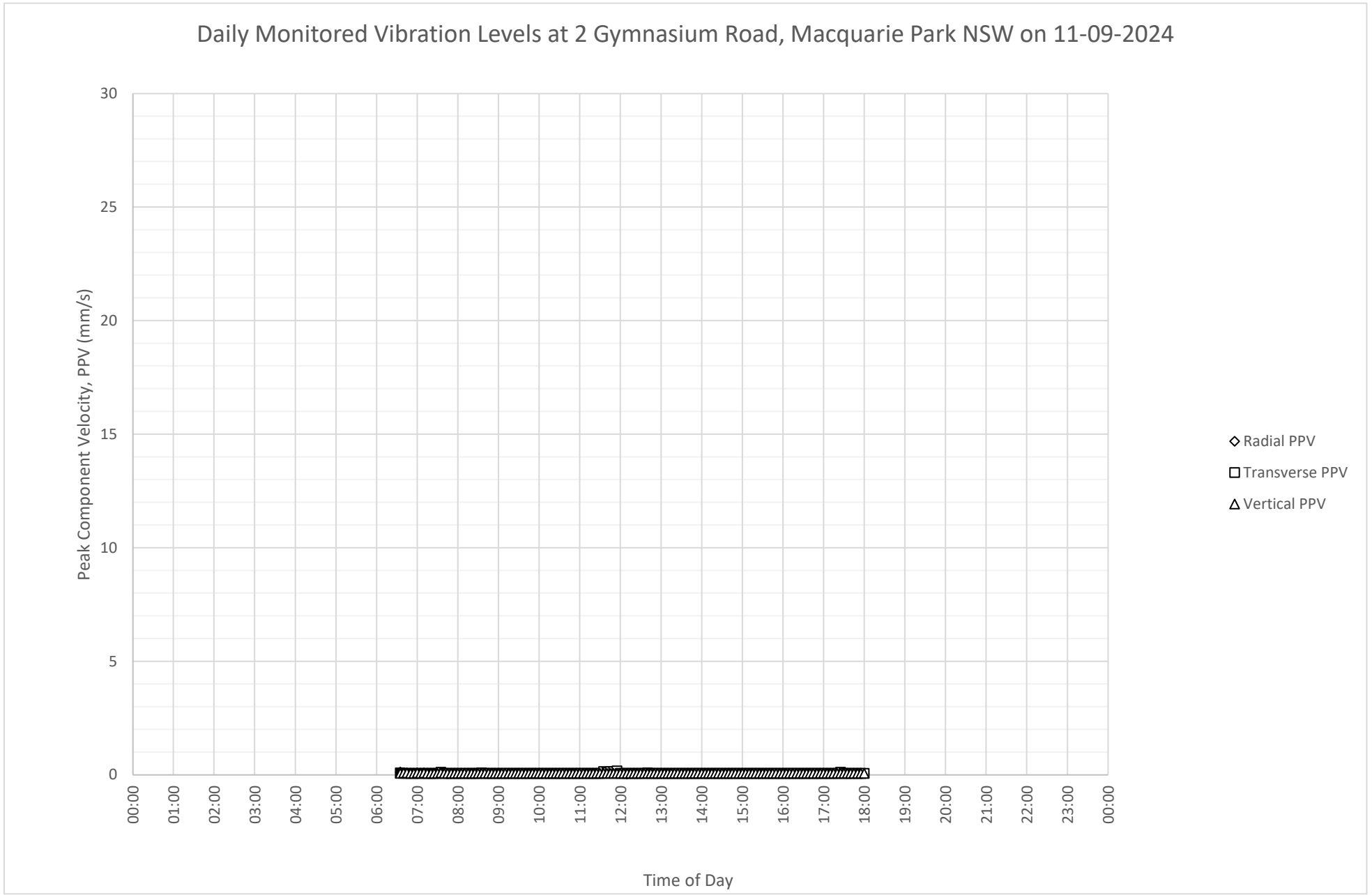
M7901 (GL, SOUTH-WERT OF THE SITE)

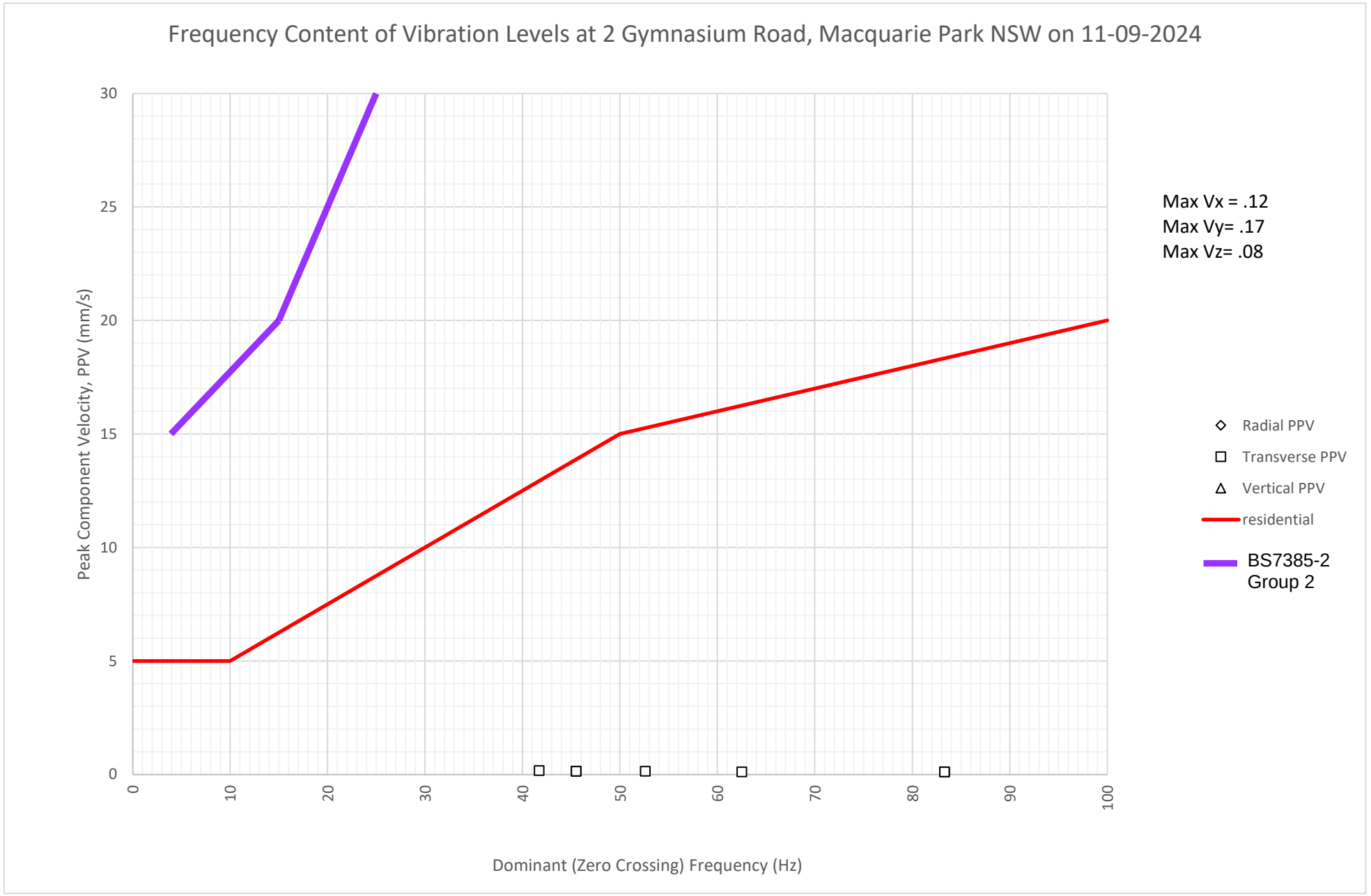

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 9-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

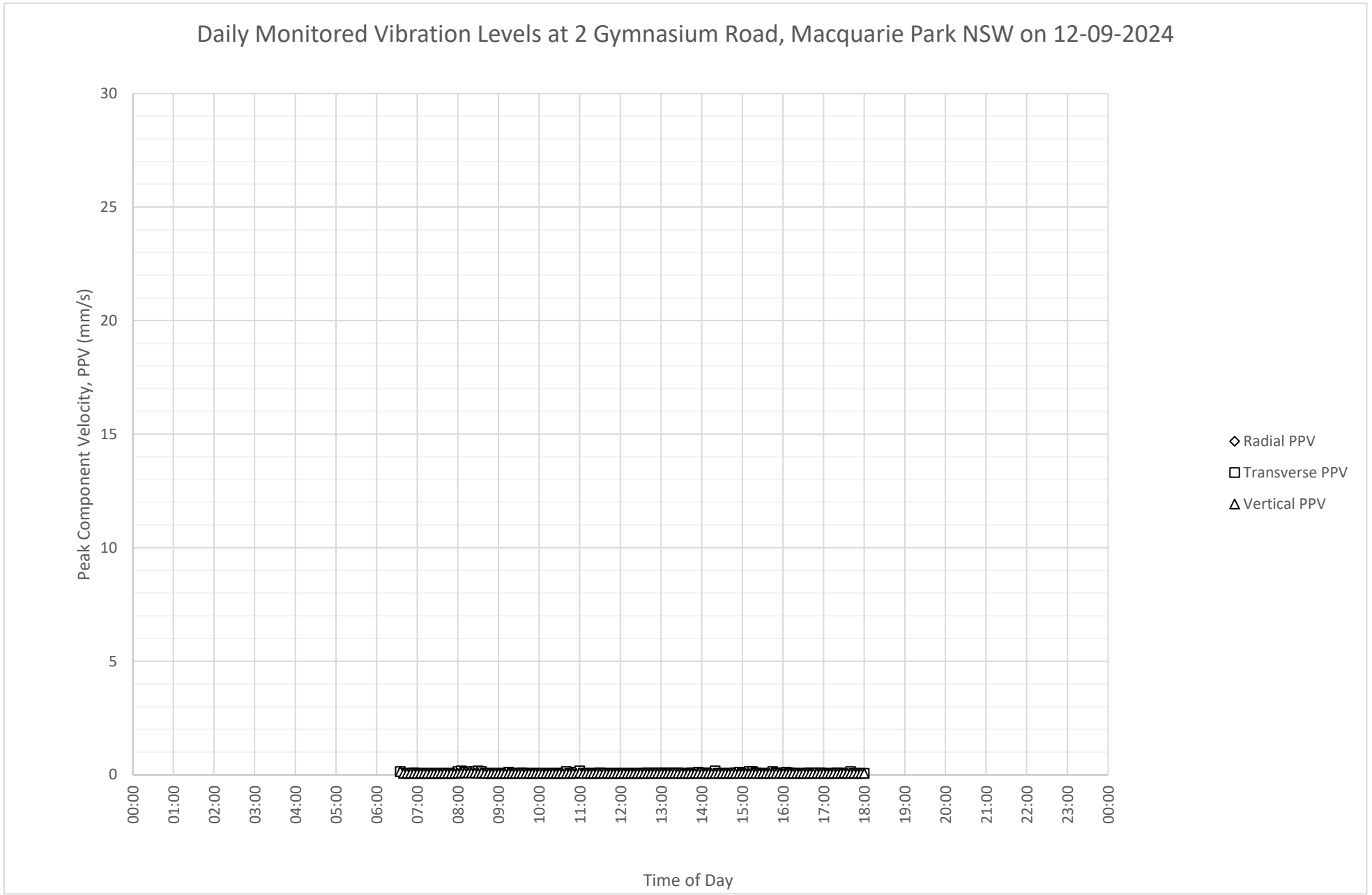

Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 9-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = 61.64
Max Vy= 57.32
Max Vz= 56.38
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2

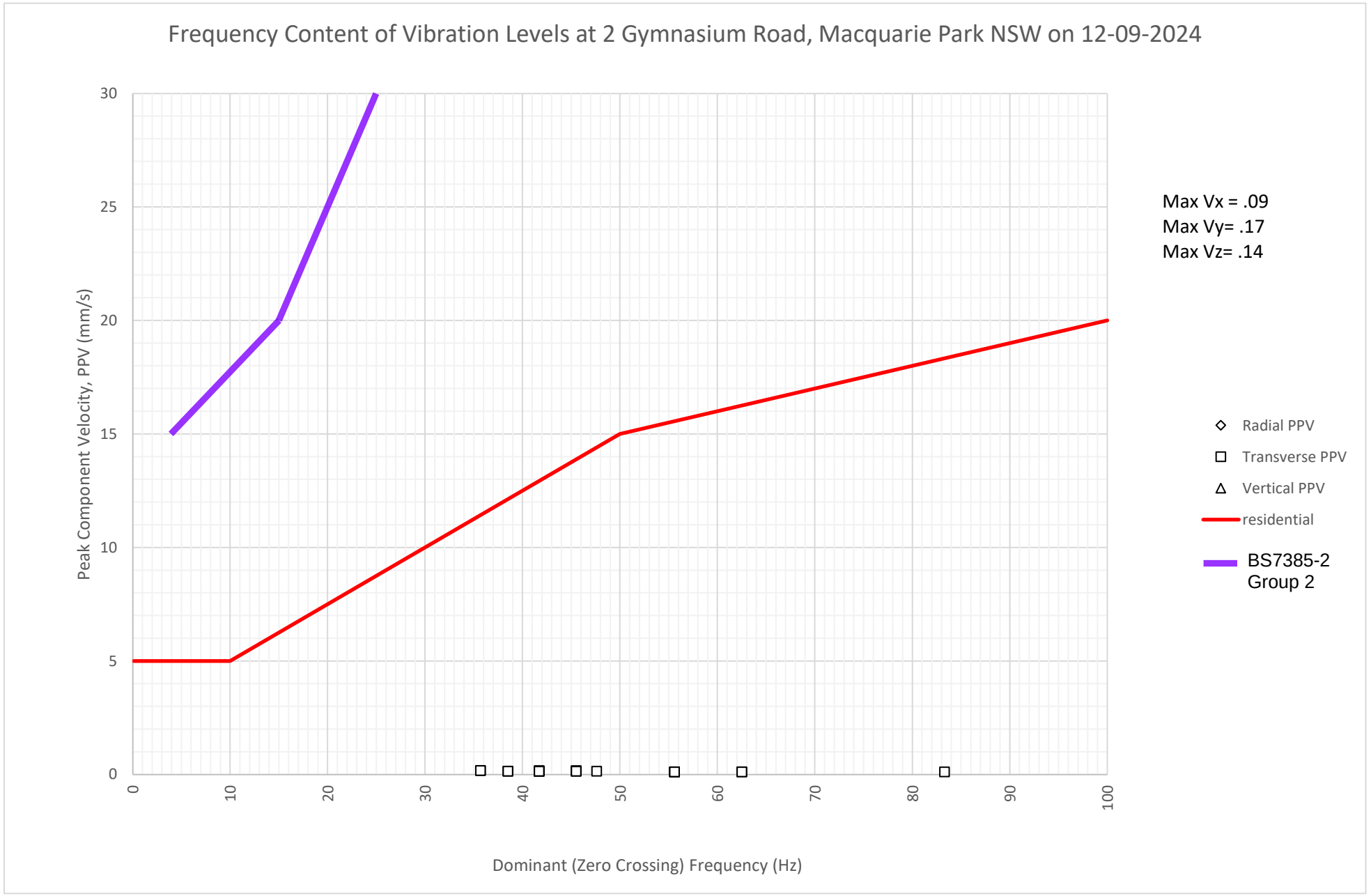

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 10-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

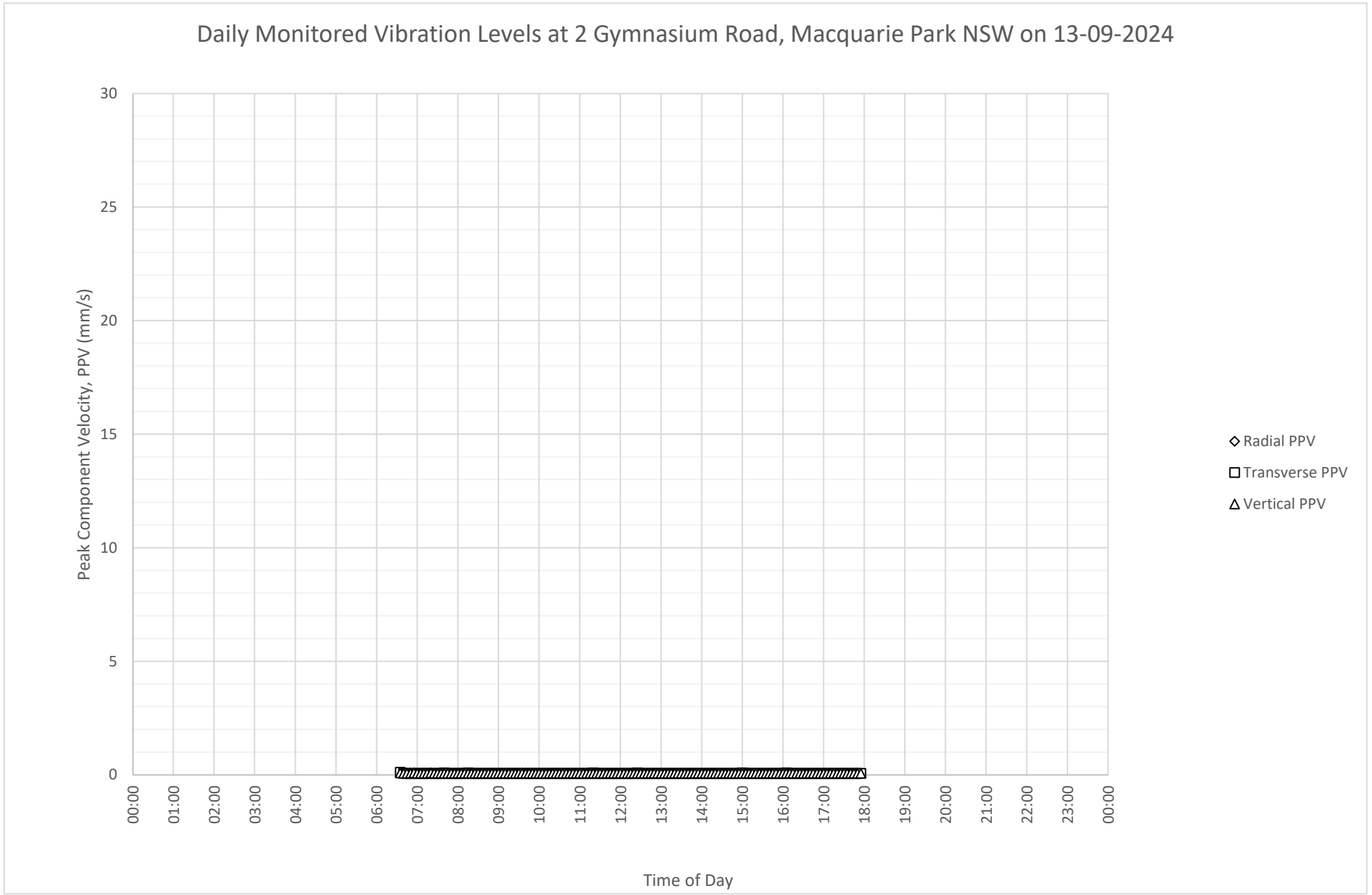

Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 10-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .09
Max Vy= .17
Max Vz= .08
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2

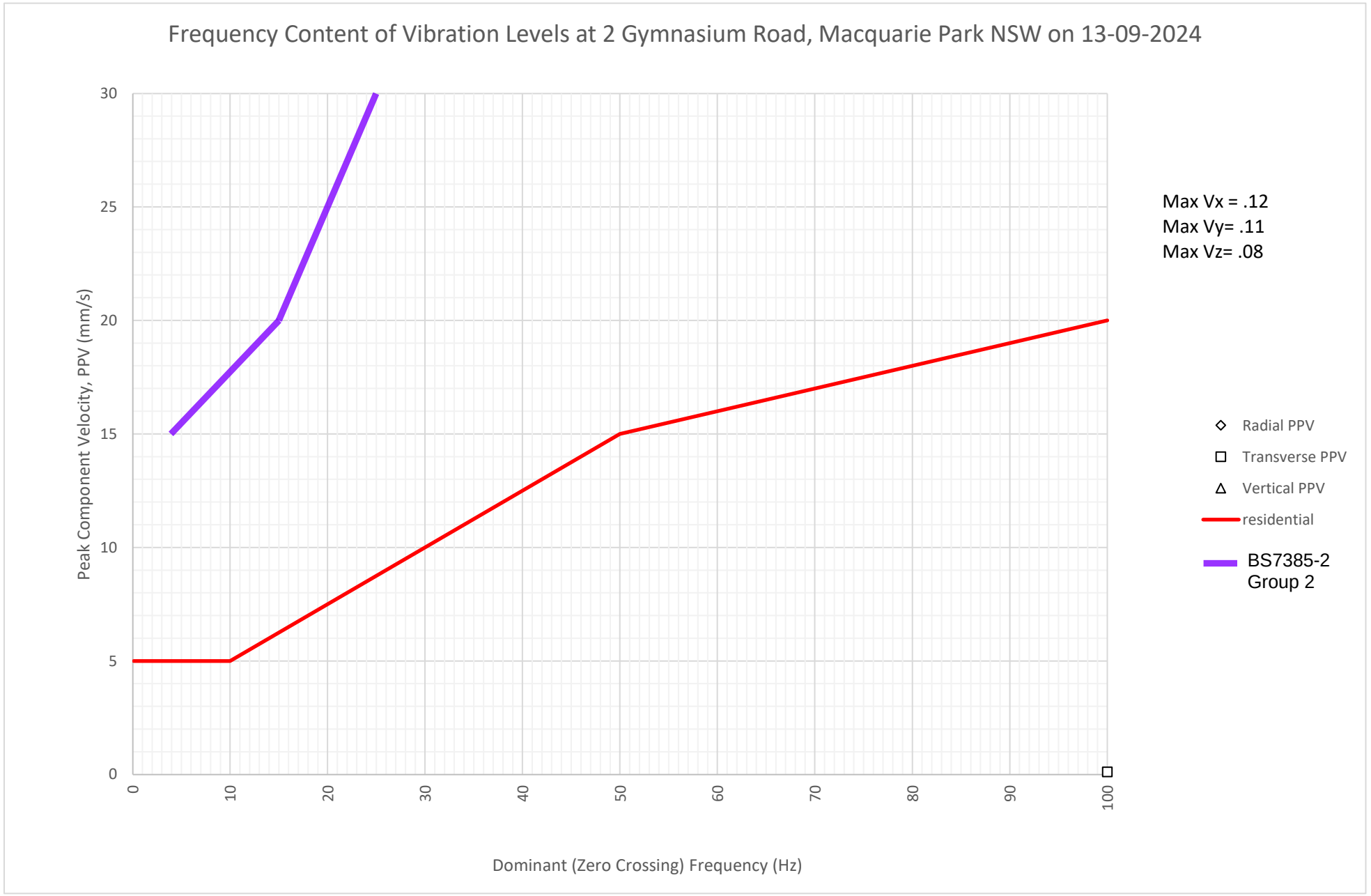

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 11-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

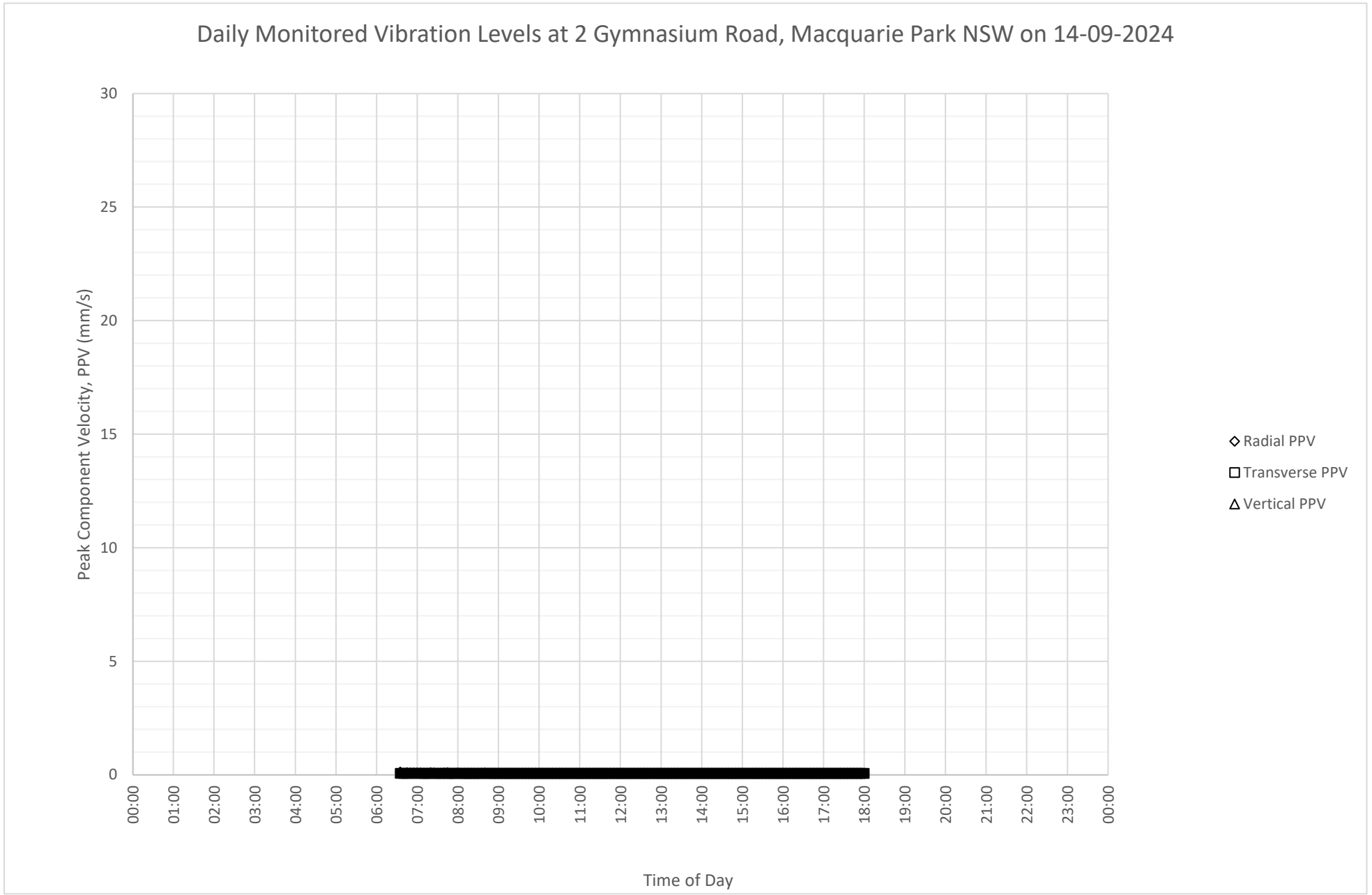

Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 11-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .12
Max Vy= .17
Max Vz= .08
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2

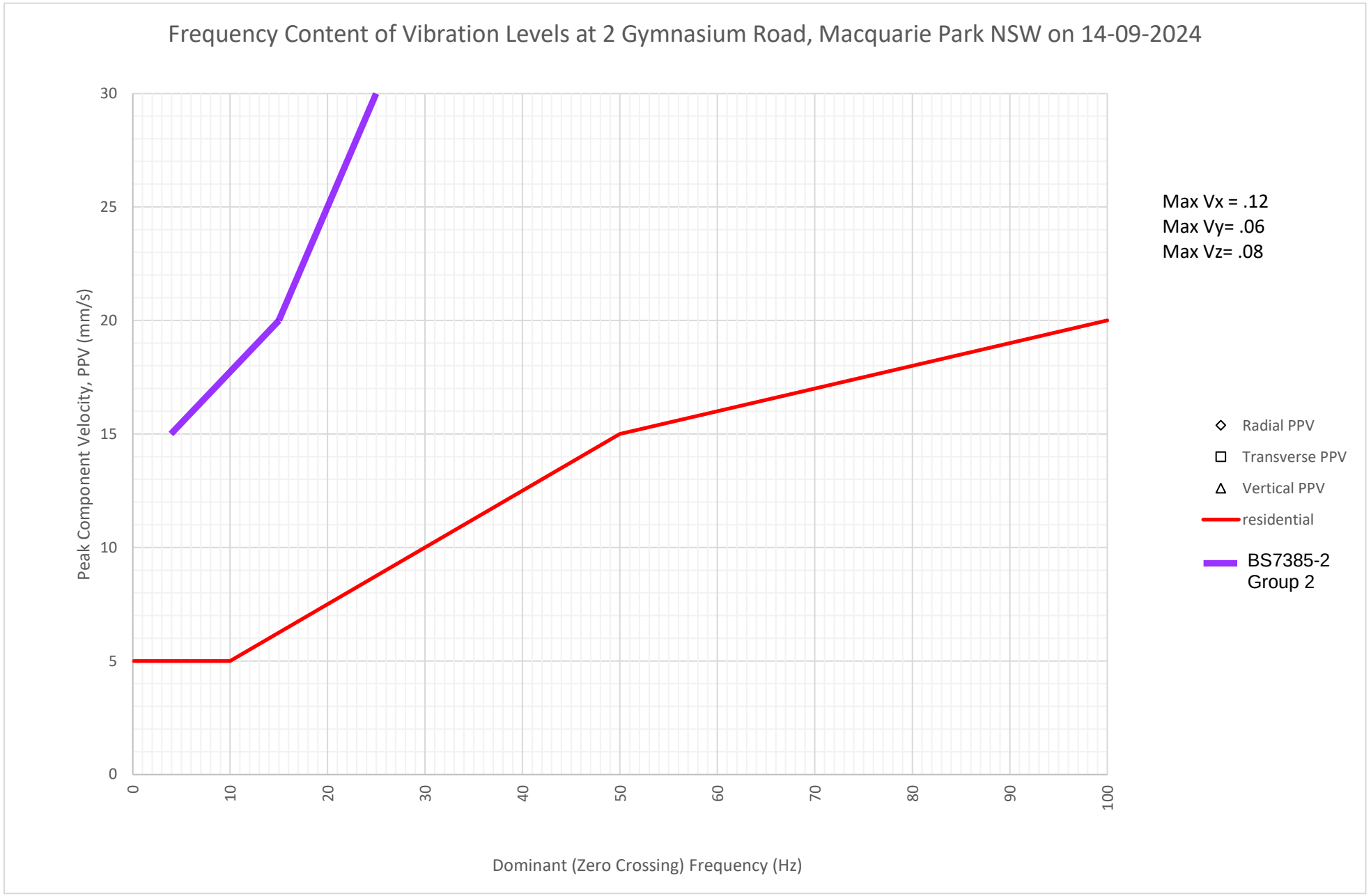

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 12-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

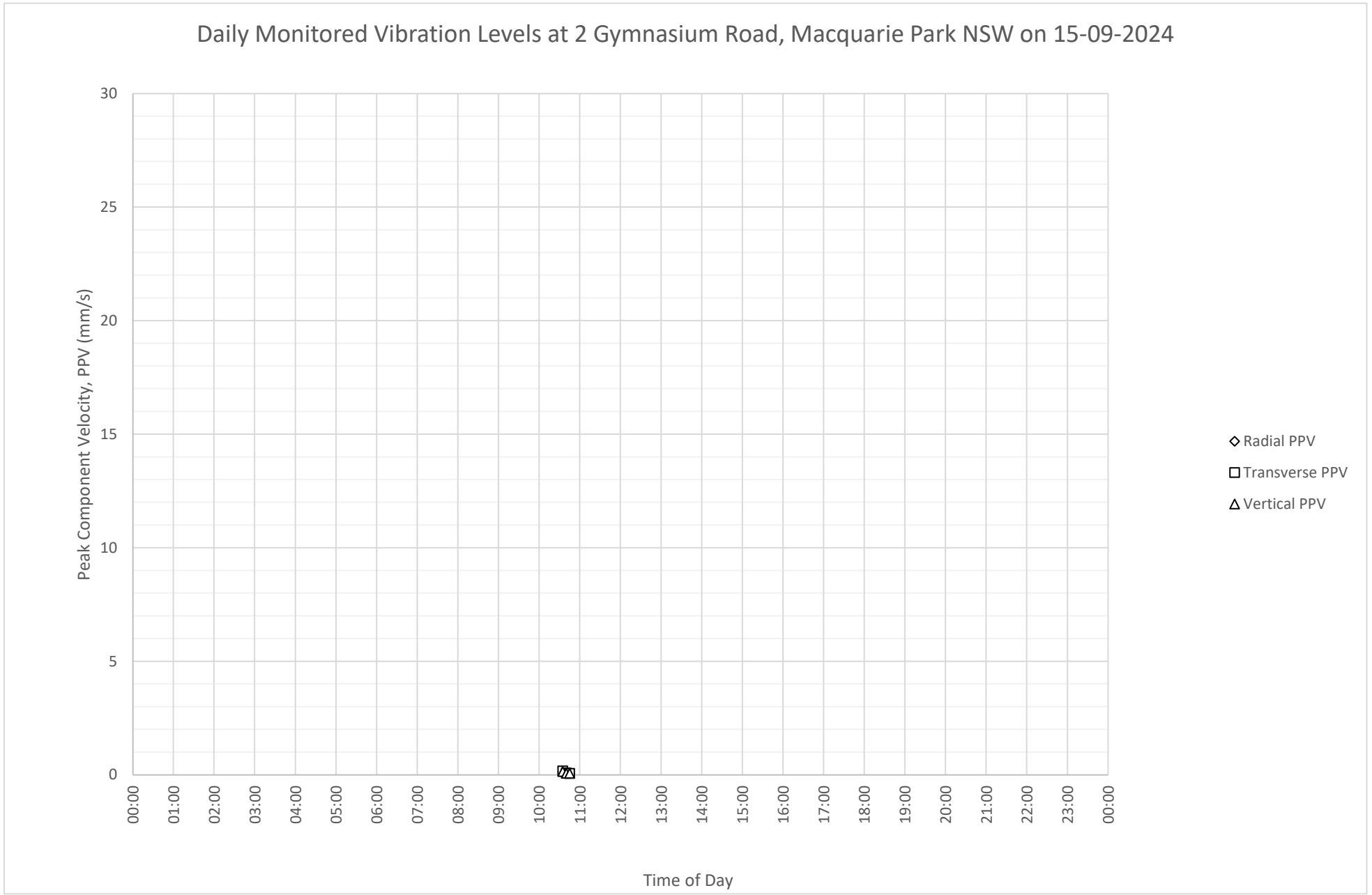

Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 12-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .09
Max Vy= .17
Max Vz= .14
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2

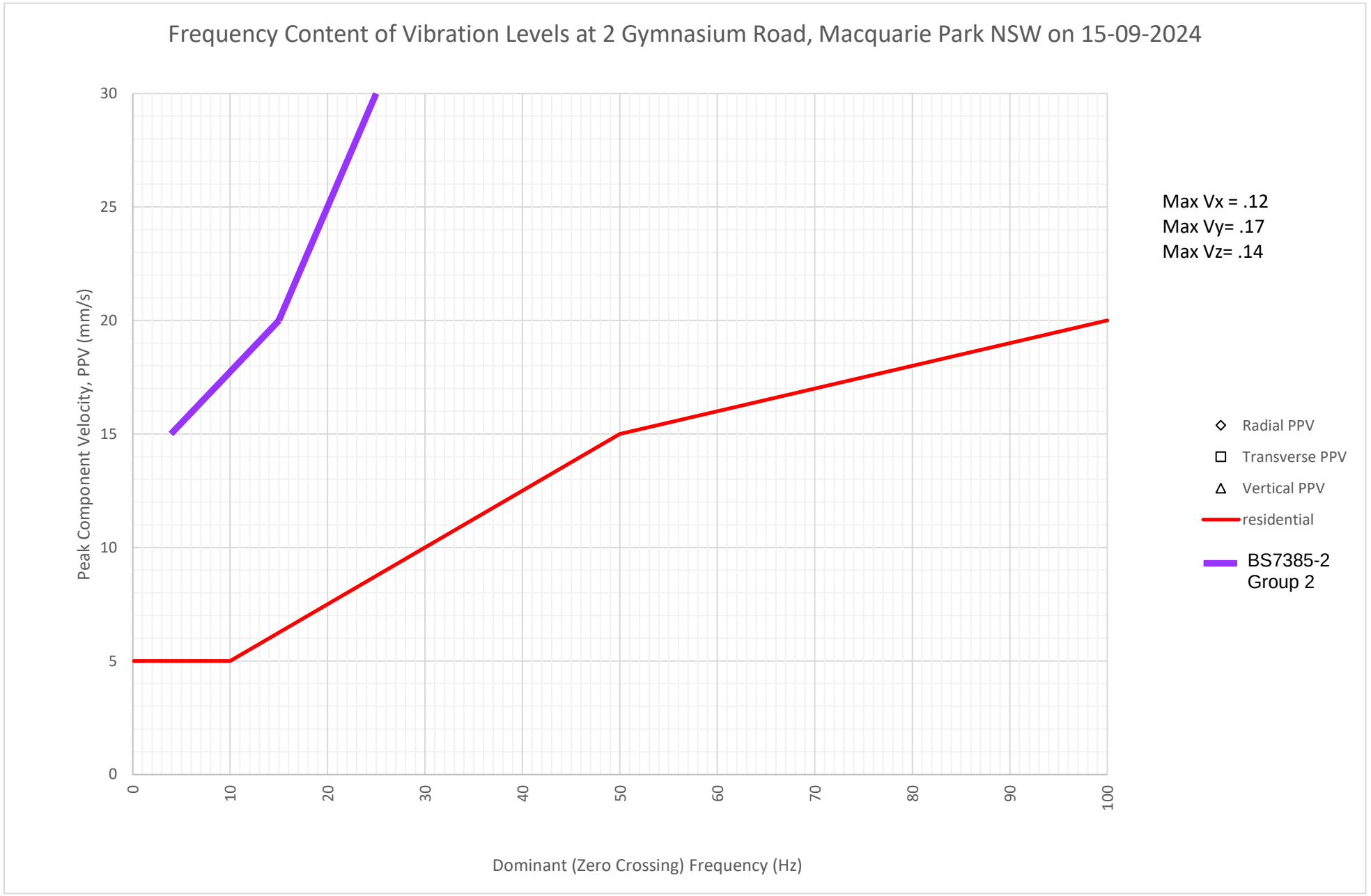

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 13-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

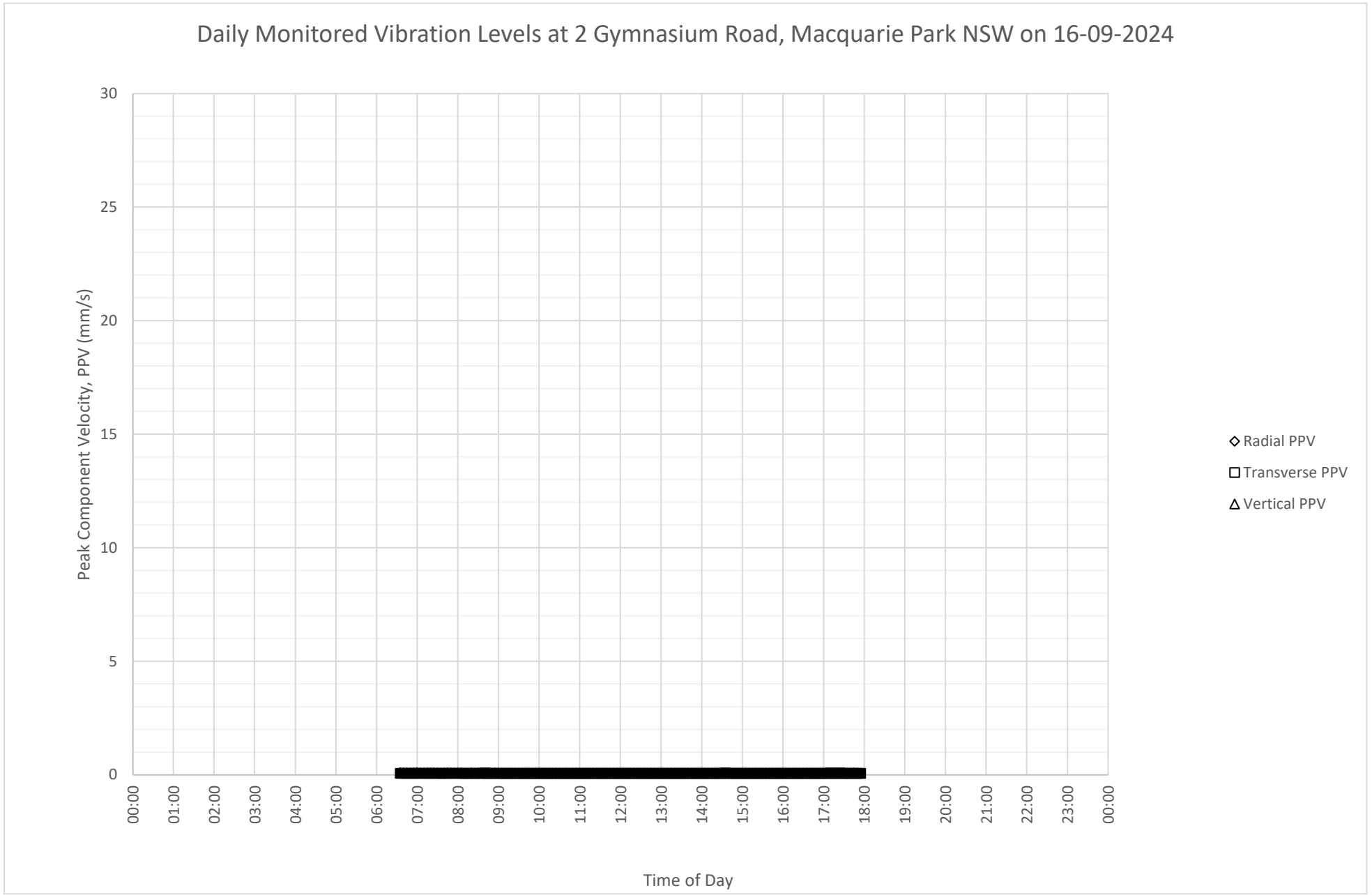

Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 13-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .12
Max Vy= .11
Max Vz= .08
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2

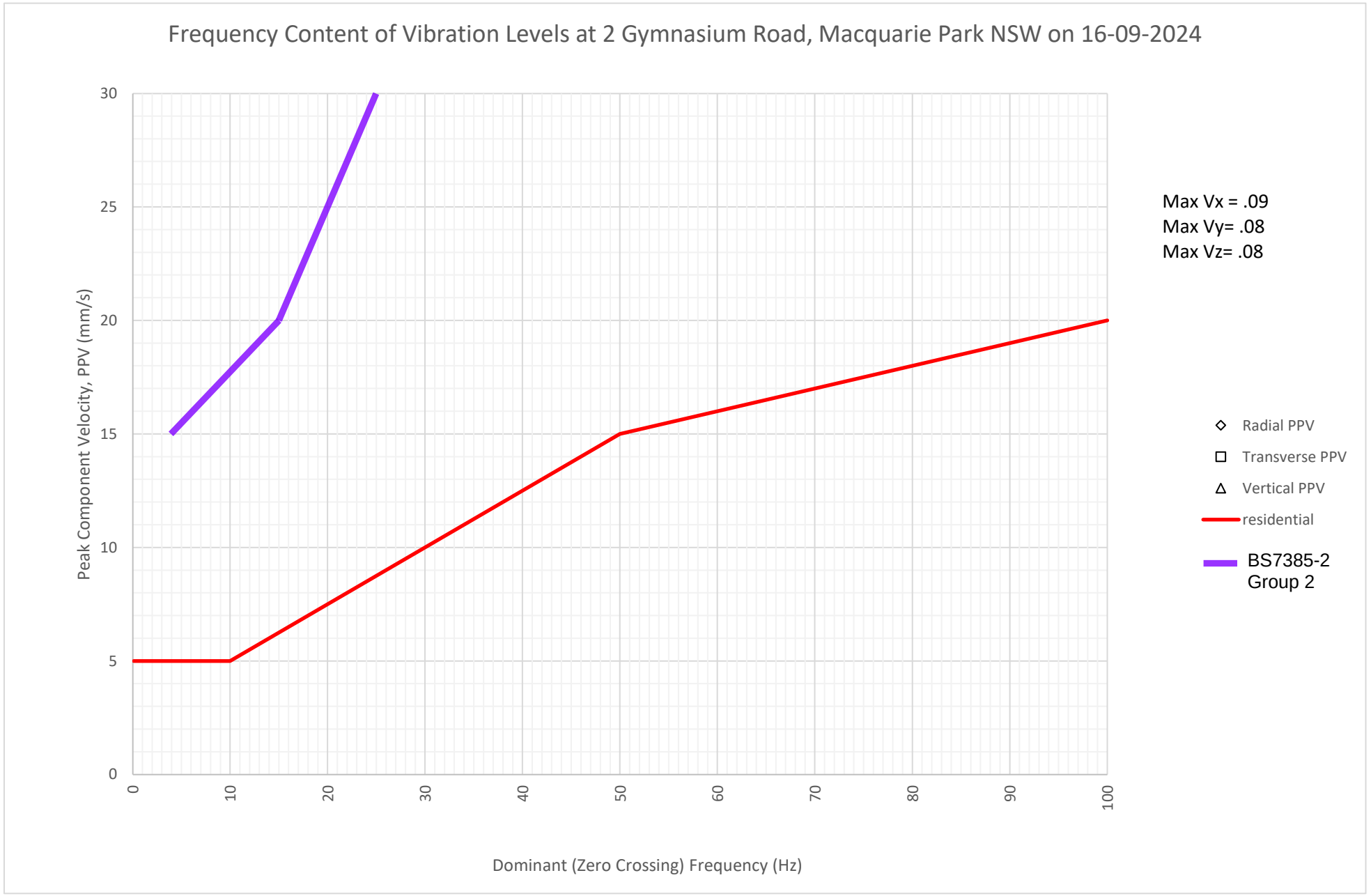

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 14-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

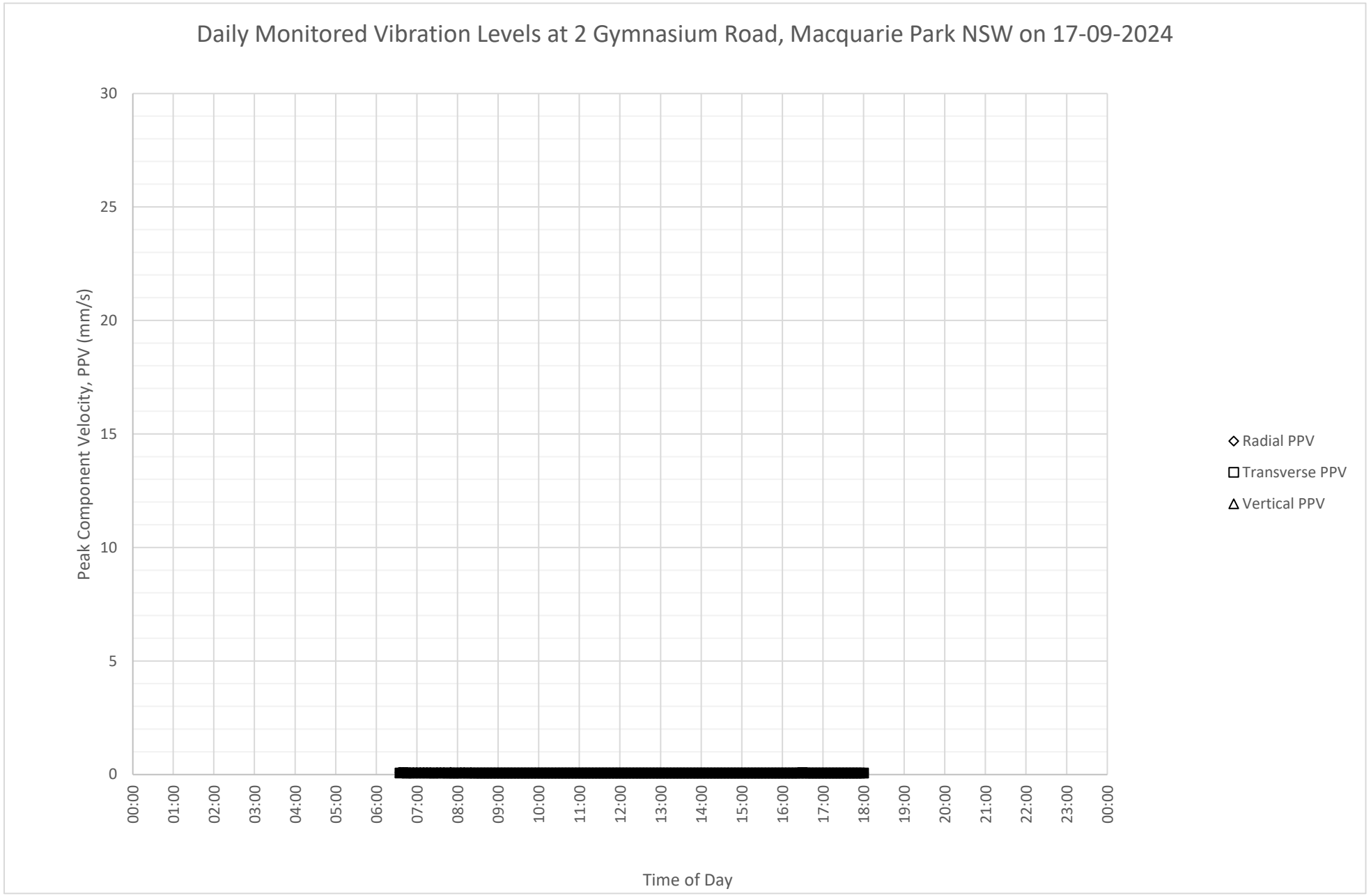

Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 14-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .12
Max Vy= .06
Max Vz= .08
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2

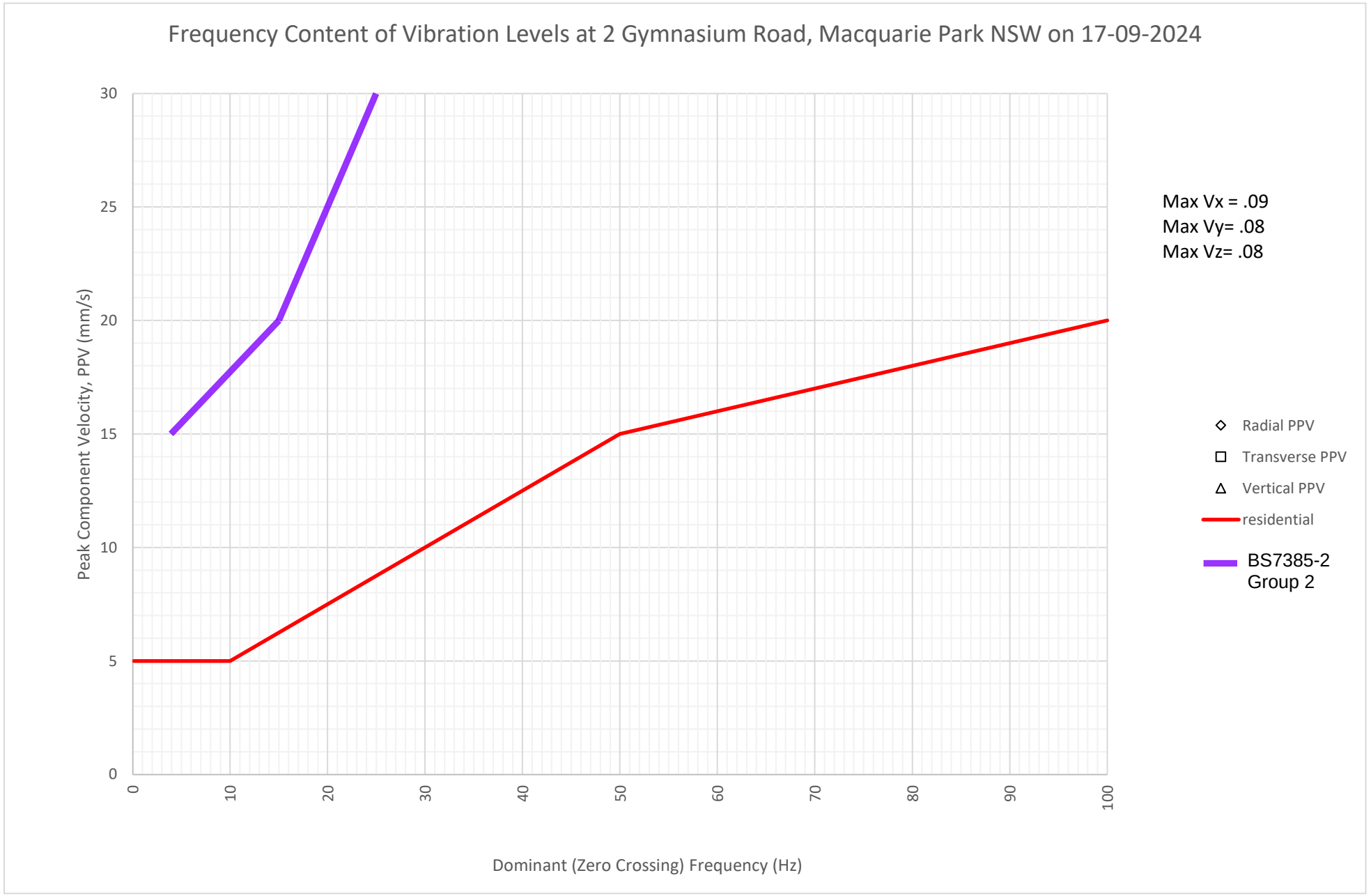

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 15-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

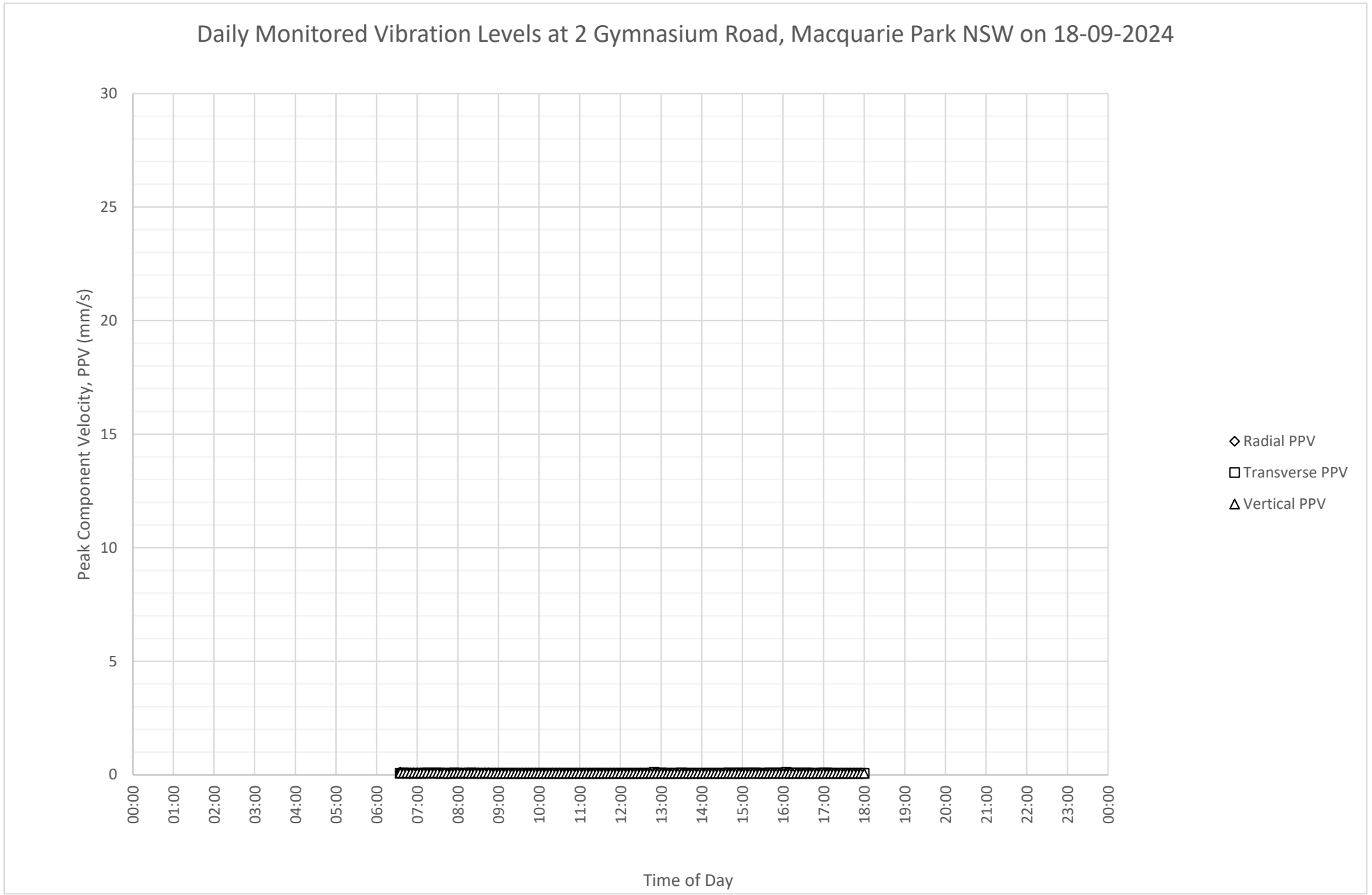

Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 15-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .12
Max Vy= .17
Max Vz= .14
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2

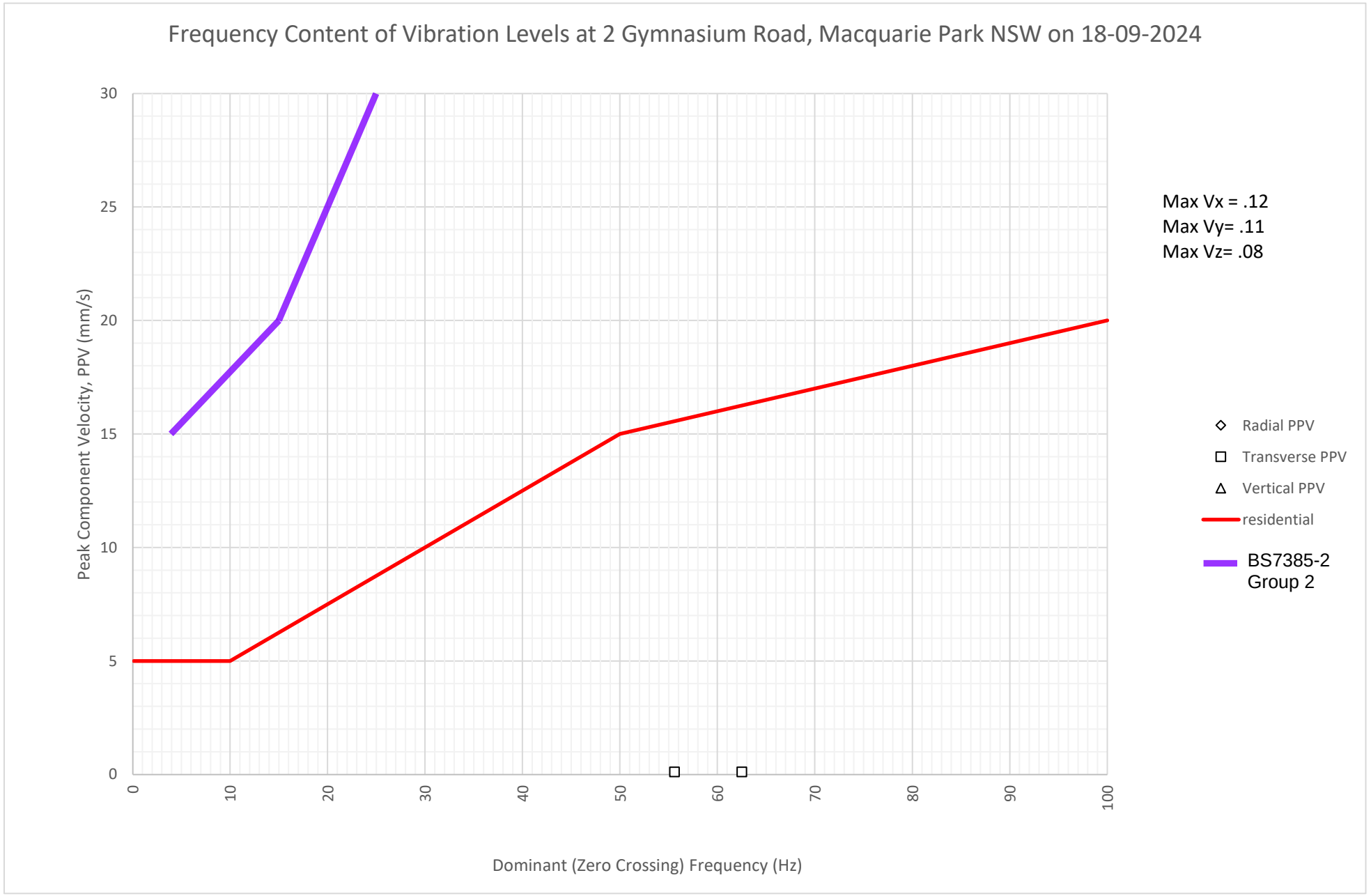

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 16-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

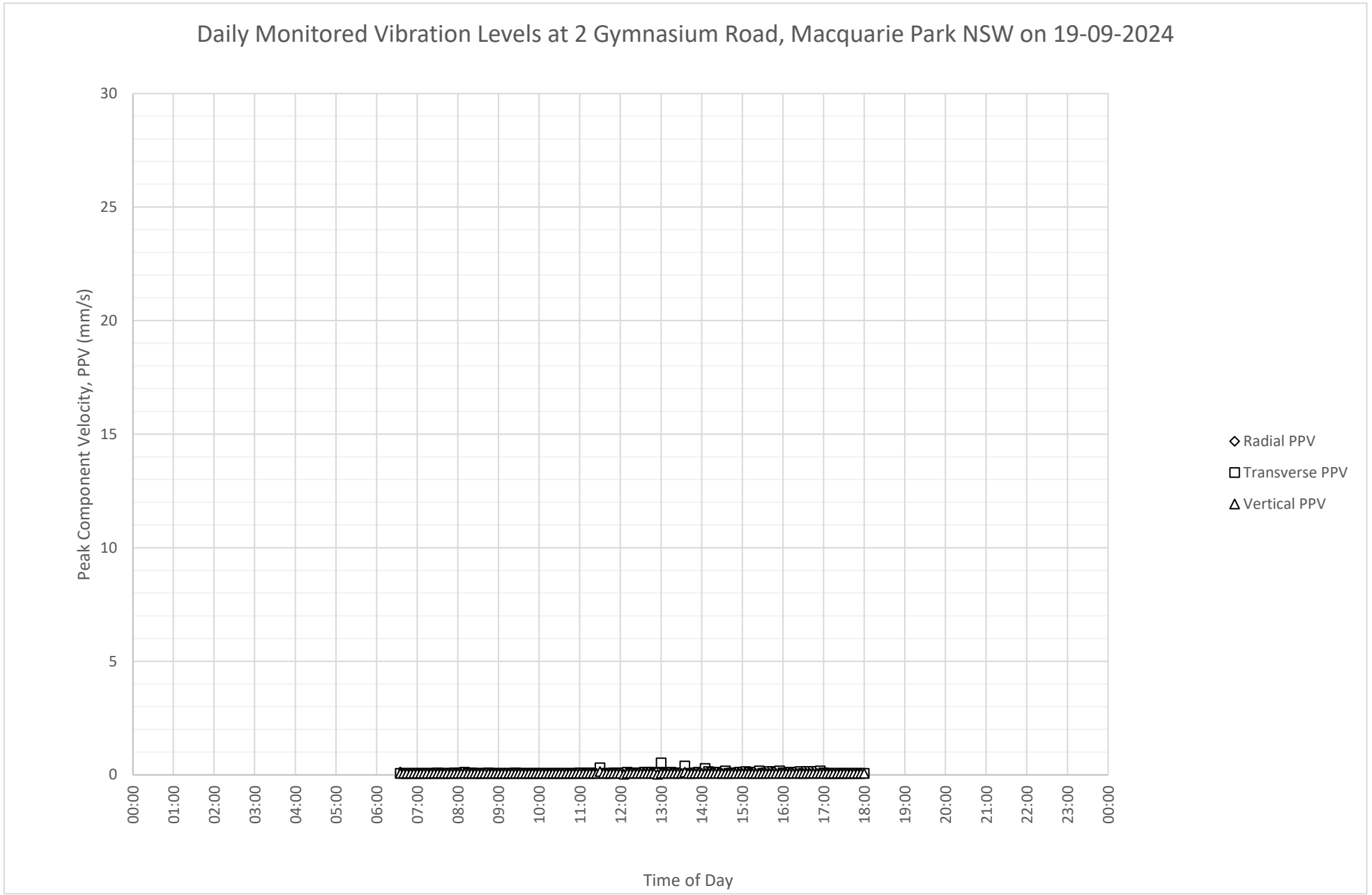

Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 16-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .09
Max Vy= .08
Max Vz= .08
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2

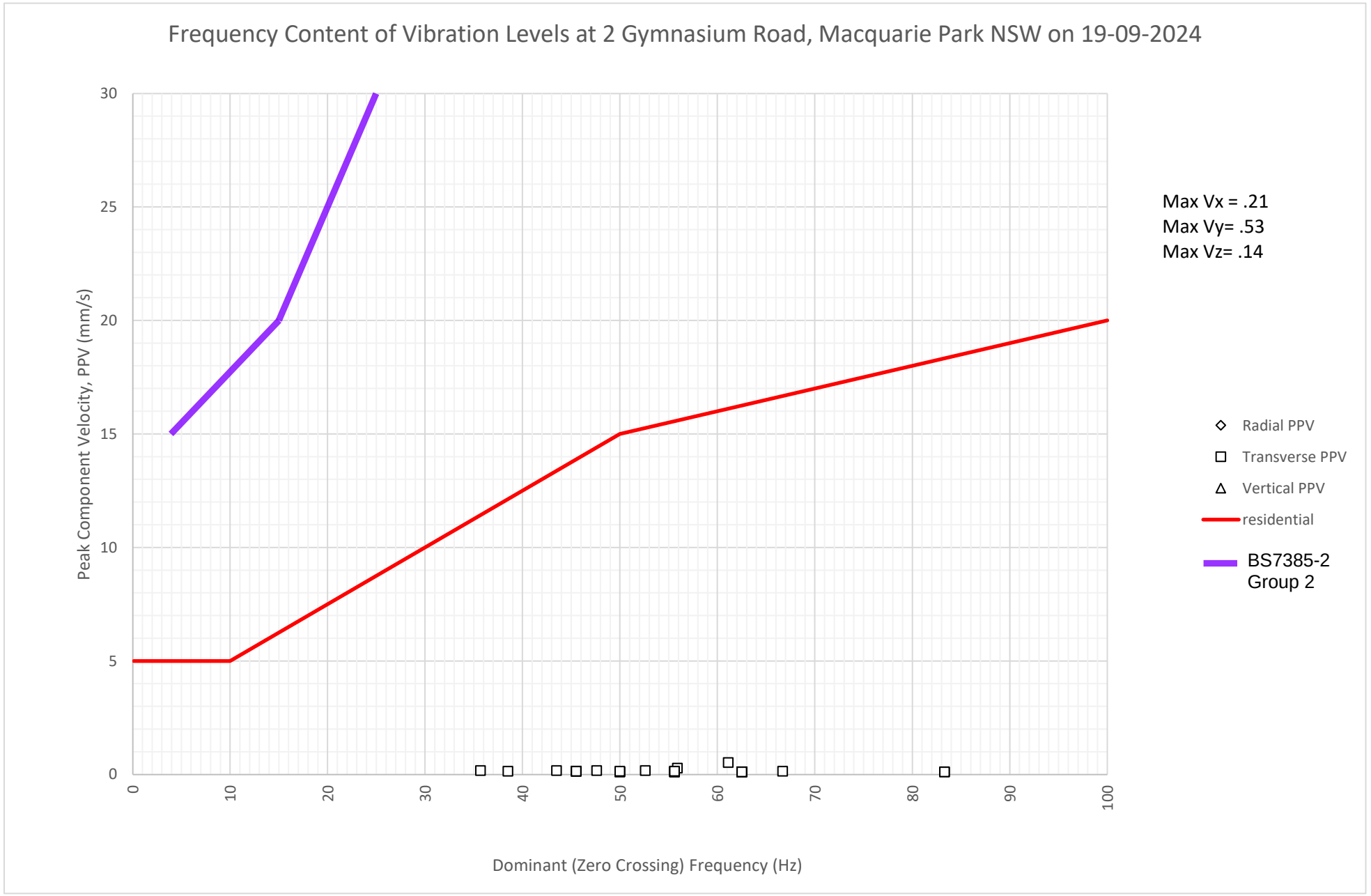

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 17-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

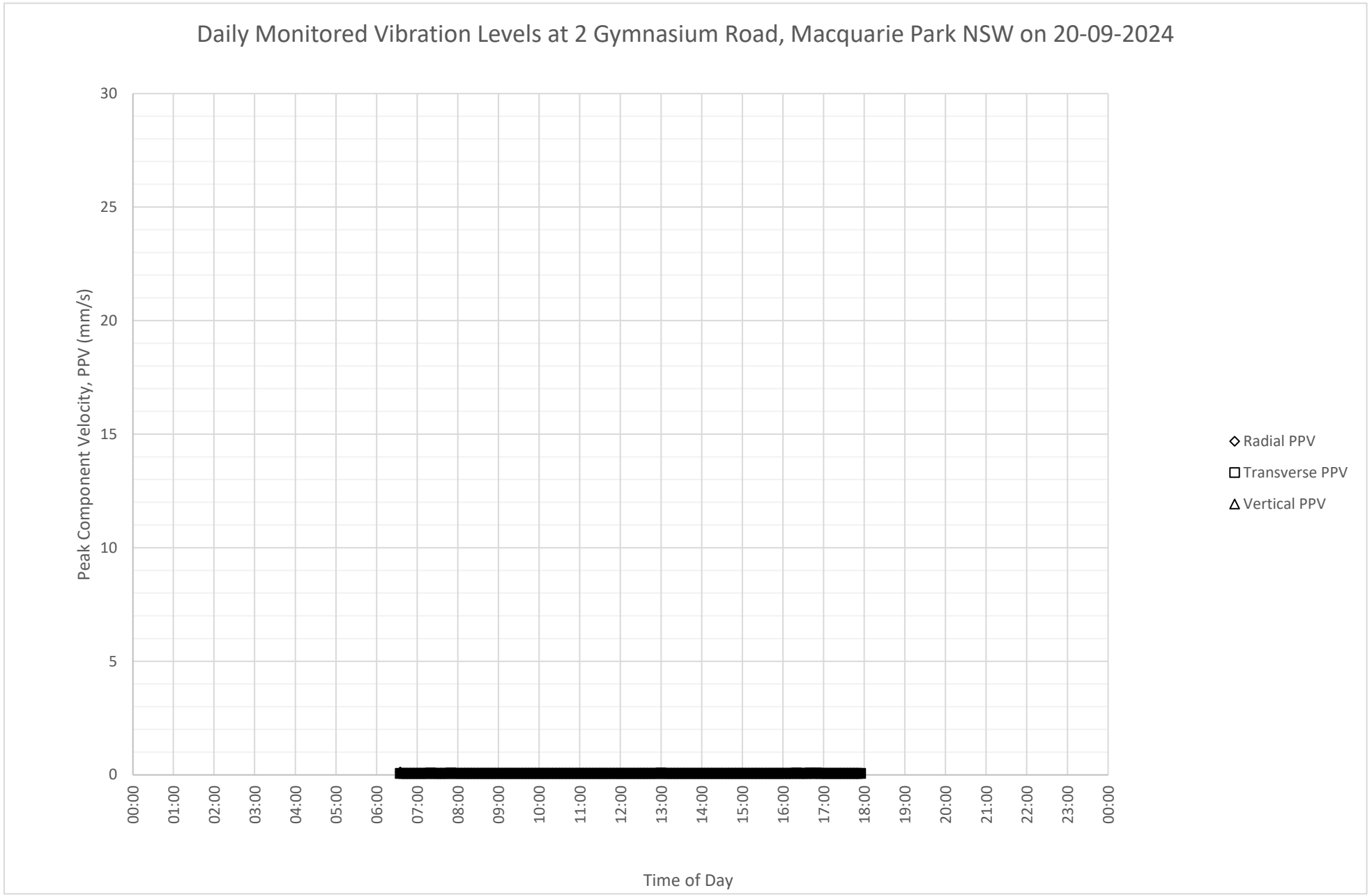

Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 17-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .09
Max Vy= .08
Max Vz= .08
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2

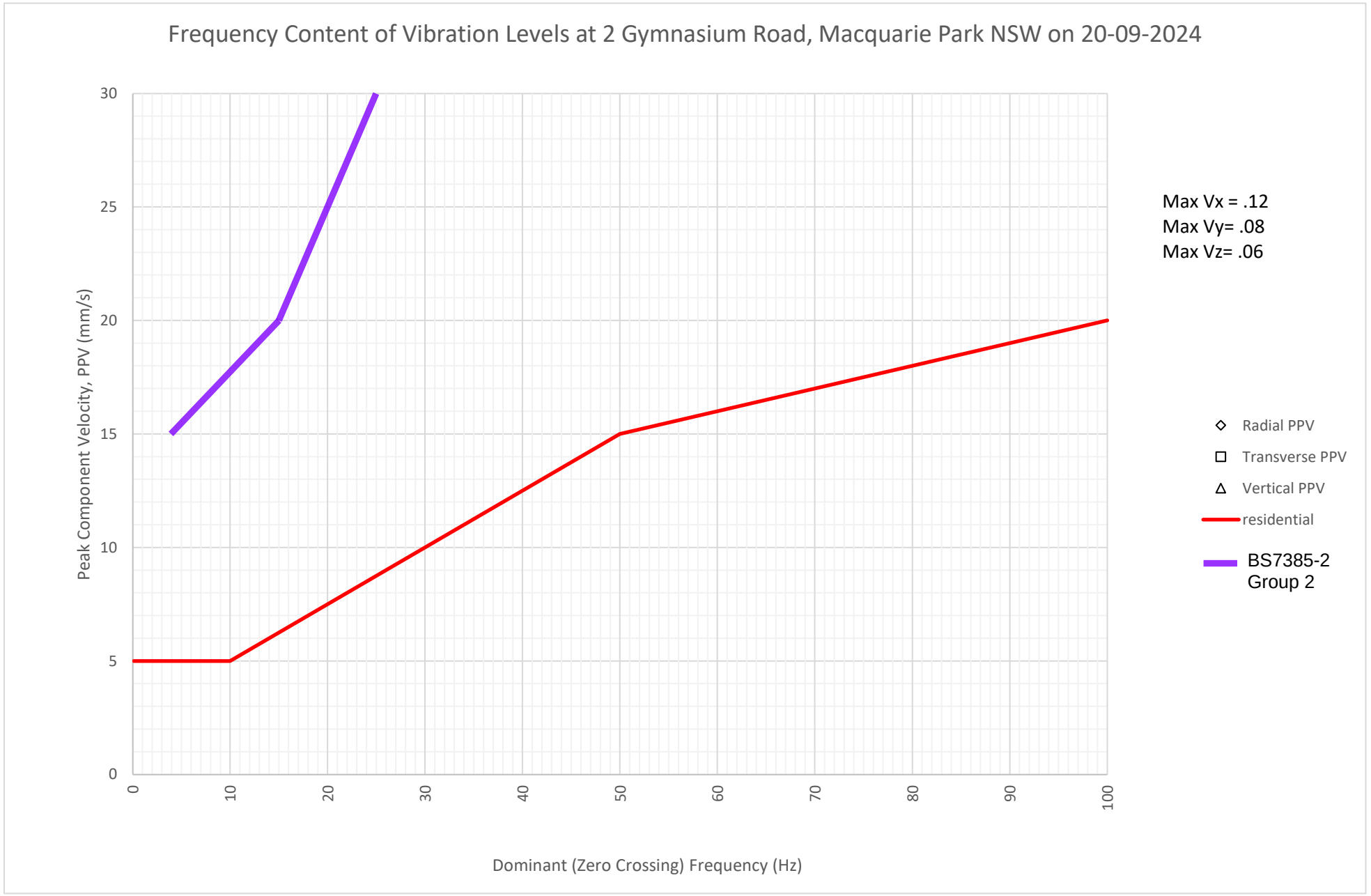

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 18-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

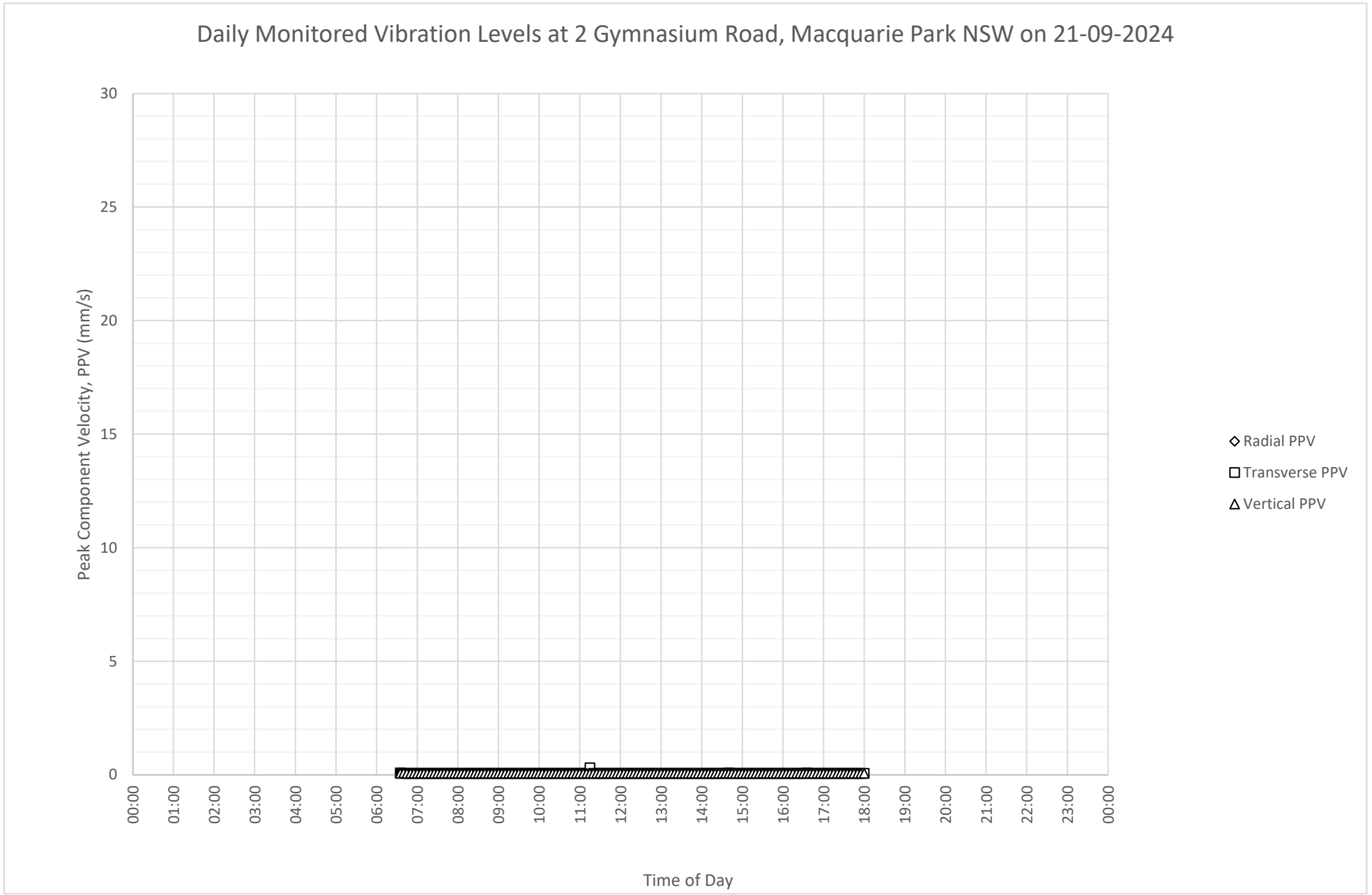

Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 18-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .12
Max Vy= .11
Max Vz= .08
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2

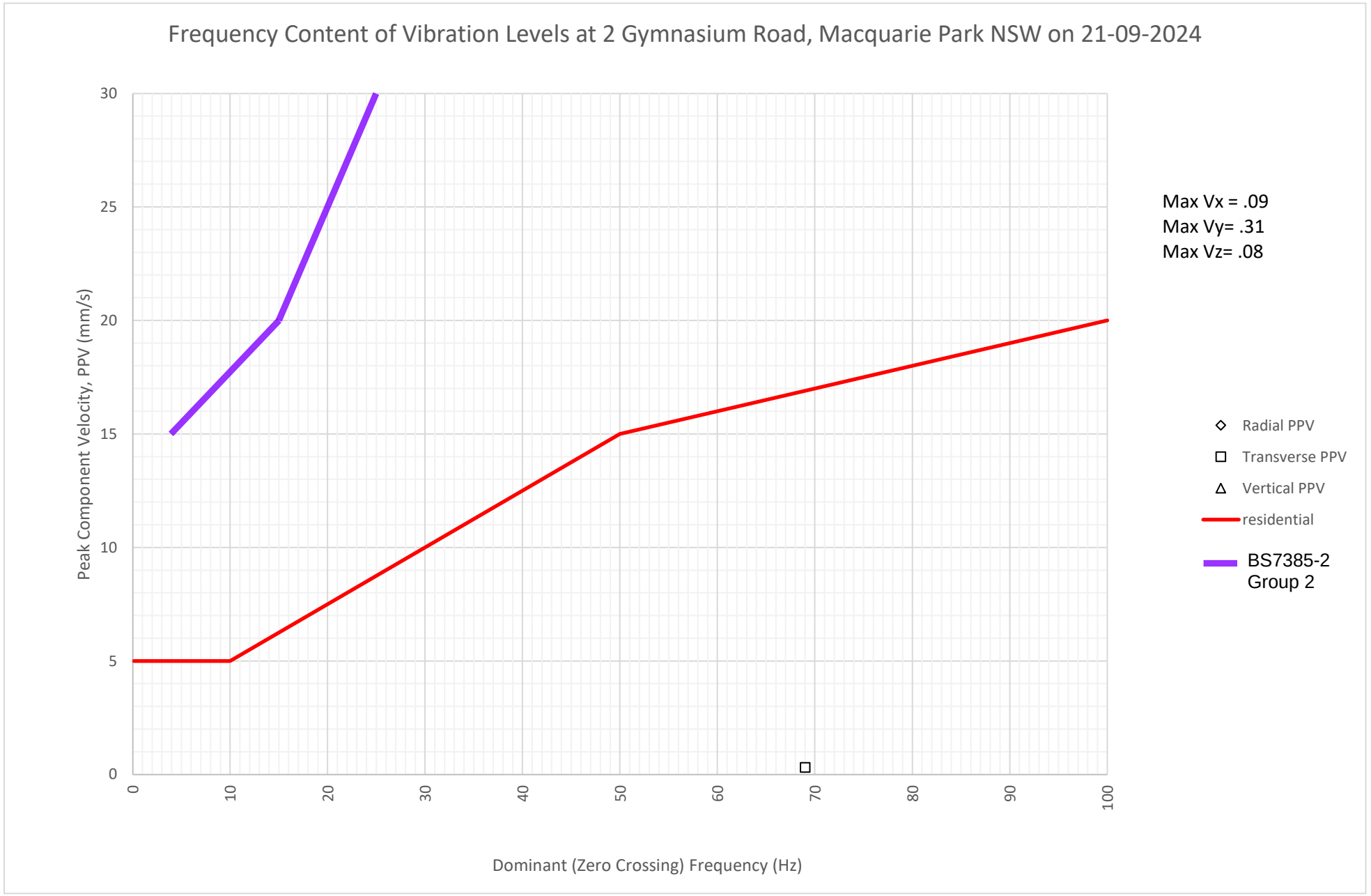

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 19-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

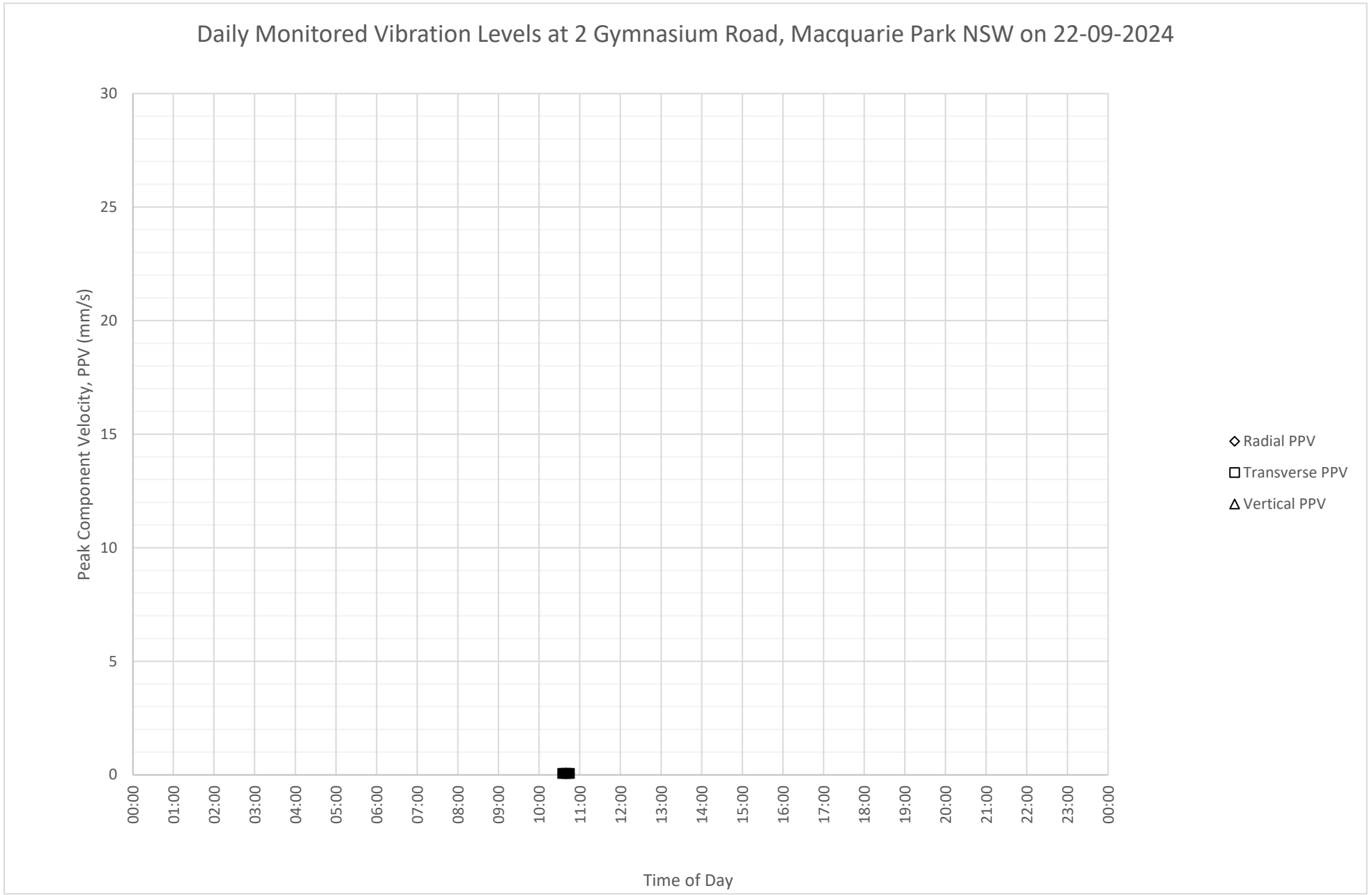

Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 19-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .21
Max Vy= .53
Max Vz= .14
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2

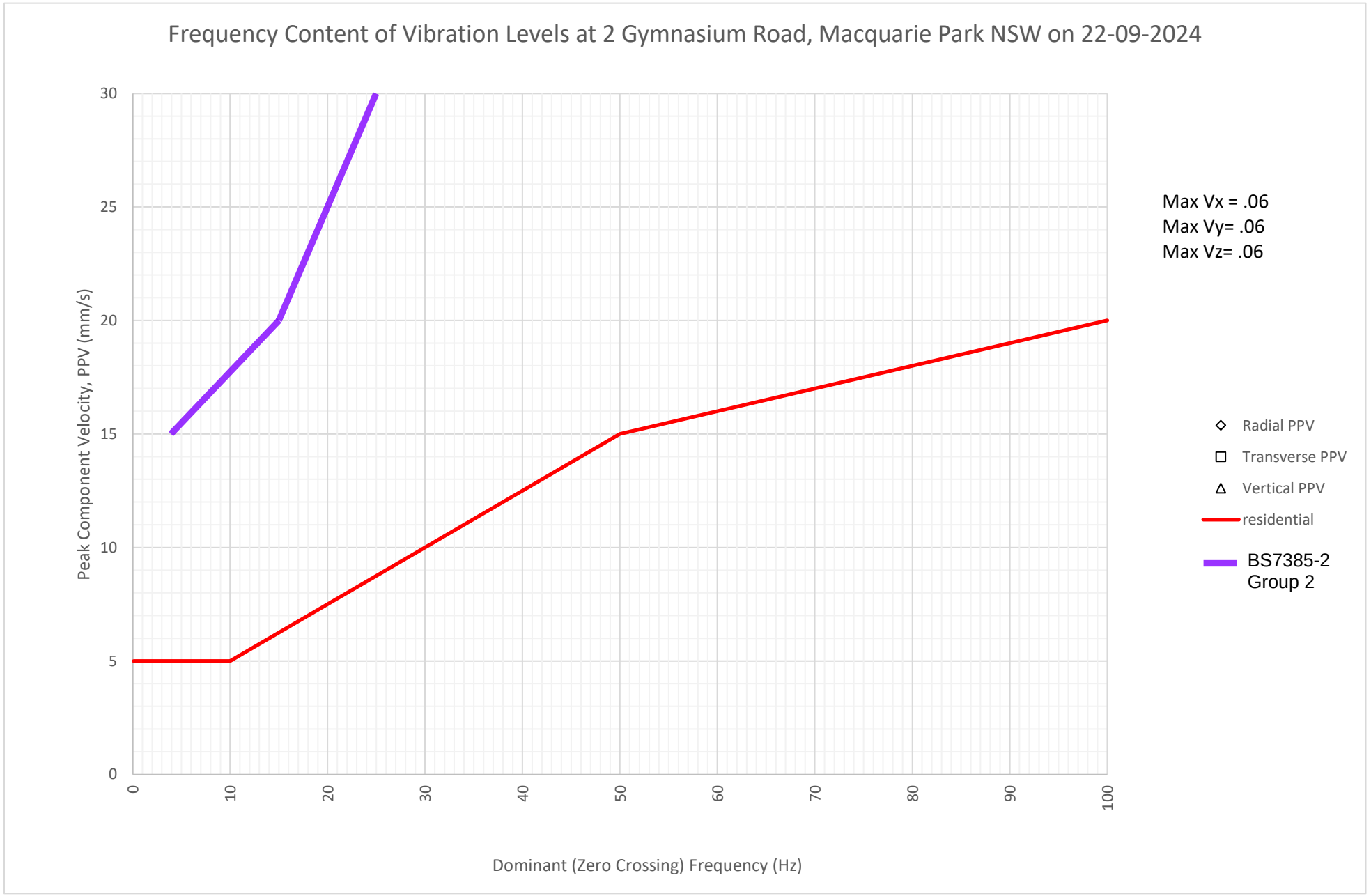

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 20-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

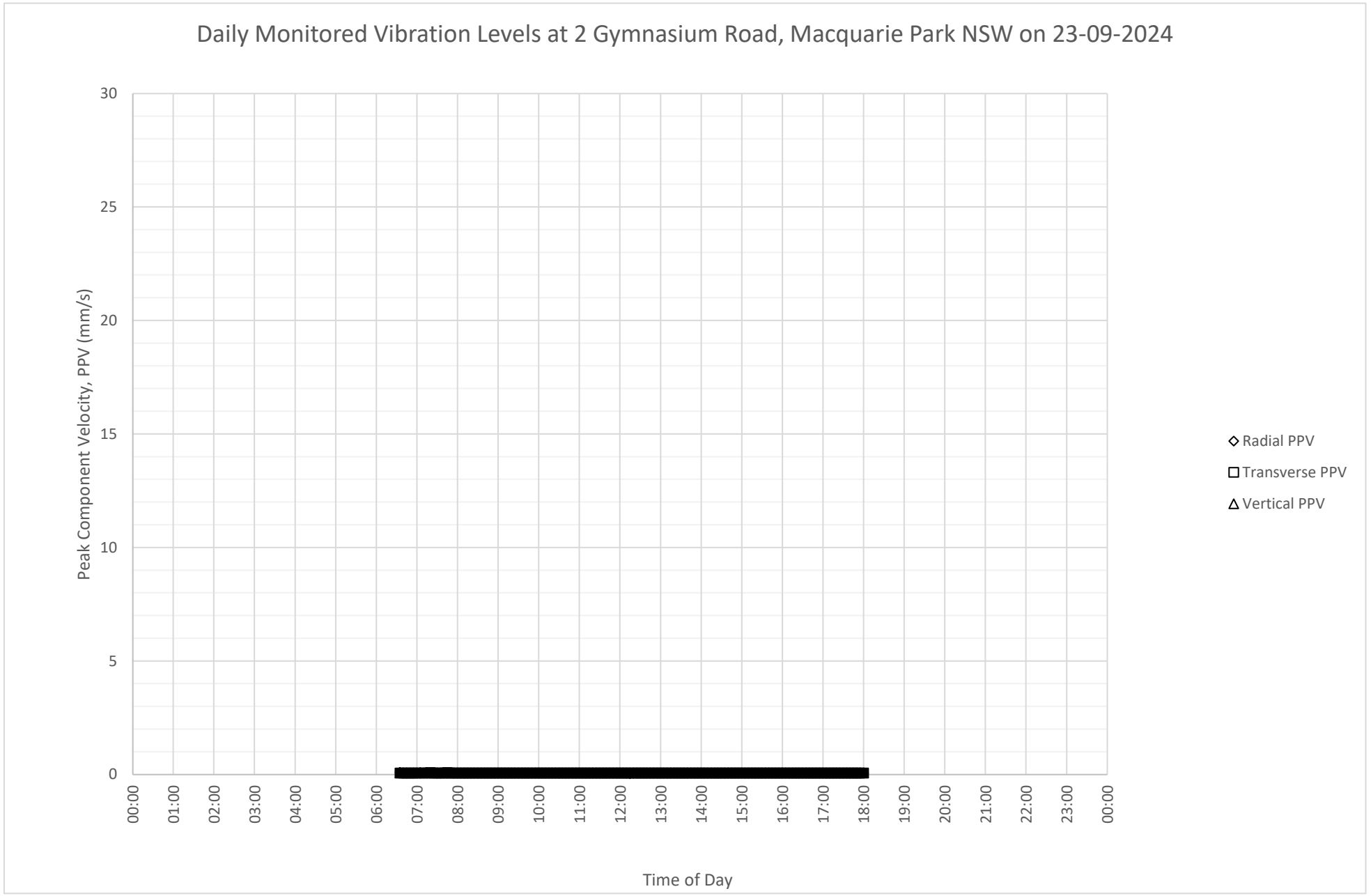

Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 20-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .12
Max Vy= .08
Max Vz= .06
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2

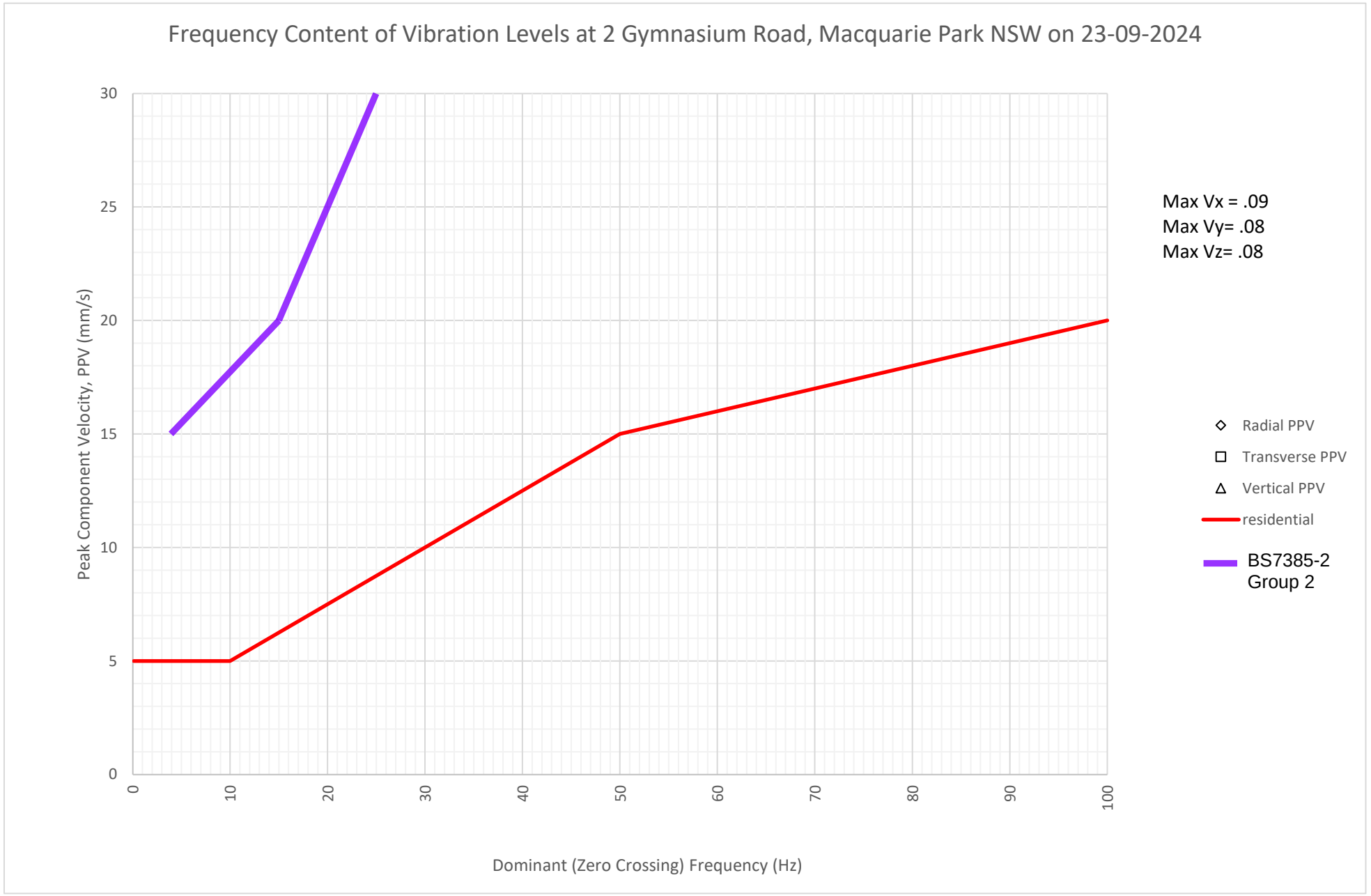

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 21-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

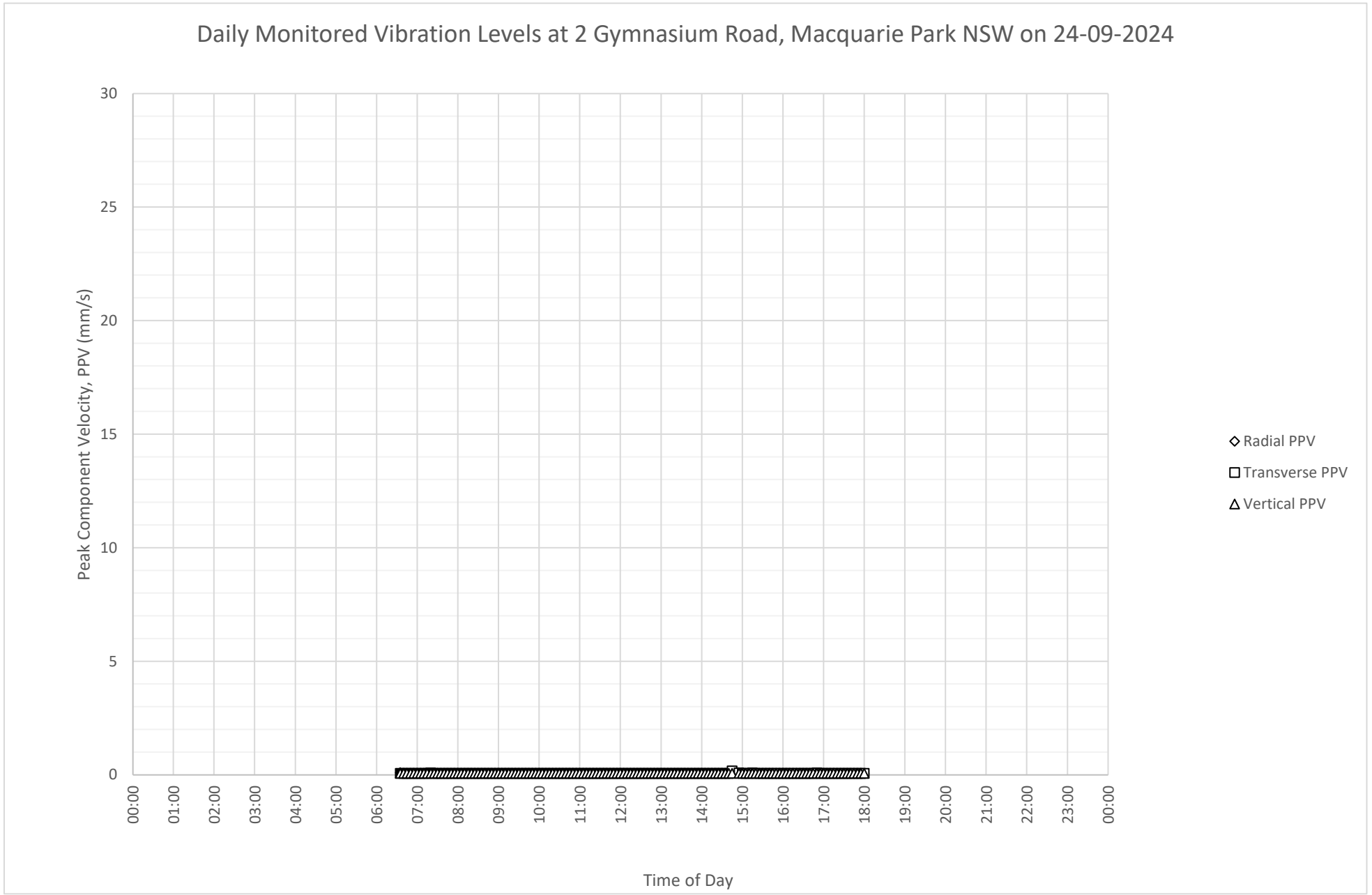

Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 21-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .09
Max Vy= .31
Max Vz= .08
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2

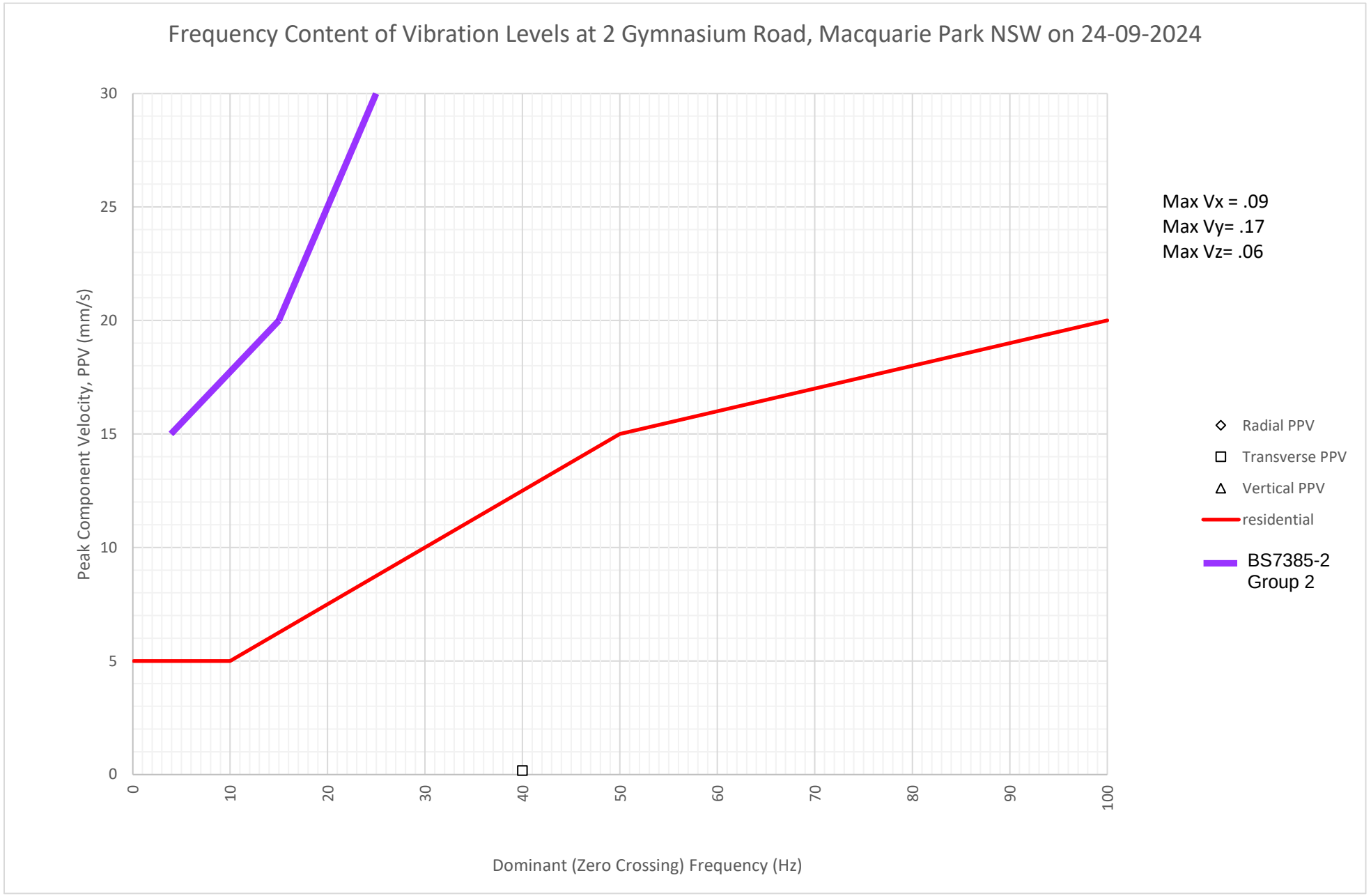

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 22-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

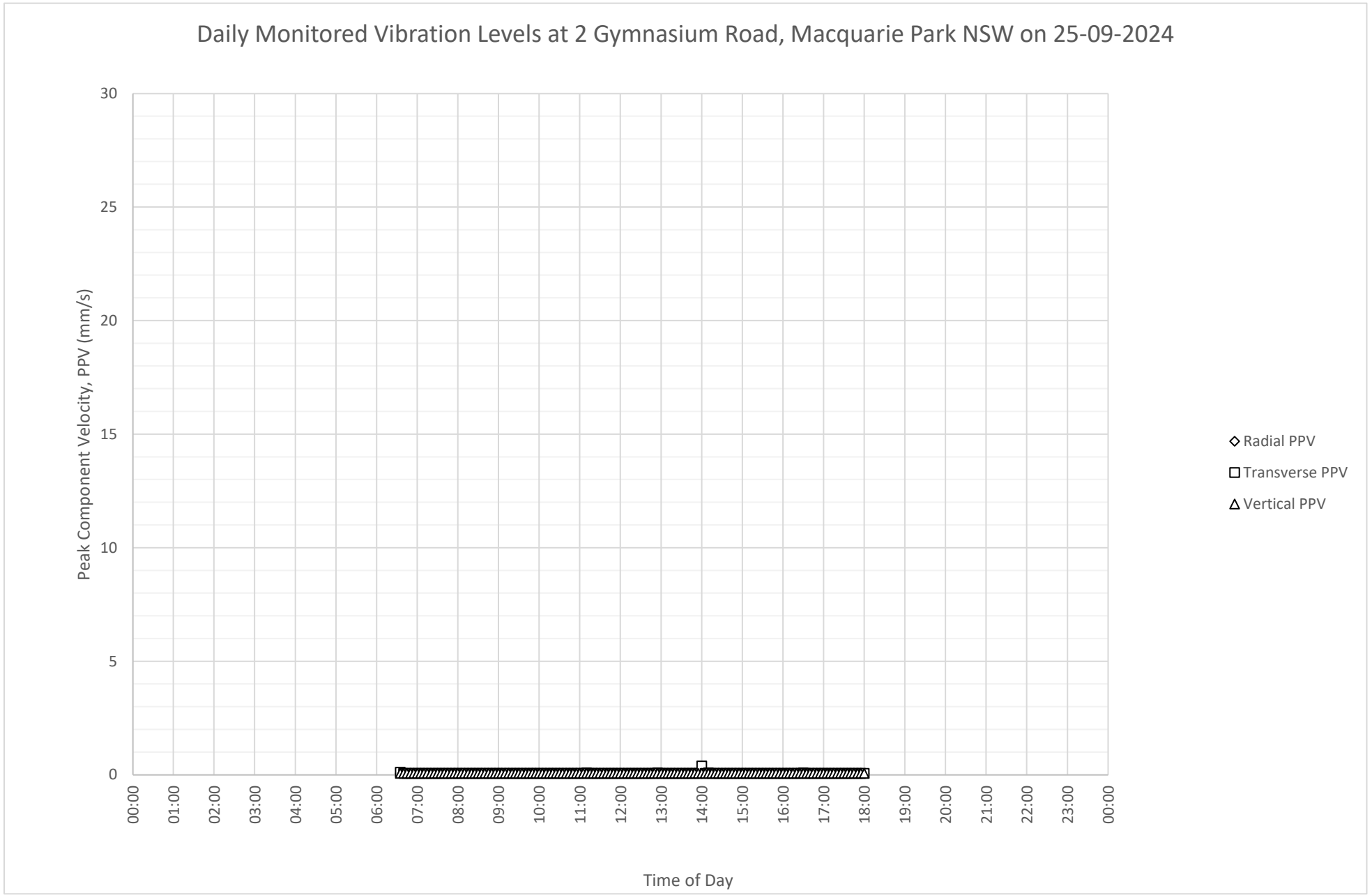

Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 22-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .06
Max Vy= .06
Max Vz= .06
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2

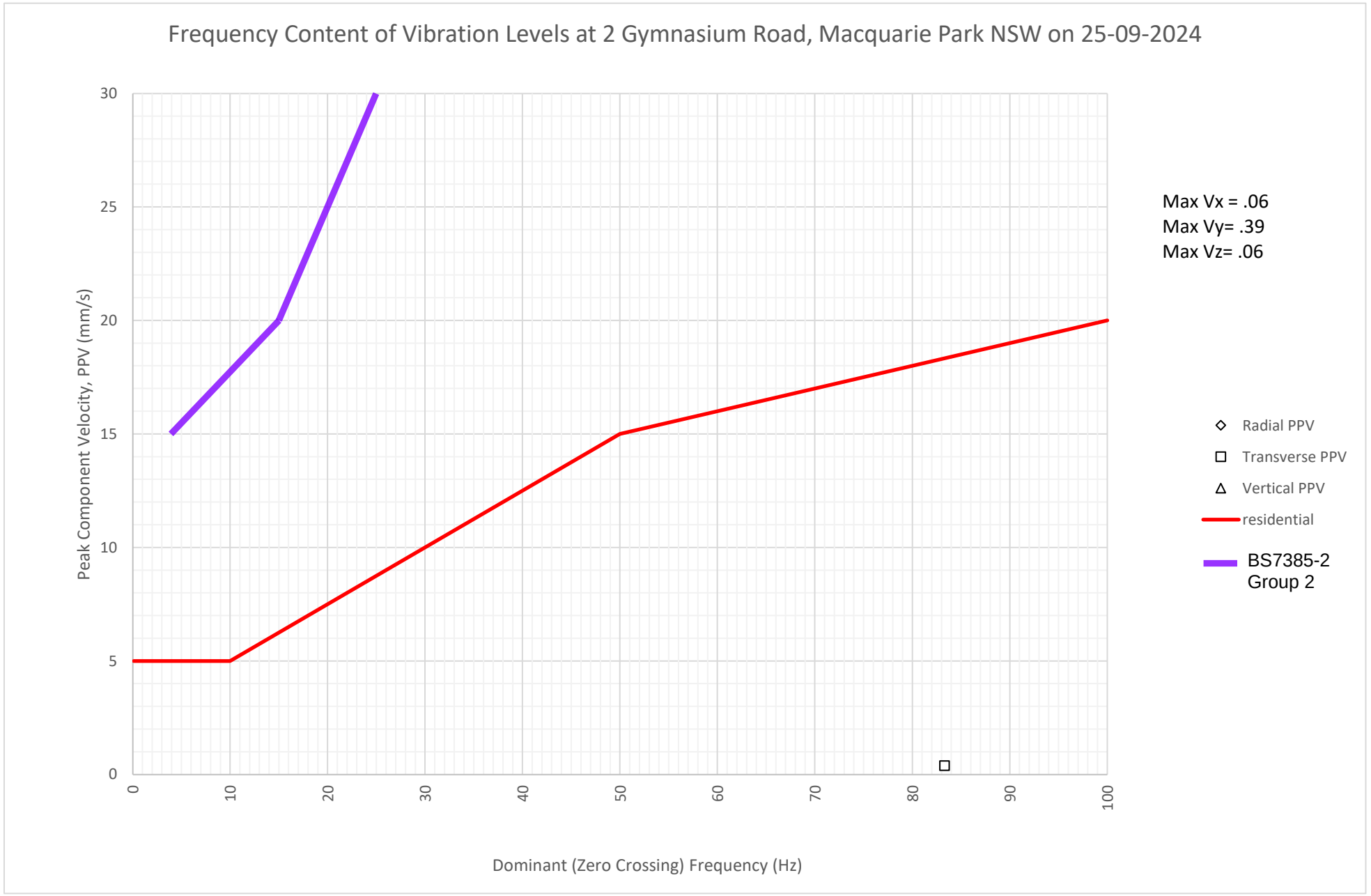

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 23-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

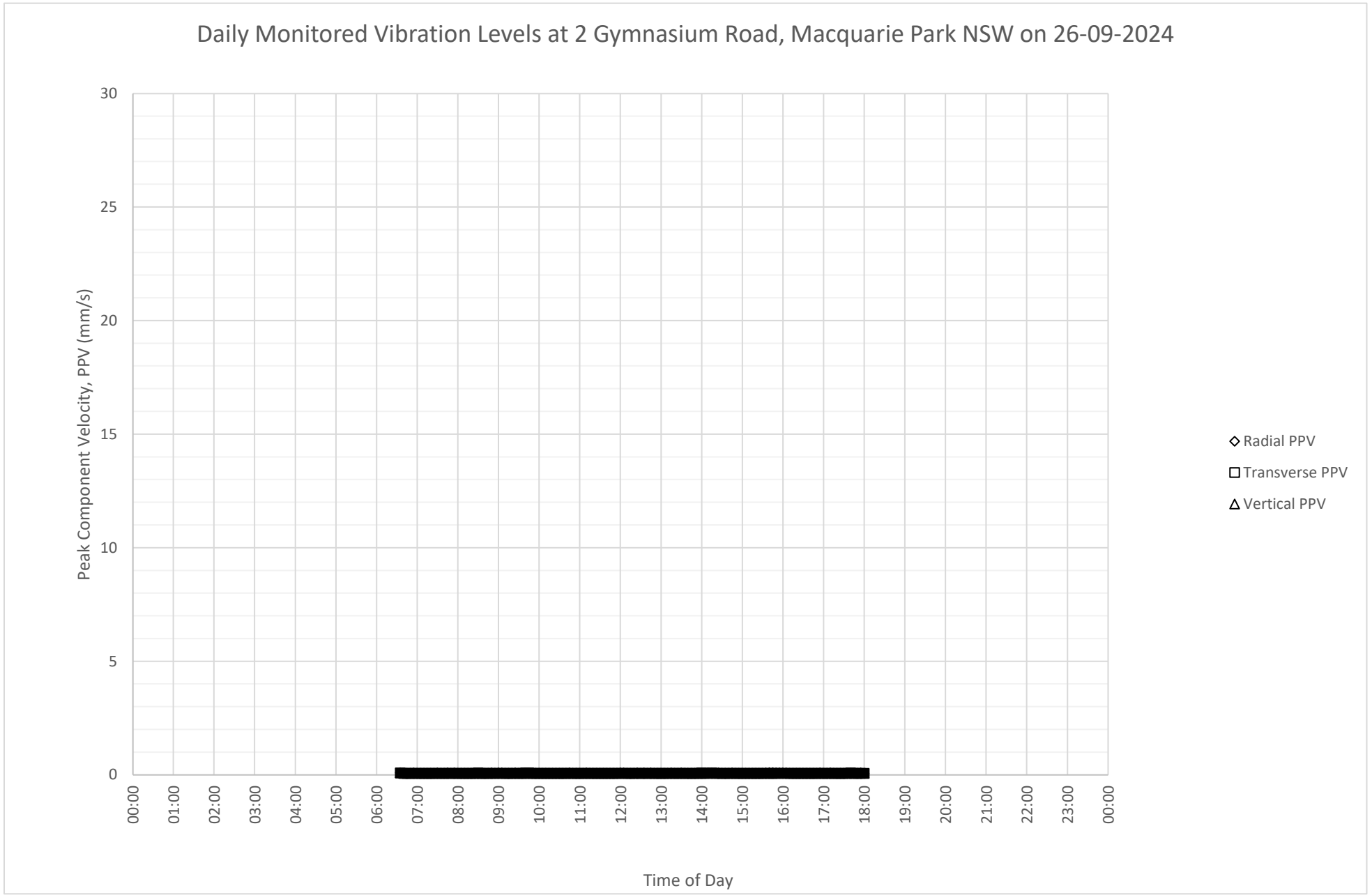

Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 23-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .09
Max Vy= .08
Max Vz= .08
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2

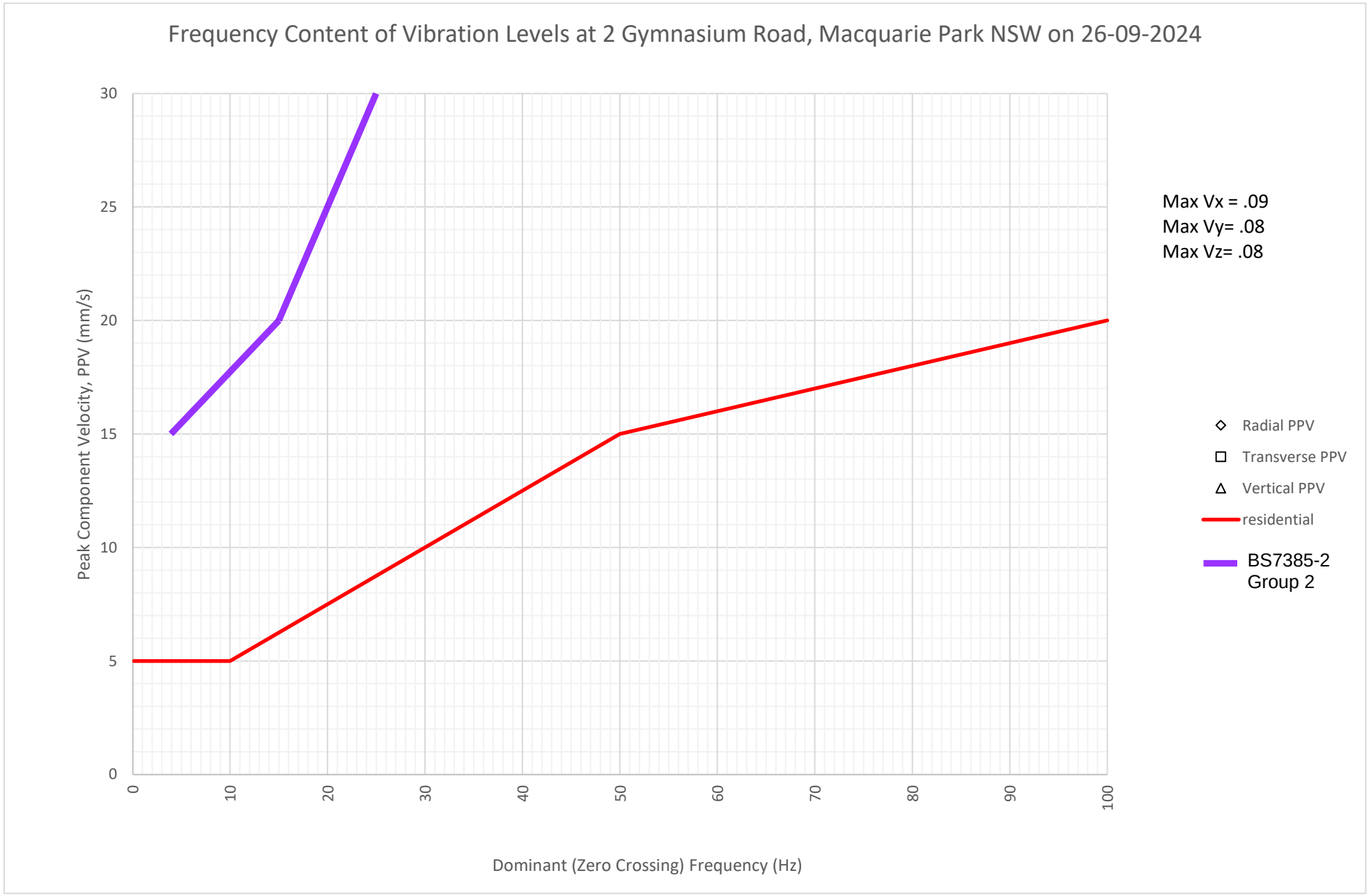

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 24-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

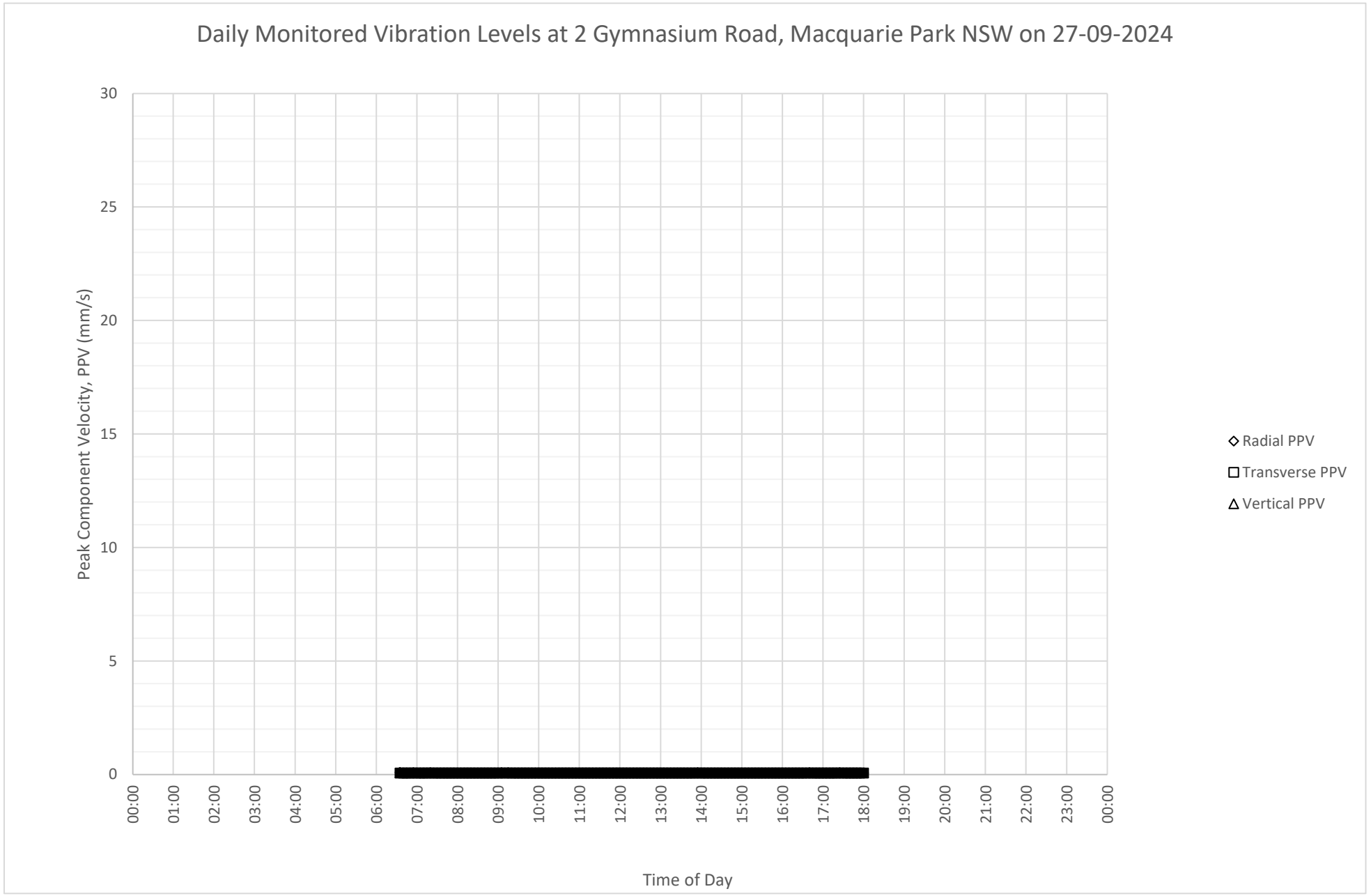

Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 24-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .09
Max Vy= .17
Max Vz= .06
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2

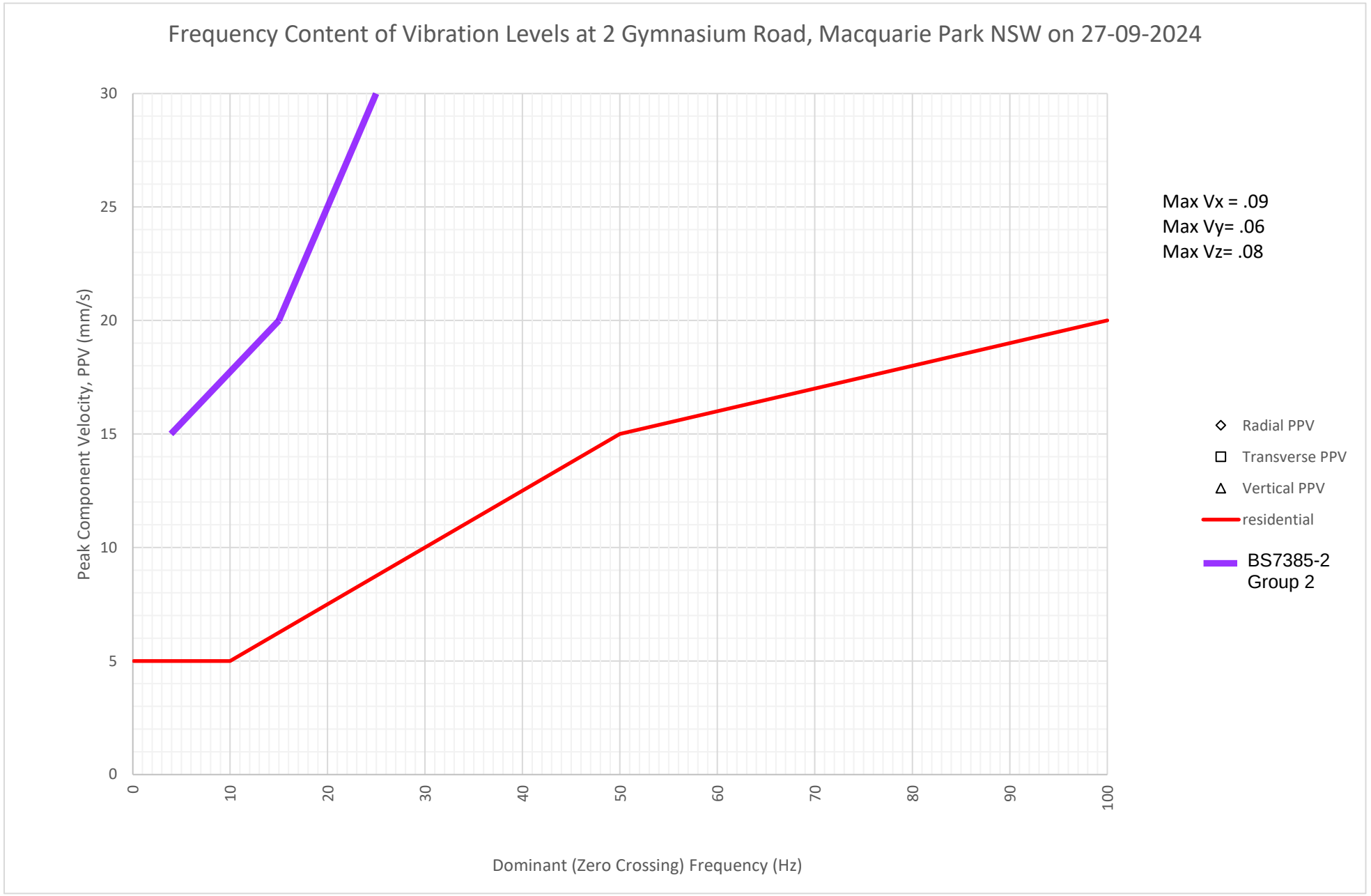

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 25-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

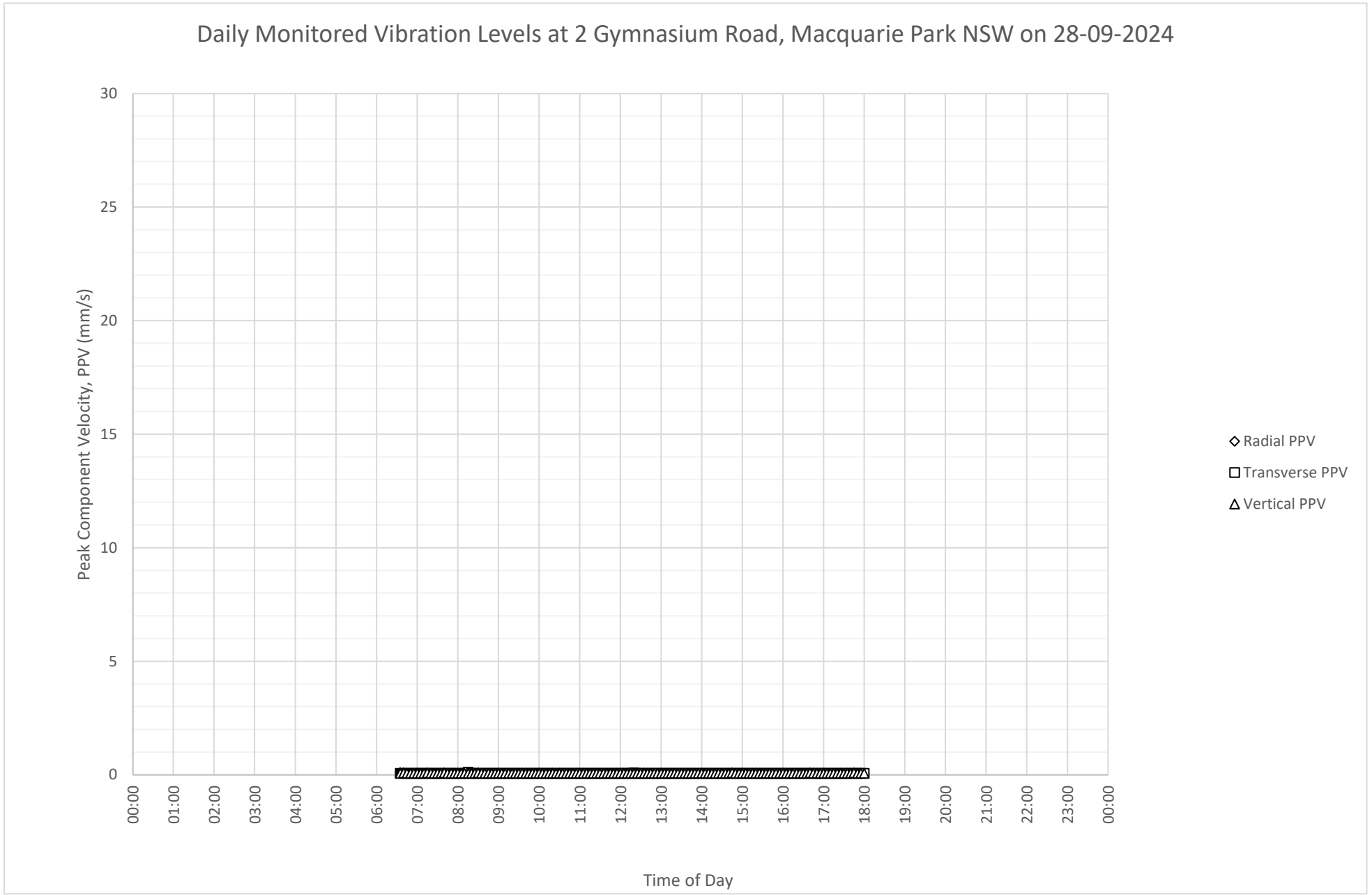

Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 25-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .06
Max Vy= .39
Max Vz= .06
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2

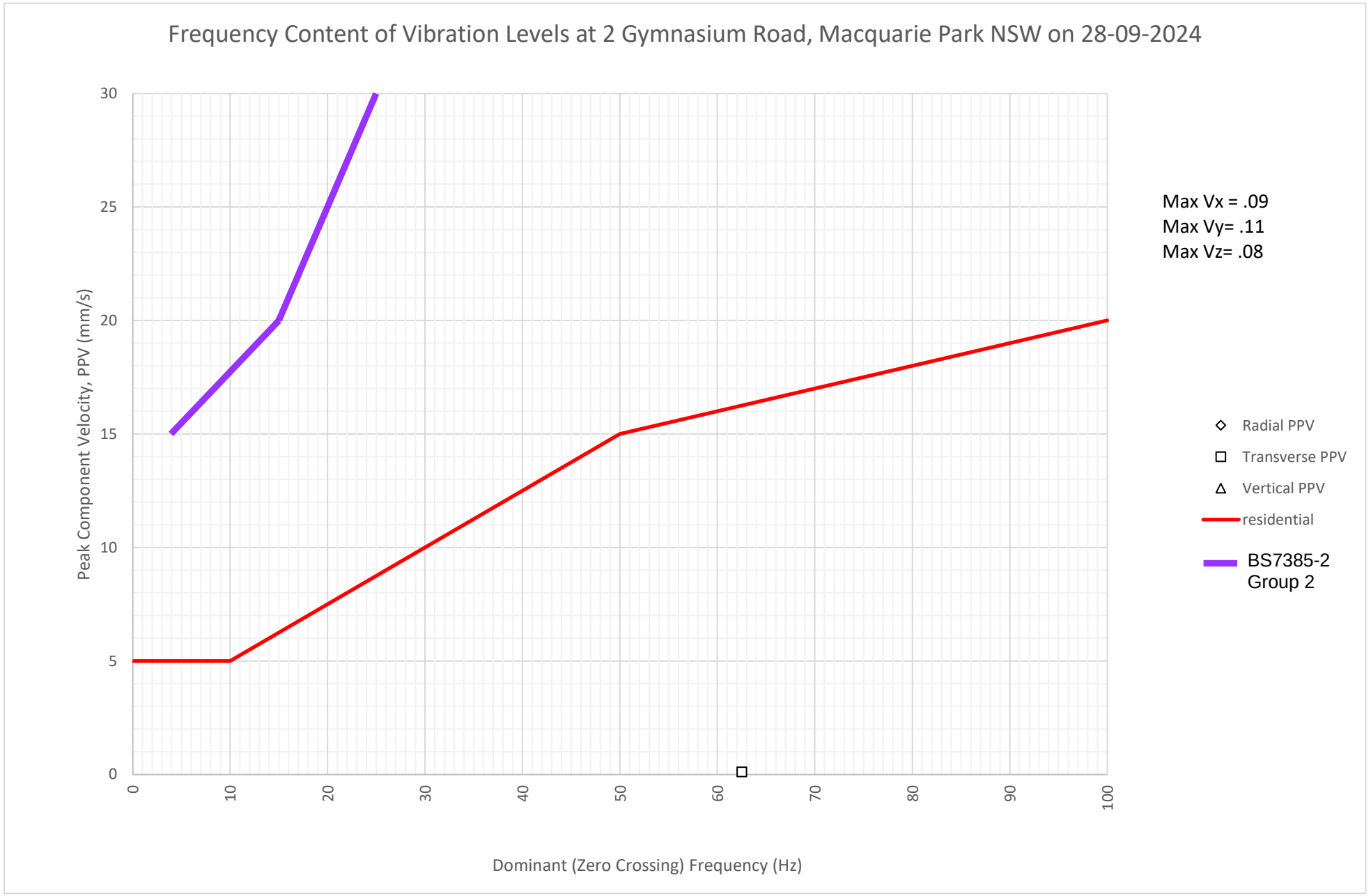

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 26-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

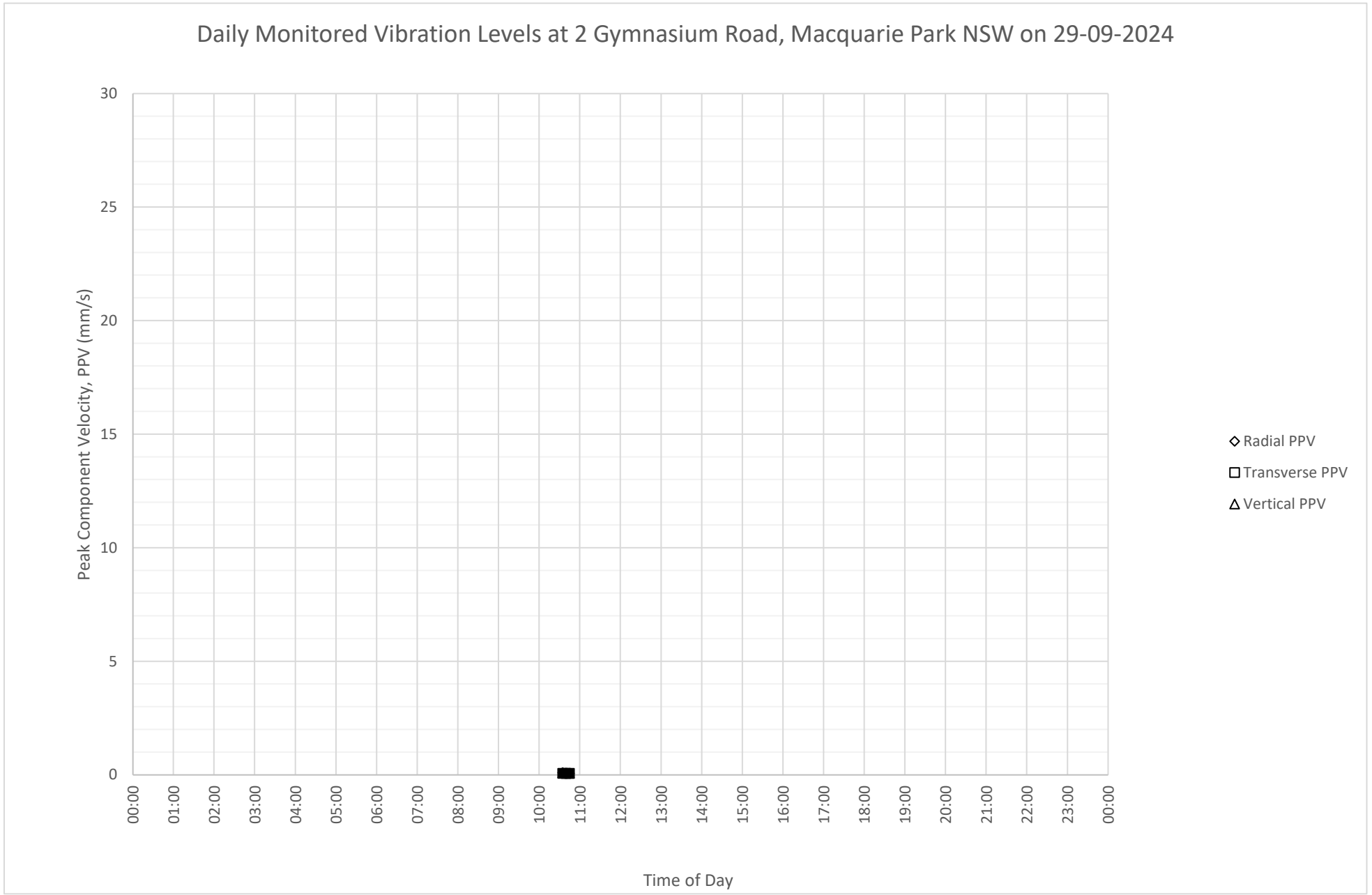

Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 26-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .09
Max Vy= .08
Max Vz= .08
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2

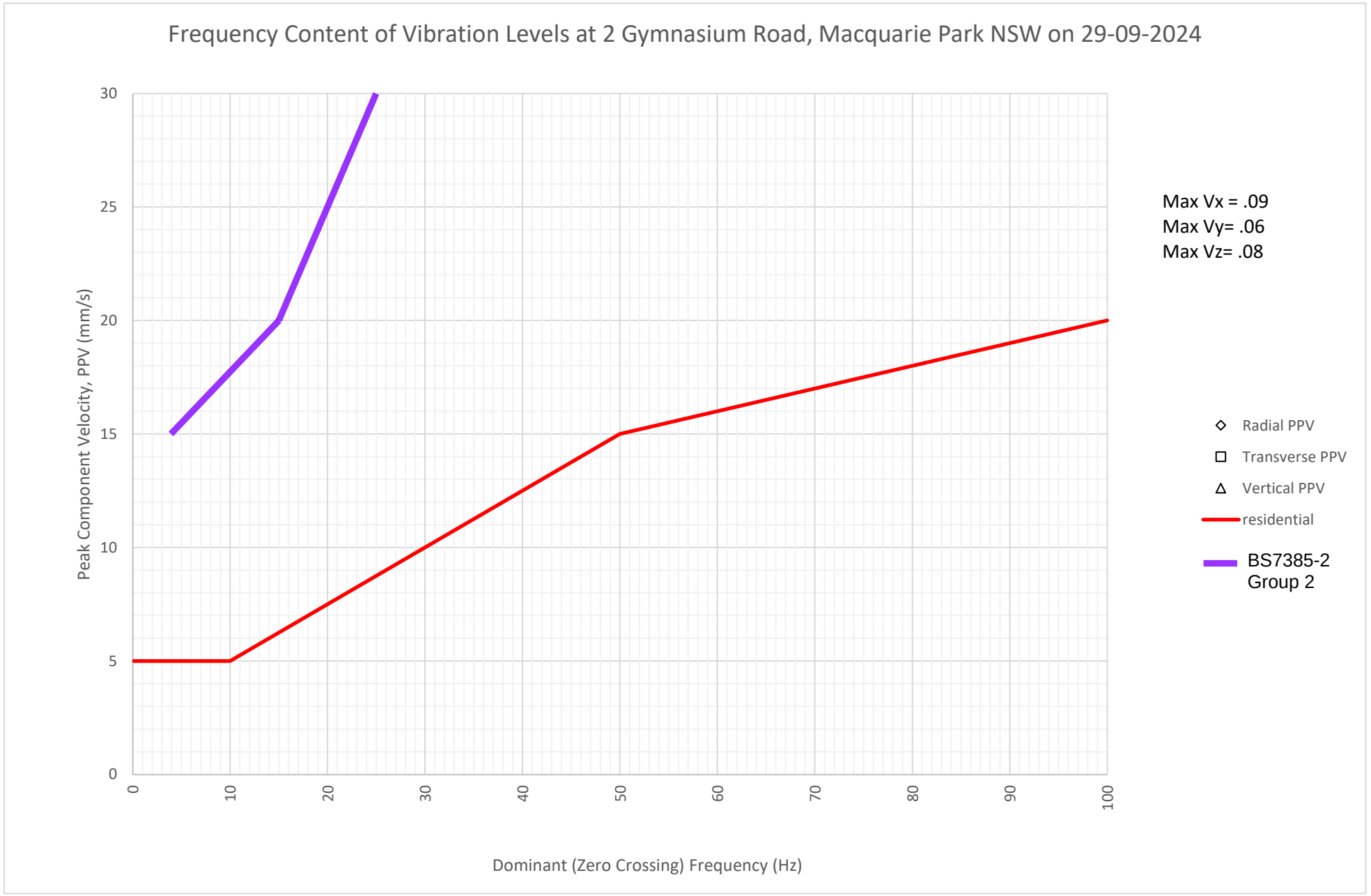

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 27-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

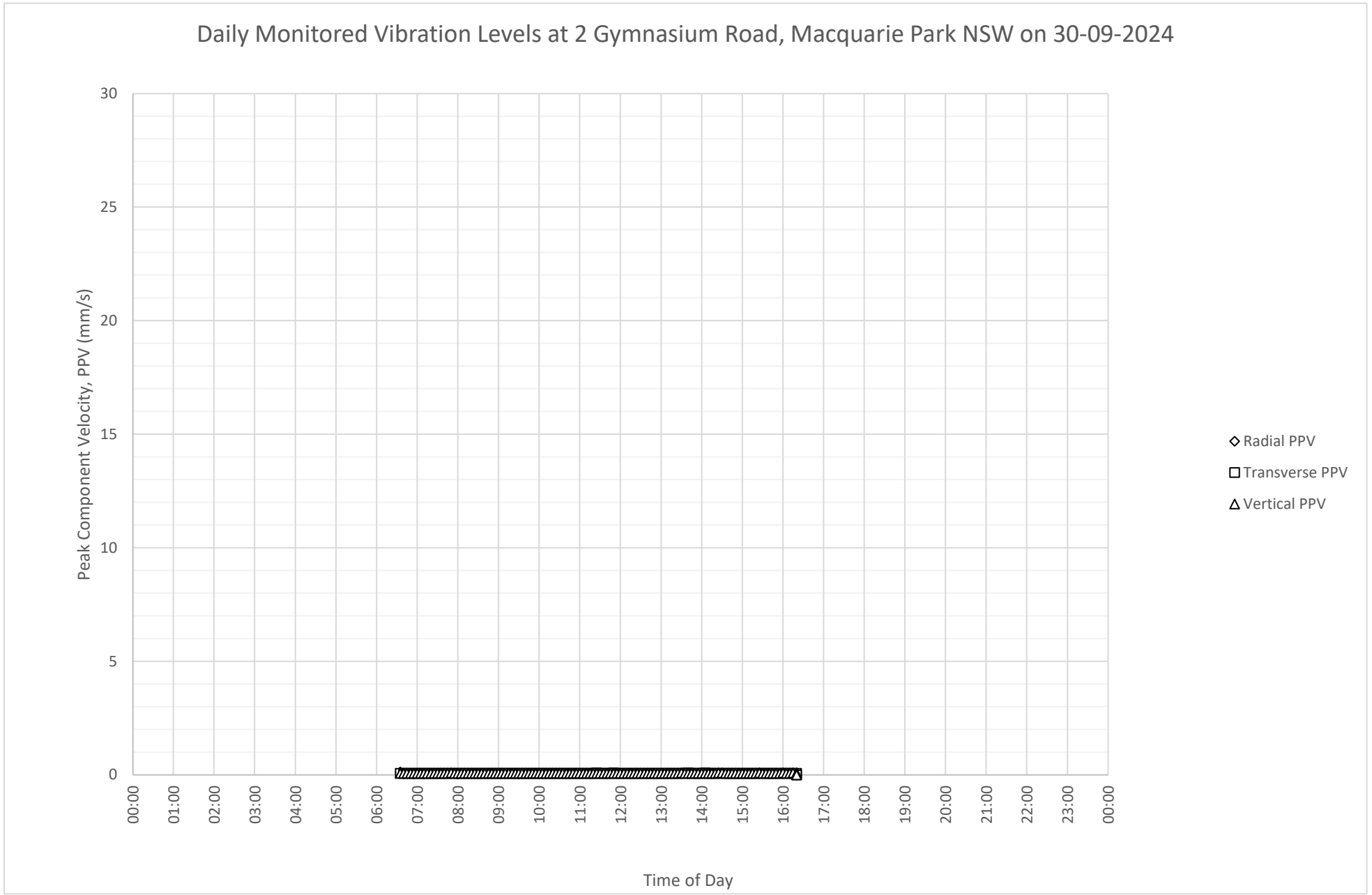

Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 27-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .09
Max Vy= .06
Max Vz= .08
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2

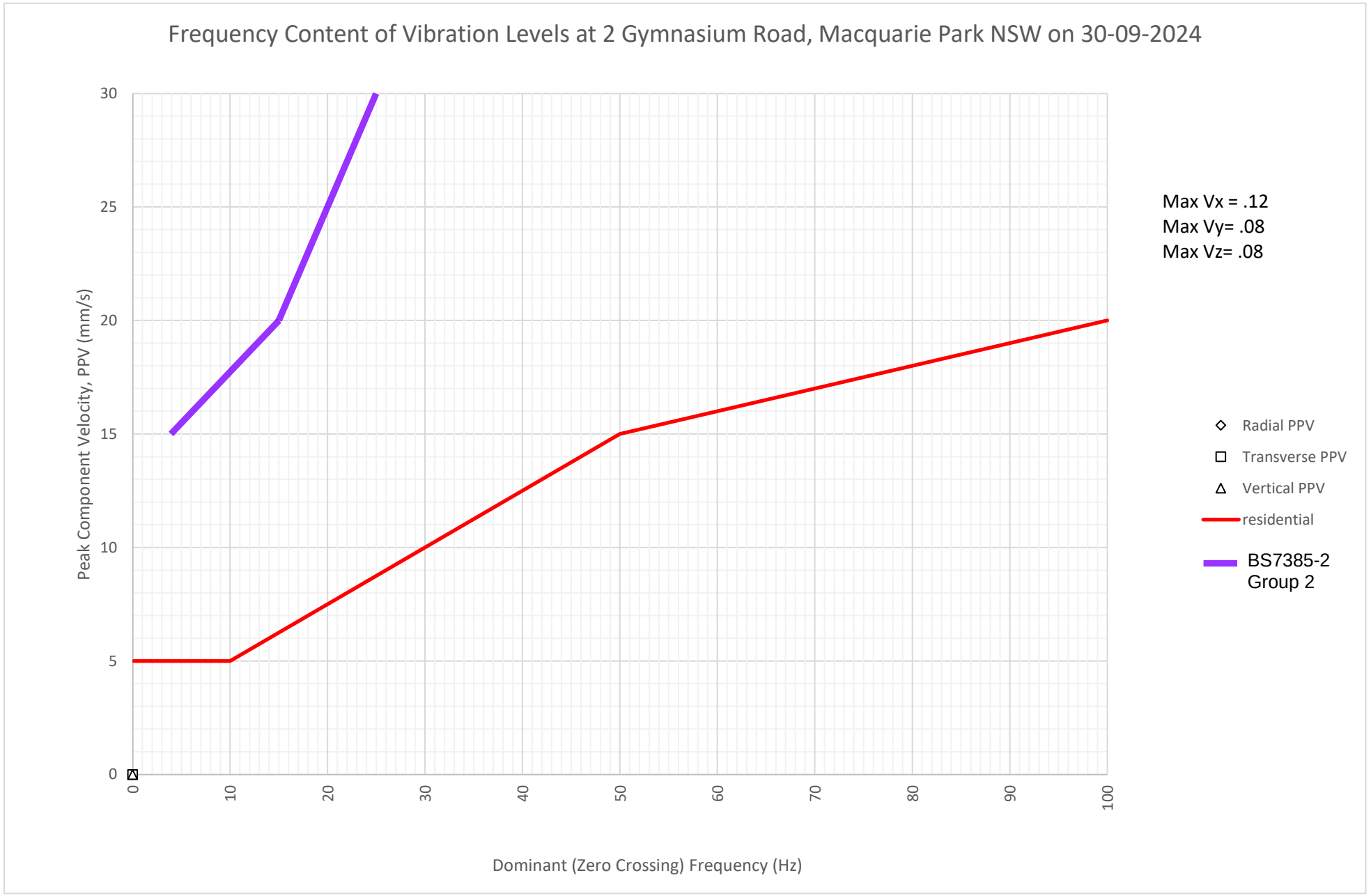

Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 28-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 28-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .09
Max Vy= .11
Max Vz= .08
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2


Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 29-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 29-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .09
Max Vy= .06
Max Vz= .08
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2


Daily Monitored Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 30-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at 2 Gymnasium Road, Macquarie Park NSW on 30-09-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Max Vx = .12
Max Vy= .08
Max Vz= .08
Radial PPV
Transverse PPV
Vertical PPV
residential
BS7385-2
Group 2