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Shoalhaven Hospital Redevelopment

Noise and Vibration Monitoring Report 17

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1 INTRODUCTION

This report presents the results of noise and vibration monitoring conducted by Acoustic Logic for the Shoalhaven Hospital Redevelopment project site. Details presented in this report include monitoring locations, relevant noise and vibration objectives, measured levels over the monitoring period and discussion of results.

This report presents the results of monitoring for the month of October between 1/10/2024 and 31/10/2024. Monitoring has been ongoing since 29th May 2023.

This report should be read in conjunction with the Construction Noise and Vibration Management Sub Plan prepared by this office (ref: 20230220.1/0506A/R1/VF, dated 05/06/2023)

2 SITE DESCRIPTION

The project site is located at Shoalhaven Hospital Redevelopment. Site works are now at the building construction stage.

2.1.1 Surrounding Receivers

Based on site investigations, the following developments surround the site:

Table 1 – Sensitive Receivers

Receiver (Refer Figure 1)	Receiver Type	Comment
R1	Residential	Detached dwellings to south of North Street, and residences and St Michaels Catholic Church and school to the east.
R2	Residential	Detached dwellings to north east, opposite Shoalhaven Street with some health and commercial and recreational uses.
PS	School	Shoalhaven Community Pre-School (future relocated site).
CC	Hospital	Cancer Centre overnight accommodation (part of the greater hospital site).

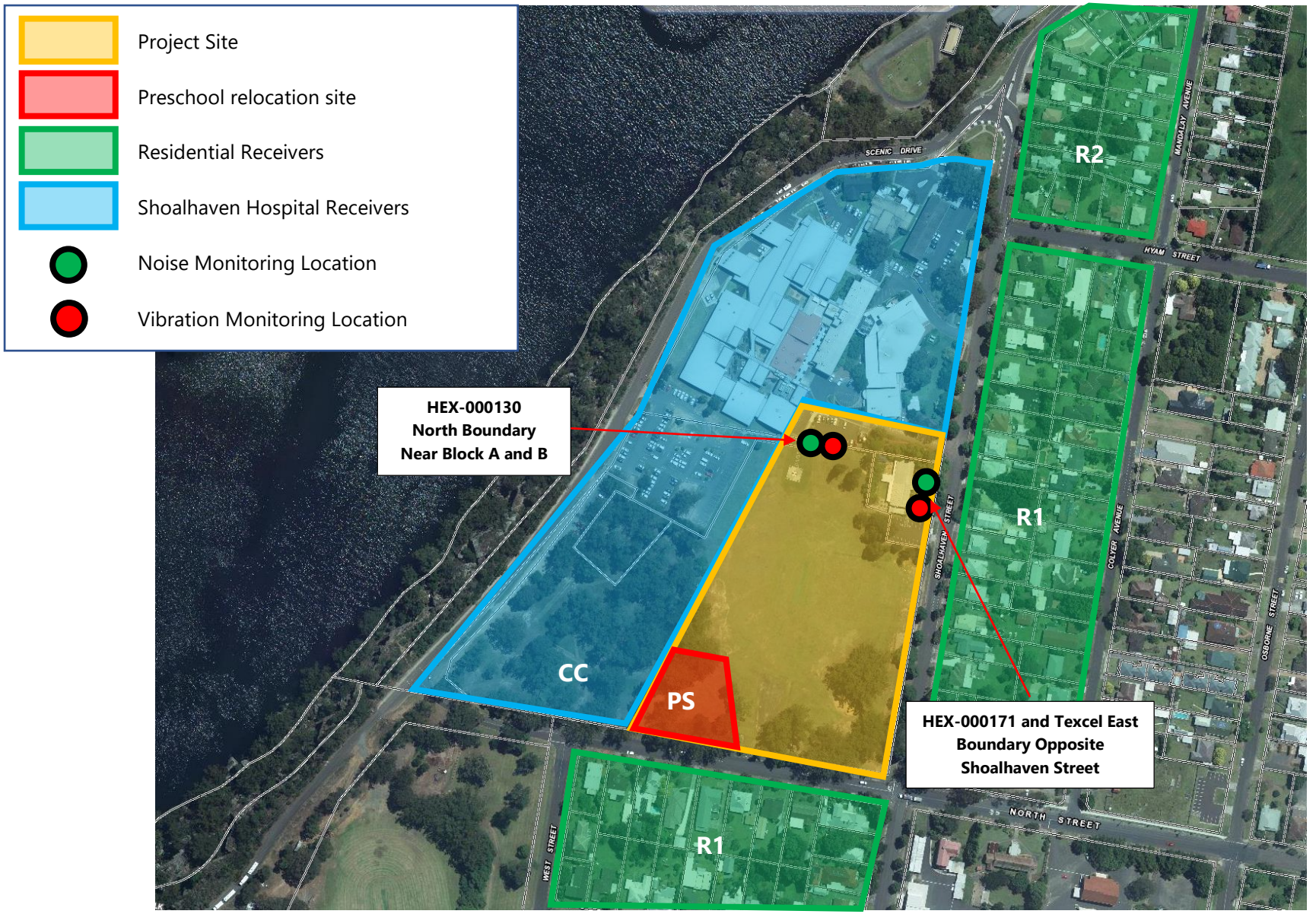


Figure 1 – Site Map. Monitoring Locations and Surrounding Receivers

3 MONITORING LOCATIONS AND DESCRIPTION

Refer to Figure 1 and photos below for monitoring locations.

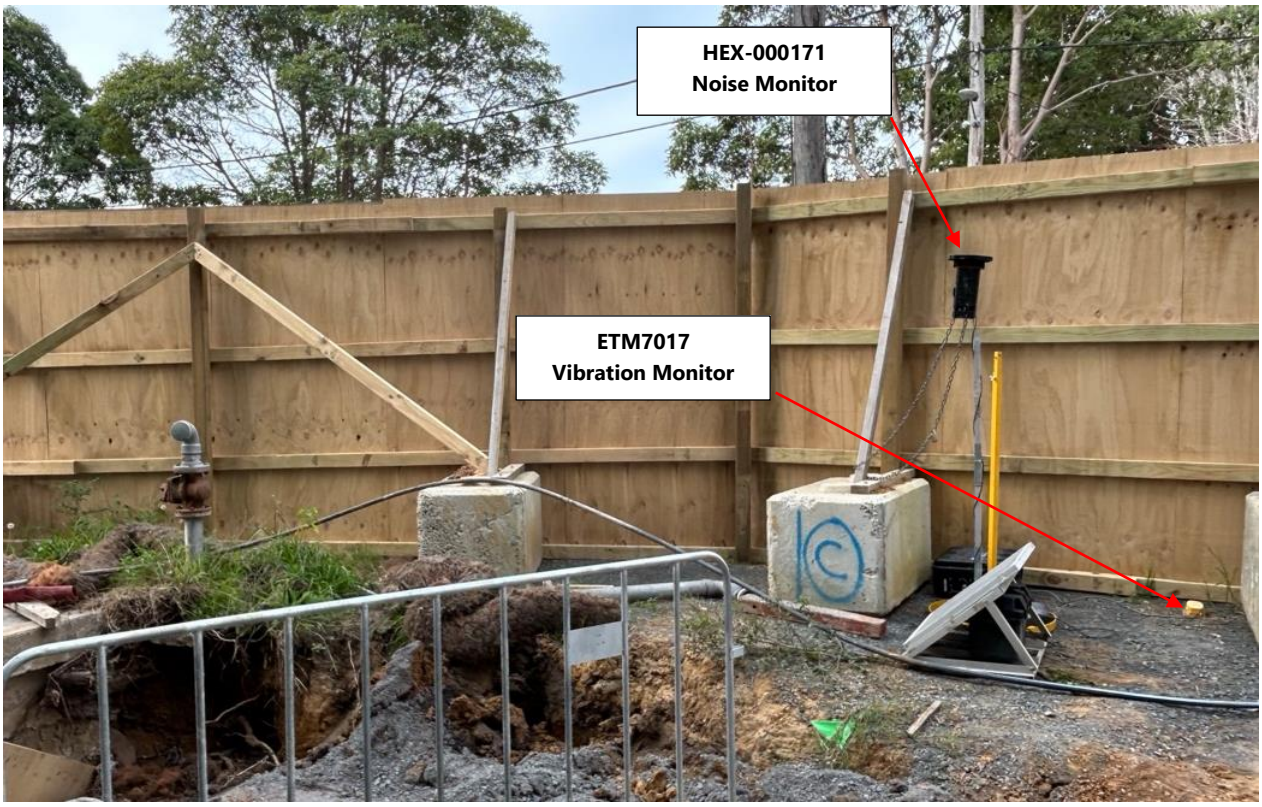


Figure 2 – Noise and Vibration Monitor at East Boundary Opposite Shoalhaven Street

Figure 3 – Noise and Vibration Monitor at North Boundary Near Block A and B

3.1 MONITORING PERIOD

This report presents the results of monitoring between 1/10/2024 and 31/10/2024.

Monitoring has been ongoing since 29th May 2023.

3.2 MONITORING EQUIPMENT

Noise

Noise monitoring was conducted using SiteHive Hexanode monitors. Monitors are programmed to continuously store noise data over every 15-minute period, along with any 'triggered' events that occur throughout the monitoring period.

Vibration

Vibration monitoring was conducted using Texcel ETM vibration monitors with external Tri-axial Geophones. The vibration monitors are programmed to store statistical vibration data over every 5-minute period, along with any 'triggered' events that occur throughout the monitoring period. Texcel monitors are equipped with the ability to send SMS alarm messages to site operators and project managers.

4 NOISE AND VIBRATION OBJECTIVES

4.1 PROJECT DOCUMENTATION

Construction impacts to nearby development have been determined in the Construction Noise, Dust and Vibration Management Sub Plan (ref: 20230220.1/0506A/R1/VF, dated 05/06/2023)

4.1.1 Noise Management Levels (NML)

The project specific NML's for the most impacted receivers are summarised from the Sub-Plan and are reproduced as follows:

Table 2 – Noise Management Levels for Most Impacted Receivers

Location/Receiver	RBL dB(A) L_{90}	NML dB(A) L_{eq}	HANML dB(A) L_{eq}
Residents Surrounding the Project Site	35	45 (Standard Construction Hours) 40 (OOSH)	75
Cancer Centre Overnight Stay	N/A	65	N/A
Hospital Wards and Operating Theatres (internal)	N/A	45 internal* 65 external	N/A

* An external noise level of 65 dB(A) would result in an internal noise level of 45 dB(A) assuming a typical 20 dB(A) reduction for a standard façade. Therefore, compliance with the external NML will also result in compliance with the internal NML.

4.1.2 Vibration Management Levels

German Standard DIN 4150-3 (2016) provides a guideline for acceptable levels of vibration velocity in building foundations, to assess the effects of vibration on structures. The table give guidance on the maximum accepted values of velocity at the foundation and in the plane of the highest floor of various types of buildings, to prevent any structural damage.

The table below lists the peak particle velocity, which is the maximum absolute value of the velocity signals for the three orthogonal components. This is measured as a maximum value of any of the three orthogonal component particle velocities when 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.

It is noted that if measured vibration levels are below the guidelines listed below, damage that will reduce the serviceability of the building will not occur and if damage to the building does occur, it is assumed that the damage is related to other activities or sources. Furthermore, the DIN4150-3 guideline states the following regarding the limits presented in Table 1 of the standard:

"Exceeding the guideline values does not necessarily lead to damage. Should they be exceeded, however, further investigations may be necessary, such as determining and evaluating the stresses as detailed in 4.3 and 4.4.".

Table 3 -(Table 1 – DIN 4150-3 (2016)) – Guideline Values for Vibration Velocity, $v_{i,max}$, for Evaluating the Effects of Short-Term Vibration on Structures

	TYPE OF STRUCTURE	Guideline values for $v_{i,max}$ in mm/s				
		Foundation, all directions, i = x, y, z, at a frequency of			Topmost floor, horizontal direction, i = x, y	Floor slabs, vertical direction, i = z
		1Hz to 10Hz	10Hz to 50Hz	50Hz to 100Hz [a]	All Frequencies	All Frequencies
L/C	1	2	3	4	5	6
1	Buildings used for commercial purposes, industrial buildings, and buildings of similar design	20	20 to 40	40 to 50	40	20
2	Residential buildings and buildings of similar design and/or occupancy	5	5 to 15	15 to 20	15	20
3	Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 **and** are of great intrinsic value (e.g. listed buildings) buildings that are under a preservation order)	3	3 to 8	8 to 10	8	20[b]

NOTE Even if guideline values as in line 1, columns 2 to 5, are complied with, minor damage cannot be excluded.

a At frequencies above 100 Hz, the guideline values for 100 Hz can be applied as minimum values.

b It may be necessary to lower the guideline value markedly to prevent minor damage

5 MEASUREMENT RESULTS

5.1 NOISE MONITORING RESULTS

The following tables present a summary of daily measured noise levels across a 15-minute period. Refer to appendices for detailed noise monitoring results.

Standard construction hours are as follows:

- Monday to Friday between 7am and 6pm
- Saturday between 8am and 1pm

Note: all presented noise levels are measured at the monitoring location. Noise levels at surrounding receivers are likely to be lower given they are located further away.

NML = Noise Management Level

HNAML = Highly Noise Affected Management Level

A discussion will be provided where exceedances of the highly affected noise management level occur.

5.1.1 East Boundary Facing Shoalhaven Street (Monitor HEX-000171)

Table 4 – Monitored Noise Levels – East Boundary(HEX-000171)

Date	Noise Management Trigger Level dB(A) $L_{eq,15\text{-}min}$	NML Exceedance Range ($L_{Aeq,\ 15\text{-}min}$ dB(A)) – Standard Operating Hours				
		<NML	0-5 above NML	5-10 above NML	10-15 Above NML	75dB(A) Exceeded
1/10/2024	45 (external)	0%	0%	11%	32%	0%
2/10/2024		0%	2%	7%	25%	0%
3/10/2024		0%	7%	2%	43%	0%
4/10/2024		0%	36%	25%	14%	0%
5/10/2024		15%	85%	0%	0%	0%
6/10/2024		Sunday – No Works				
7/10/2024		32%	66%	2%	0%	0%
8/10/2024		0%	84%	16%	0%	0%
9/10/2024		0%	0%	2%	20%	0%
10/10/2024		0%	2%	9%	48%	0%
11/10/2024		0%	14%	2%	11%	0%
12/10/2024		10%	85%	5%	0%	0%
13/10/2024		Sunday – No Works				
14/10/2024		0%	2%	5%	16%	0%
15/10/2024		0%	0%	2%	32%	0%
16/10/2024		0%	0%	0%	0%	0%
17/10/2024		0%	5%	9%	20%	0%
18/10/2024		0%	16%	9%	23%	0%
19/10/2024		25%	65%	5%	0%	0%
20/10/2024		Sunday – No Works				
21/10/2024		2%	5%	14%	48%	0%
22/10/2024		0%	7%	5%	39%	0%
23/10/2024		0%	5%	7%	45%	0%
24/10/2024		0%	2%	11%	27%	0%
25/10/2024		0%	14%	16%	34%	0%
26/10/2024		10%	90%	0%	0%	0%
27/10/2024		Sunday – No Works				
28/10/2024		0%	5%	9%	43%	0%
29/10/2024		0%	5%	0%	43%	0%
30/10/2024		0%	0%	0%	32%	0%
31/10/2024		0%	2%	11%	57%	0%

5.1.2 North Boundary Near Block A and B (Monitor HEX-000130)

Table 5 – Monitored Noise Levels – North Boundary(HEX-000130)

Date	Noise Management Trigger Level dB(A) $L_{eq,15\text{-}min}$	NML Exceedance Range ($L_{Aeq,\ 15\text{-}min}$ dB(A)) – Standard Operating Hours				
		<NML	0-5 above NML	5-10 above NML	10-15 Above NML	75dB(A) Exceeded
1/10/2024	65 (external)	34%	64%	2%	0%	0%
2/10/2024		16%	82%	2%	0%	0%
3/10/2024		27%	73%	0%	0%	0%
4/10/2024		64%	36%	0%	0%	0%
5/10/2024		100%	0%	0%	0%	0%
6/10/2024		Sunday – No Works				
7/10/2024		100%	0%	0%	0%	0%
8/10/2024		100%	0%	0%	0%	0%
9/10/2024		32%	68%	0%	0%	0%
10/10/2024		52%	45%	2%	0%	0%
11/10/2024		36%	59%	5%	0%	0%
12/10/2024		100%	0%	0%	0%	0%
13/10/2024		Sunday – No Works				
14/10/2024		39%	61%	0%	0%	0%
15/10/2024		32%	68%	0%	0%	0%
16/10/2024		39%	57%	5%	0%	0%
17/10/2024		30%	66%	2%	2%	2%
18/10/2024		55%	45%	0%	0%	0%
19/10/2024		100%	0%	0%	0%	0%
20/10/2024		Sunday – No Works				
21/10/2024		30%	70%	0%	0%	0%
22/10/2024		23%	75%	2%	0%	0%
23/10/2024		45%	52%	2%	0%	0%
24/10/2024		31%	67%	2%	0%	0%
25/10/2024		33%	62%	5%	0%	0%
26/10/2024		100%	0%	0%	0%	0%
27/10/2024		Sunday – No Works				
28/10/2024		41%	59%	0%	0%	0%
29/10/2024		30%	70%	0%	0%	0%
30/10/2024		36%	64%	0%	0%	0%
31/10/2024		21%	71%	7%	0%	0%

5.2 VIBRATION MONITORING RESULTS

5.2.1 East Boundary Opposite Shoalhaven Street (Monitor ETM7326)

Table 6 – Monitored Vibration Levels – East Boundary (ETM7326)

Date	Measured PPV Daily Maximum (mm/s)	Vibration Monitoring Criteria	Compliance
1/10/2024	0.3	DIN4150 Type 2 (Refer Table 3): 5 mm/s (<10 Hz) 10 to 15 mm/s (10- 50Hz) 15 to 20 mm/s (50 - 100 Hz)	Yes
2/10/2024	1.0		Yes
3/10/2024	0.8		Yes
4/10/2024	0.5		Yes
5/10/2024	0.2		Yes
6/10/2024	0.1		Yes
7/10/2024	0.2		Yes
8/10/2024	0.2		Yes
9/10/2024	0.3		Yes
10/10/2024	0.4		Yes
11/10/2024	1.5		Yes
12/10/2024	0.2		Yes
13/10/2024	0.1		Yes
14/10/2024	0.3		Yes
15/10/2024	0.2		Yes
16/10/2024	0.5		Yes
17/10/2024	0.2		Yes
18/10/2024	0.3		Yes
19/10/2024	0.2		Yes
20/10/2024	0.1		Yes
21/10/2024	1.4		Yes
22/10/2024	0.2		Yes
23/10/2024	0.2		Yes
24/10/2024	0.4		Yes
25/10/2024	0.2		Yes
26/10/2024	0.2		Yes
27/10/2024	0.1		Yes
28/10/2024	0.8		Yes
29/10/2024	0.3		Yes
30/10/2024	0.5		Yes
31/10/2024	1.3		Yes

5.2.2 North Boundary Near Block A and B (Monitor ETM7687)

Table 7 – Monitored Vibration Levels – North Boundary (ETM7687)

Date	Measured PPV Daily Maximum (mm/s)	Vibration Monitoring Criteria	Compliance
1/10/2024	3.0	DIN4150 Type 2 (Refer Table 3): 5 mm/s (<10 Hz) 10 to 15 mm/s (10- 50Hz) 15 to 20 mm/s (50 - 100 Hz)	Yes
2/10/2024	0.7		Yes
3/10/2024	0.6		Yes
4/10/2024	0.4		Yes
5/10/2024	0.2		Yes
6/10/2024	0.2		Yes
7/10/2024	0.1		Yes
8/10/2024	0.2		Yes
9/10/2024	0.4		Yes
10/10/2024	0.4		Yes
11/10/2024	3.6		Yes
12/10/2024	0.2		Yes
13/10/2024	0.1		Yes
14/10/2024	0.7		Yes
15/10/2024	0.4		Yes
16/10/2024	0.4		Yes
17/10/2024	1.1		Yes
18/10/2024	0.4		Yes
19/10/2024	0.2		Yes
20/10/2024	0.1		Yes
21/10/2024	0.3		Yes
22/10/2024	1.3		Yes
23/10/2024	2.2		Yes
24/10/2024	0.4		Yes
25/10/2024	0.5		Yes
26/10/2024	0.1		Yes
27/10/2024	0.2		Yes
28/10/2024	0.3		Yes
29/10/2024	0.2		Yes
30/10/2024	0.5		Yes
31/10/2024	0.4		Yes

5.3 DISCUSSION

5.3.1 Noise

East Boundary Opposite Shoalhaven Street (HEX-000171)

Works were typically above the Noise Management Level and were all below the Highly Noise Affected Management Level over the monitoring period.

North Boundary Near Block A and B (HEX-000130)

Works were generally below the Noise Management Level over the monitoring period and were all below the Highly Noise Affected Management Level over the monitoring period.

5.3.2 Vibration

North Boundary Near Block A and B (ETM7687)

- Across all works within this monitoring period, maximum vibration levels were all within acceptable levels.

East Boundary Opposite Shoalhaven Street (ETM7326)

- Across all works within this monitoring period, maximum vibration levels were all within acceptable levels.

5.3.3 General Notes:

- Regarding measured exceedances generally, we note that an exceedance of the noise management level is not necessarily prohibited, however is a trigger for providing mitigation measures for the control of noise from construction activities.
- It should be noted that the measured noise levels will also capture noise outside the project site, such as environmental / traffic noise. Noise from construction activity at nearby residential receivers are expected to be lower than measured values given:
    - Receivers are setback further from the project site
    - The hoarding located along the site boundary will provide at minimum a line-of-sight barrier effect to residents along Shoalhaven Street with approximately 5-10dB noise reduction from the measured levels.
- We note that given the monitors were installed at ground level within site boundaries, any measured vibration levels are likely to be elevated compared to vibration levels at the receiver locations as they are located further away from the vibration source(s).

6 CONCLUSION

Noise and Vibration monitoring has been conducted at various locations for the Shoalhaven Hospital Redevelopment between 1/10/2024 and 31/10/2024.For this monitoring period, we note the following:

Noise

- East Boundary Opposite Shoalhaven Street (HEX-000171) – measured noise levels generally exceeded the NML, however, were all below the HNAML over this monitoring period.
- North Boundary Near Block A and B (HEX-000130) - noise levels were generally below the NML over this monitoring period and were all below the HNAML over this monitoring period.

Vibration

- East Boundary Opposite Shoalhaven Street (ETM7687), vibration levels were all within the nominated criteria during this monitoring period.
- North Boundary Near Block A and B (ETM7326), vibration levels were all within the nominated criteria during this monitoring period.

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

Yours faithfully,

Acoustic Logic Pty Ltd
Hyde Deng

APPENDIX A – NOISE MONITORING GRAPHS

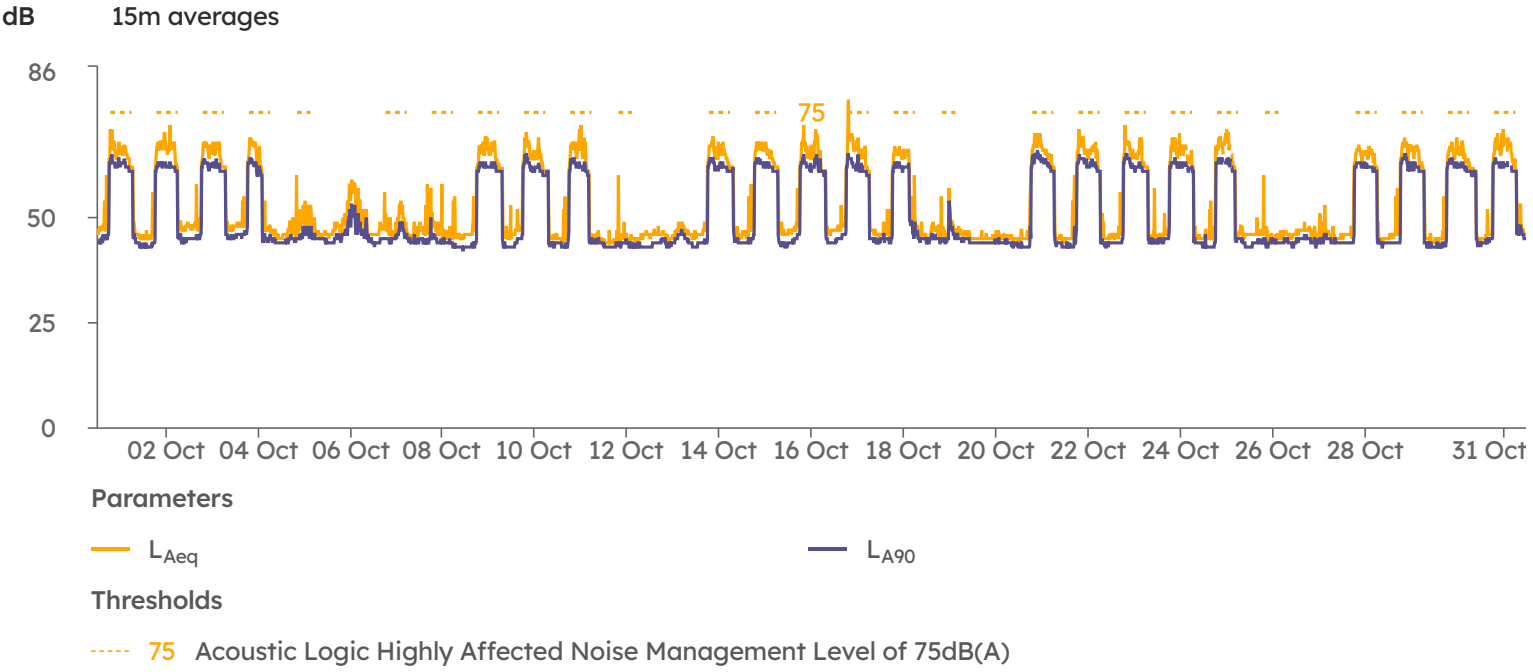
Acoustic Logic

Shoalhaven Hospital Redevelopment

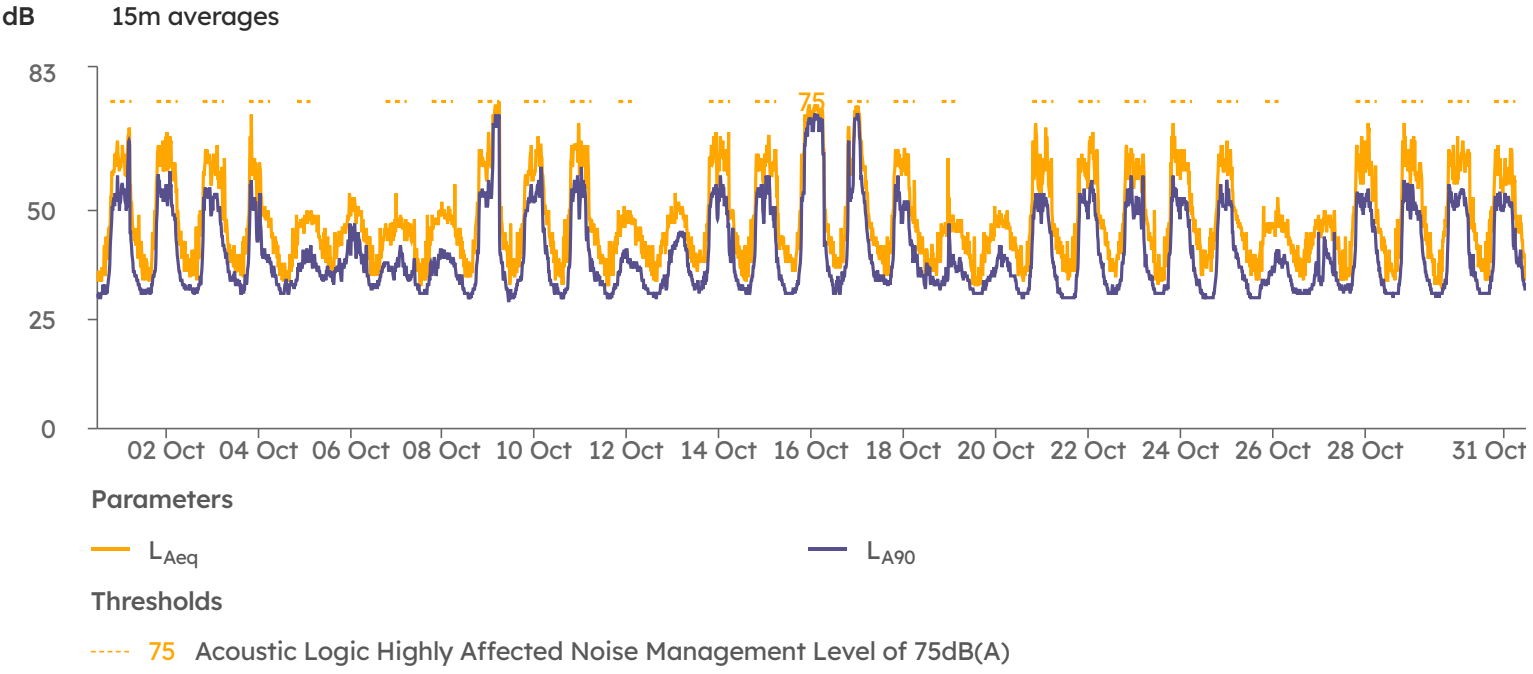
October

Noise Monitoring Graphs

North Boundary Near Block A and B — **01 Oct 2024 - 31 Oct 2024**

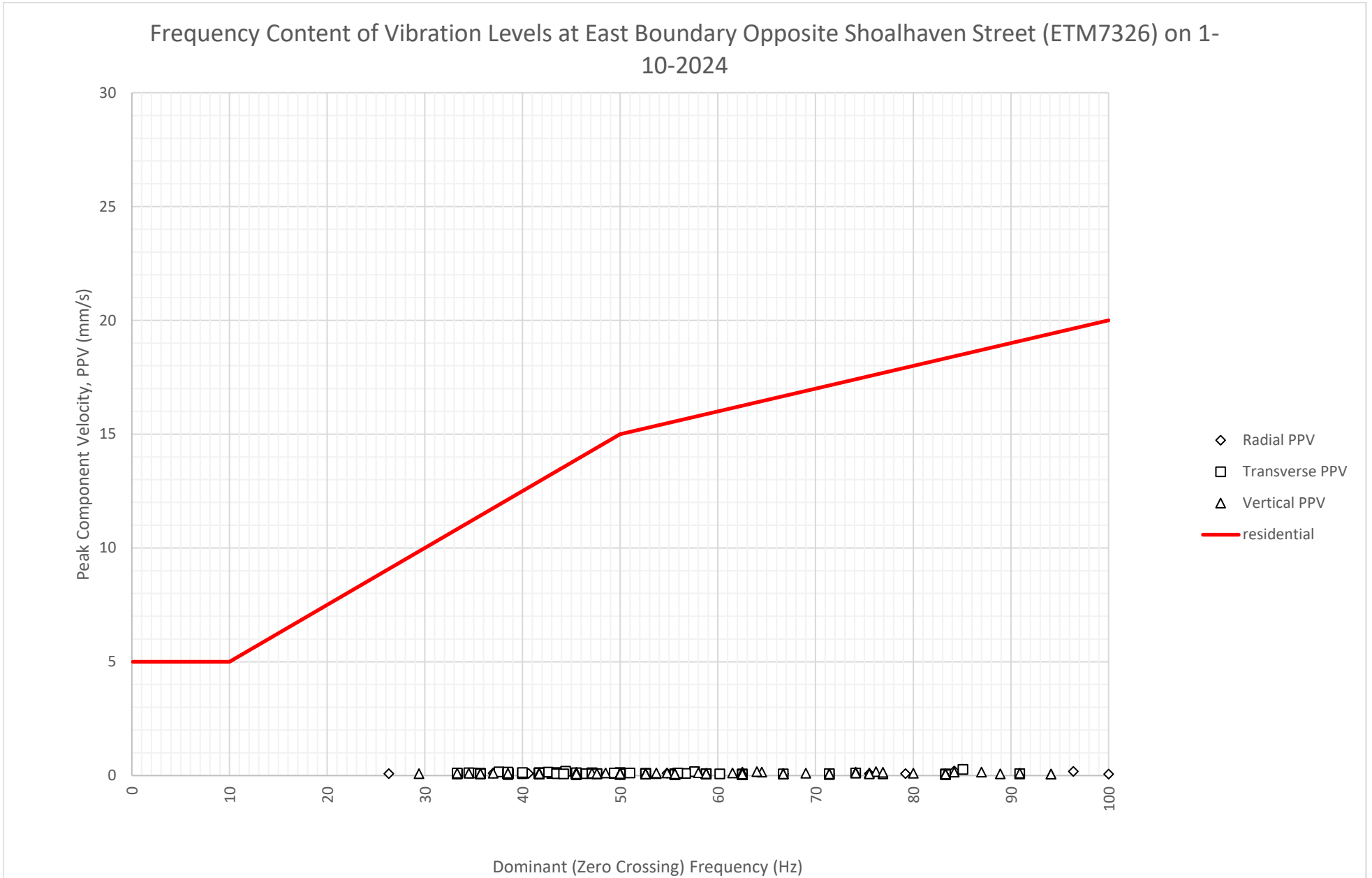


East Boundary Near Shoalhaven Street — **01 Oct 2024 - 31 Oct 2024**

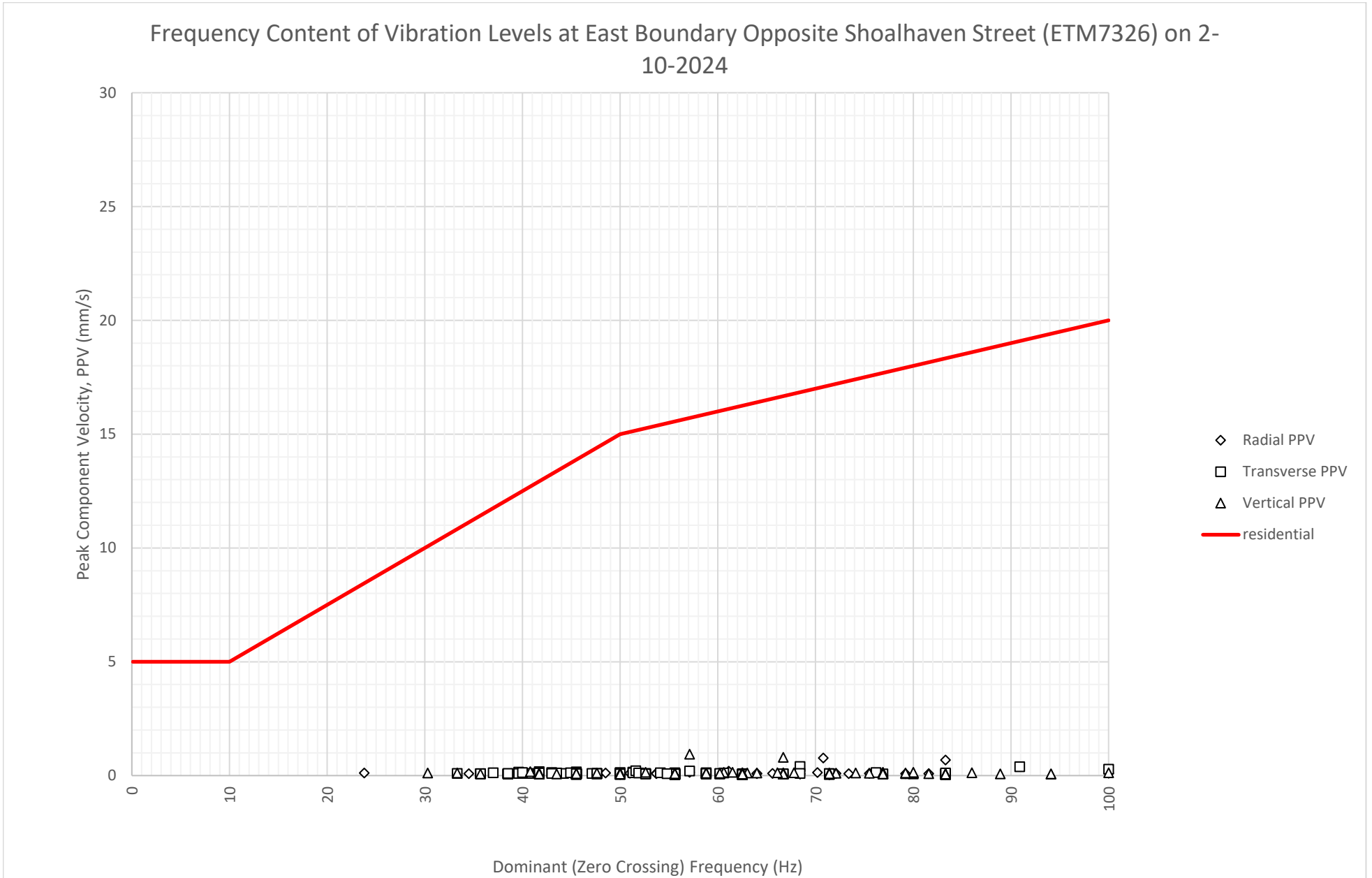


APPENDIX B – VIBRATION MONITORING GRAPHS

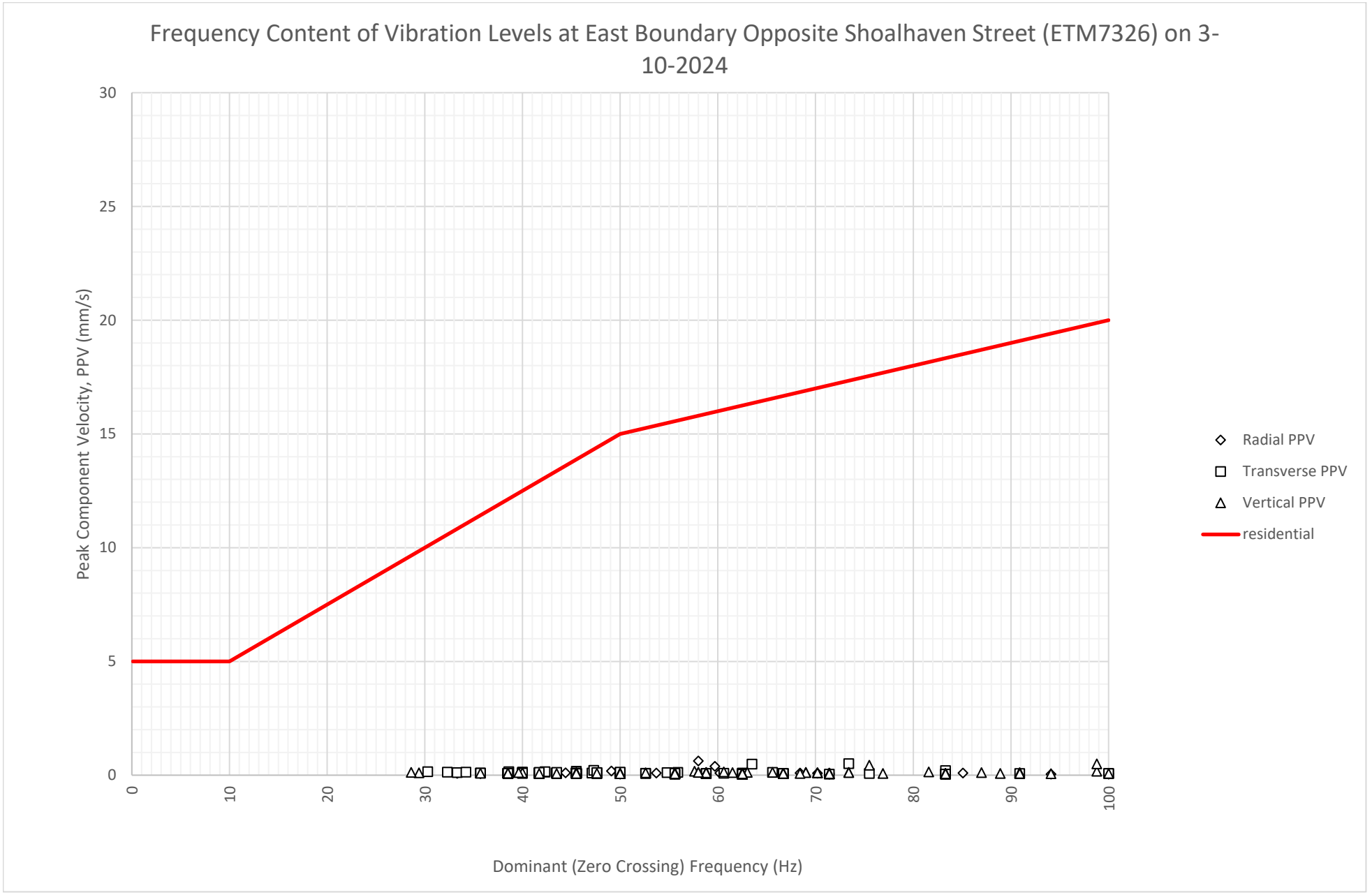

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 1-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 1-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 2-10-2024
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 East Boundary Opposite Shoalhaven Street (ETM7326) on 2-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 3-10-2024
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 East Boundary Opposite Shoalhaven Street (ETM7326) on 3-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 4-10-2024
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
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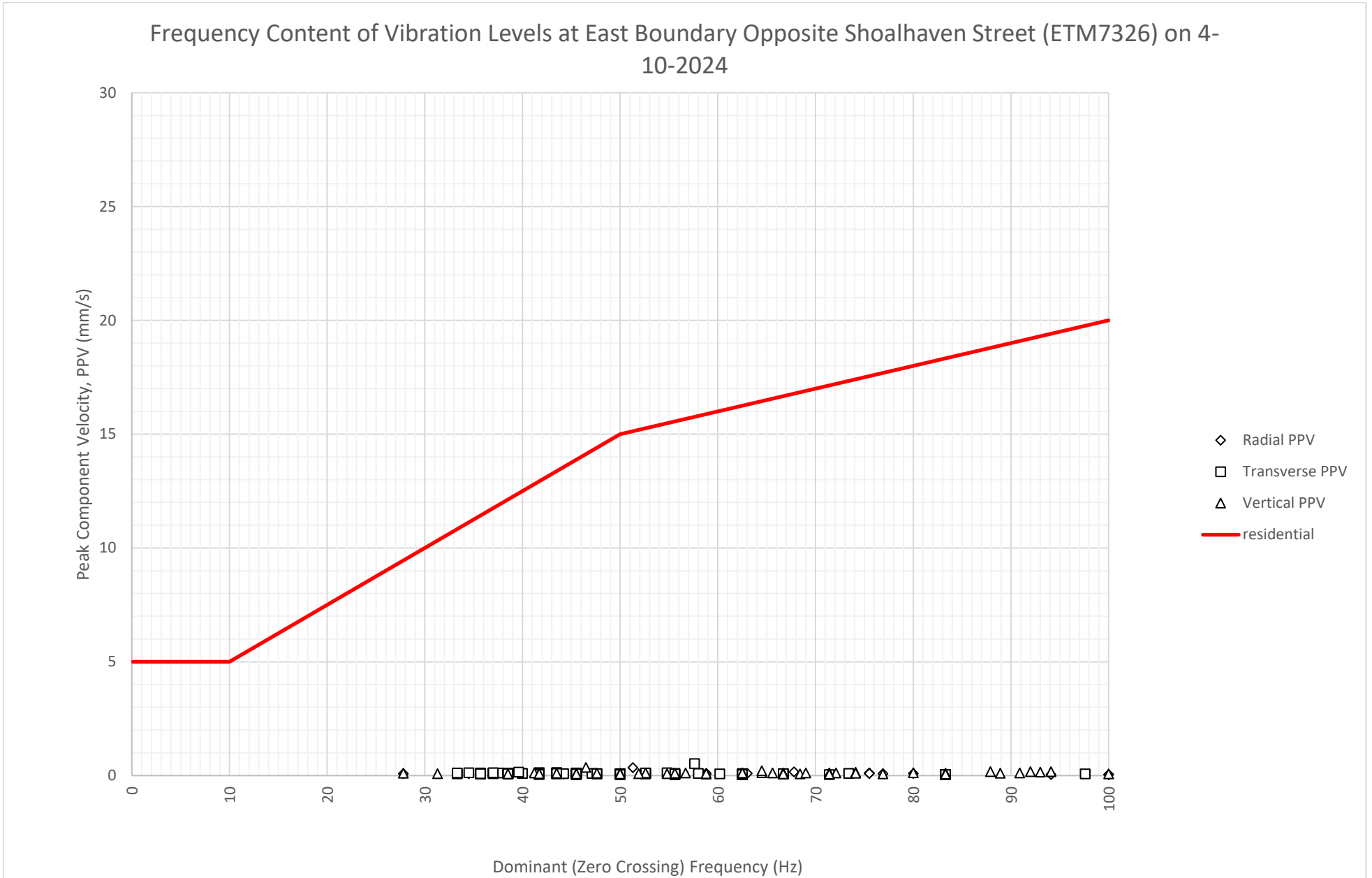
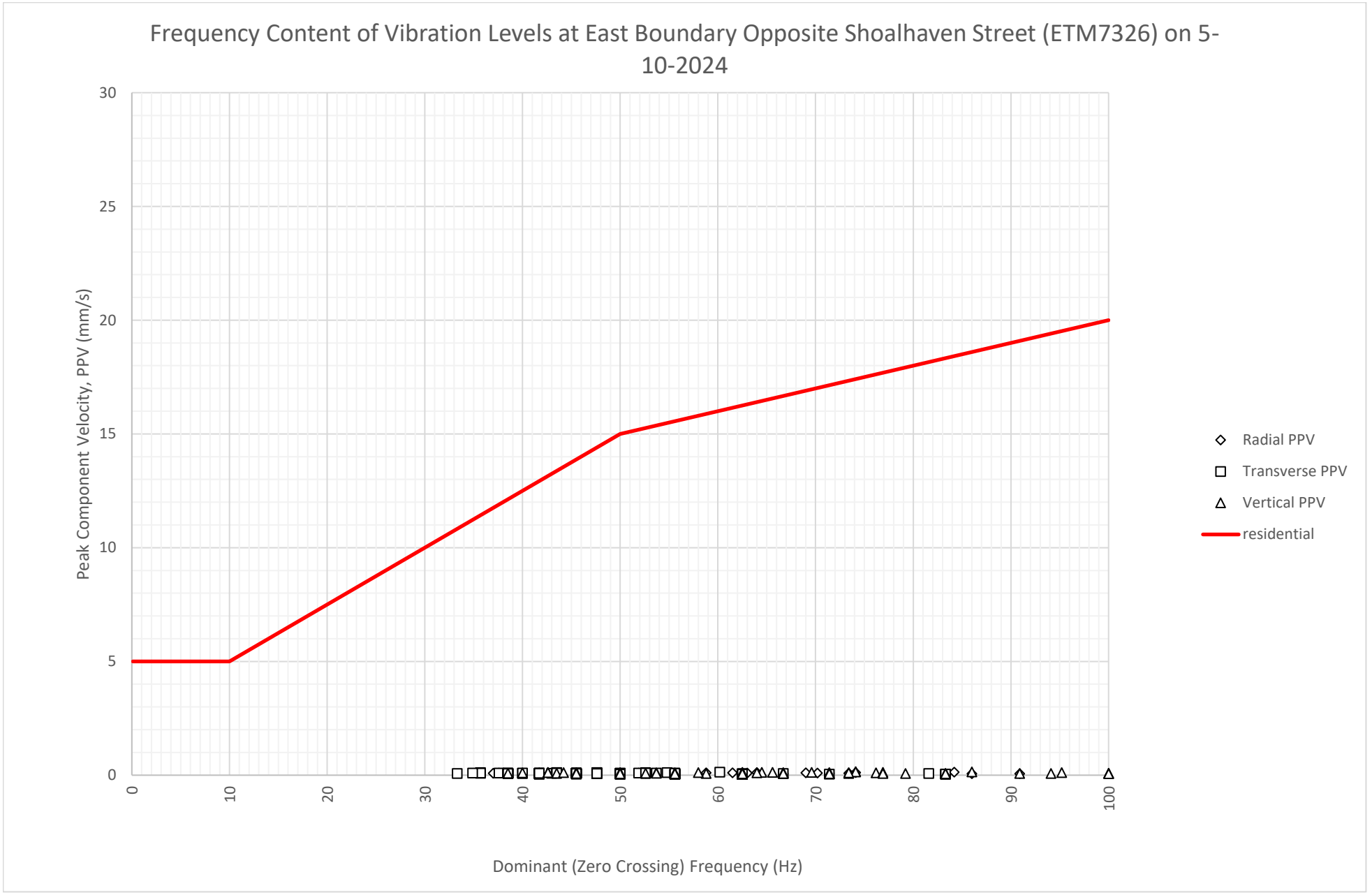
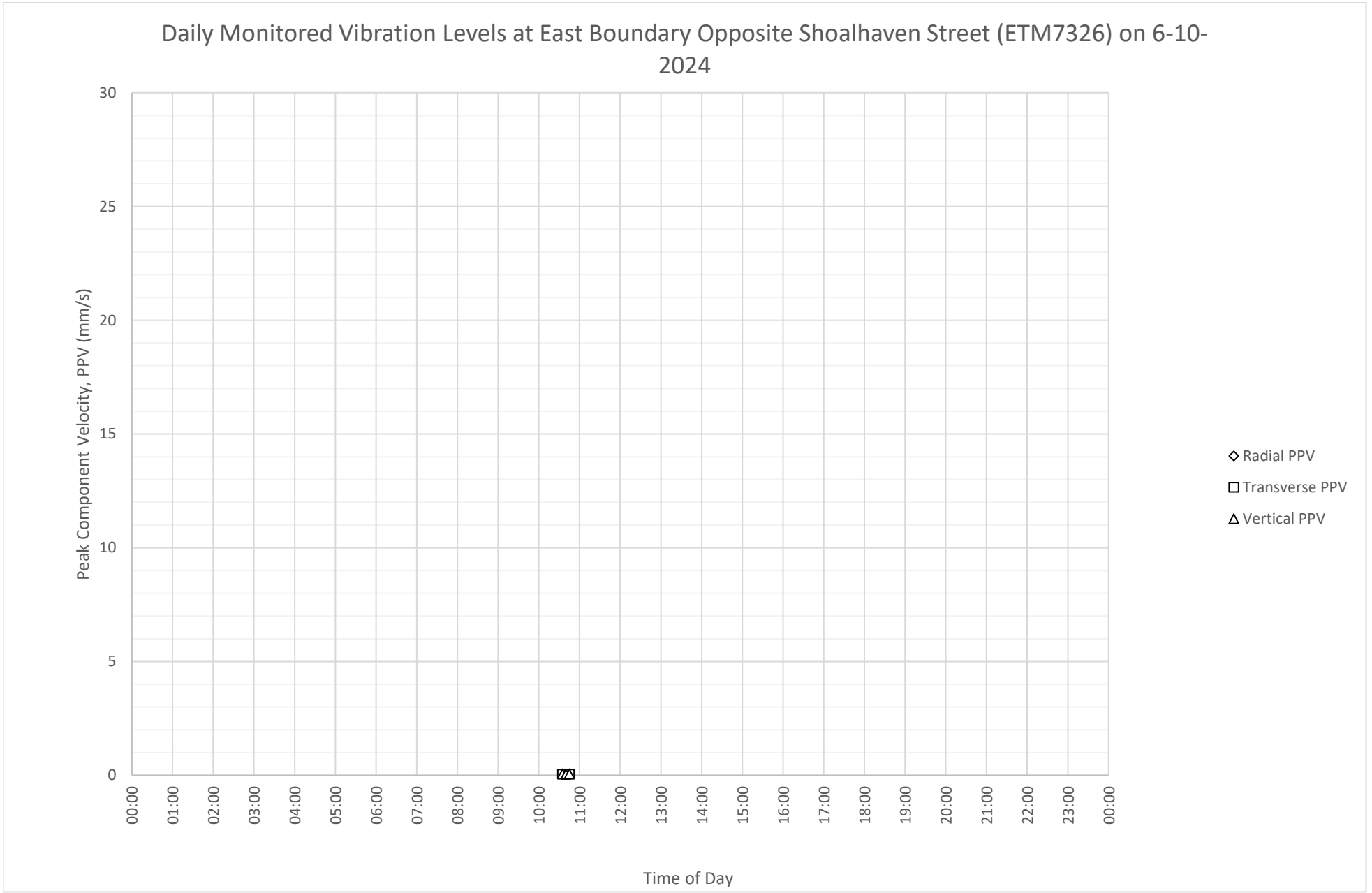
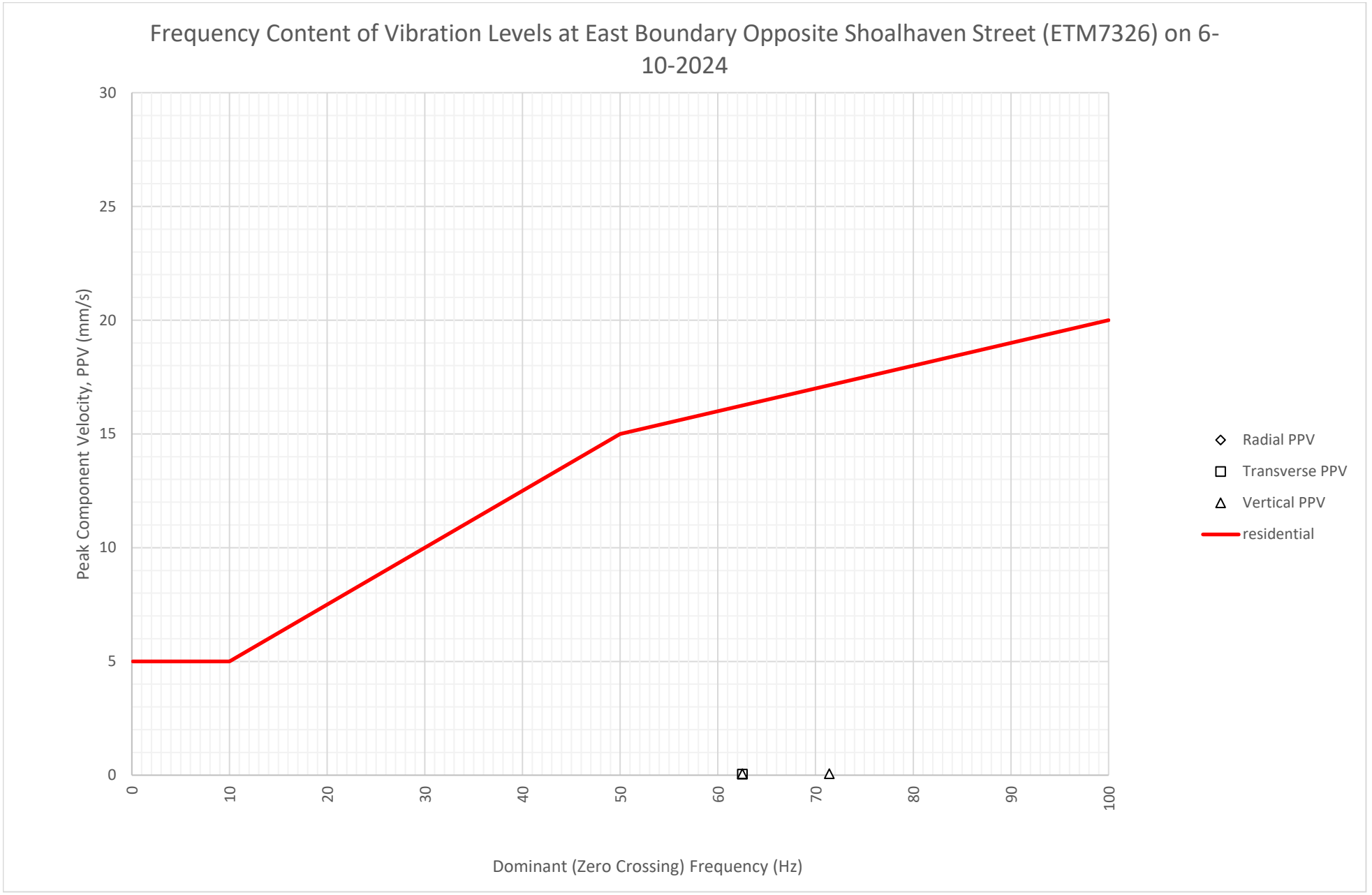
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 4-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

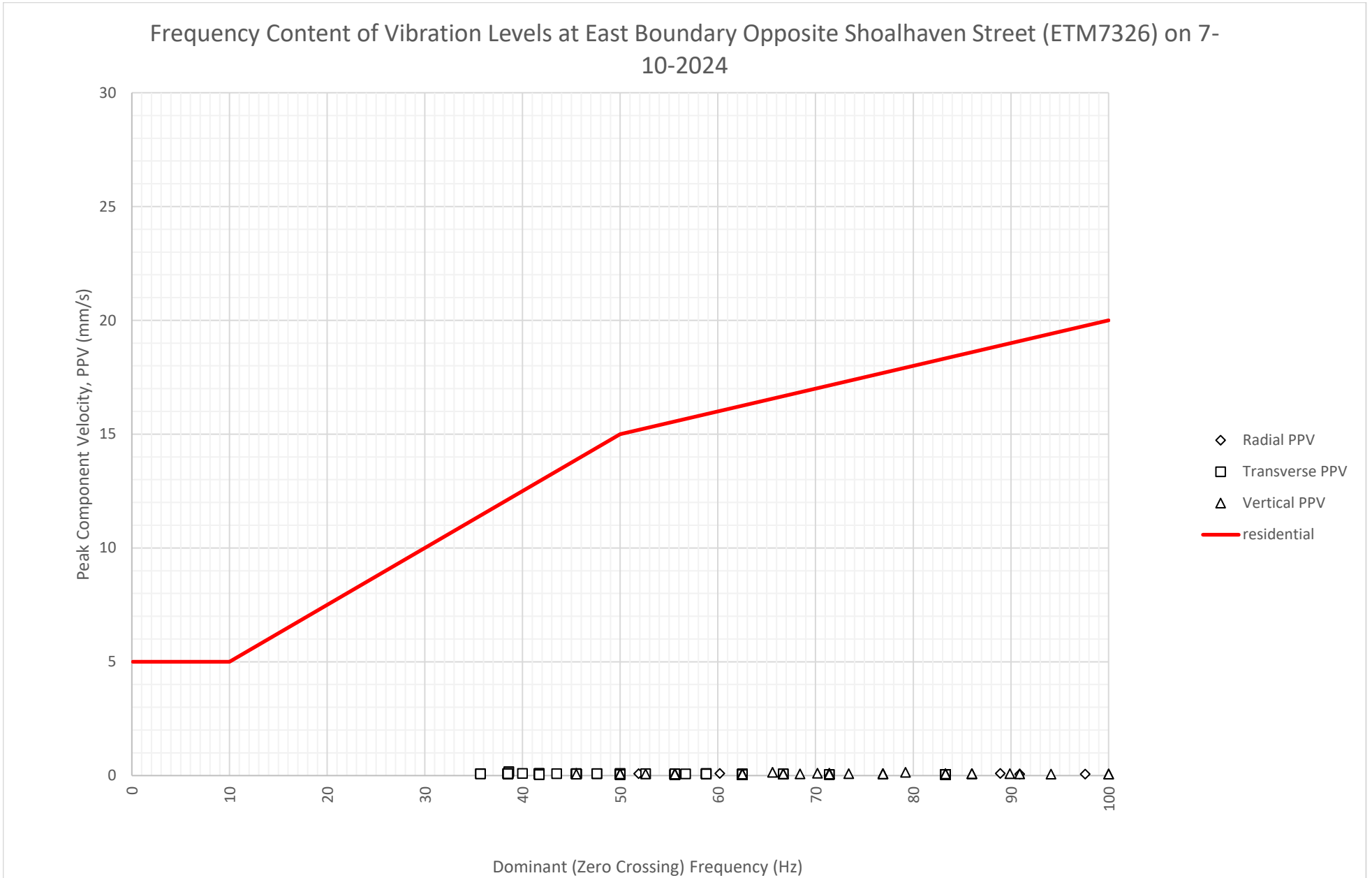

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 5-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 5-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

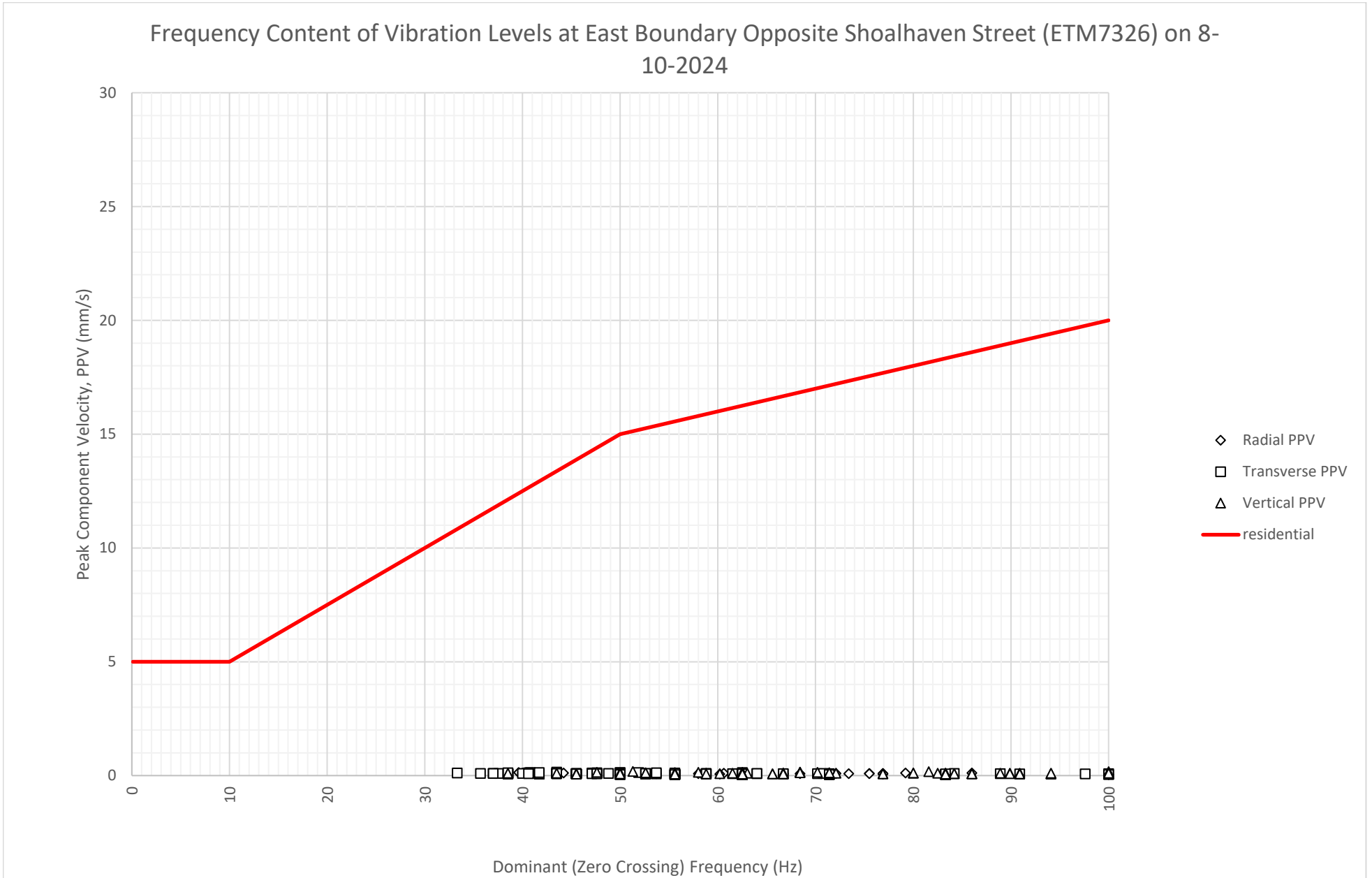

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 6-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 6-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

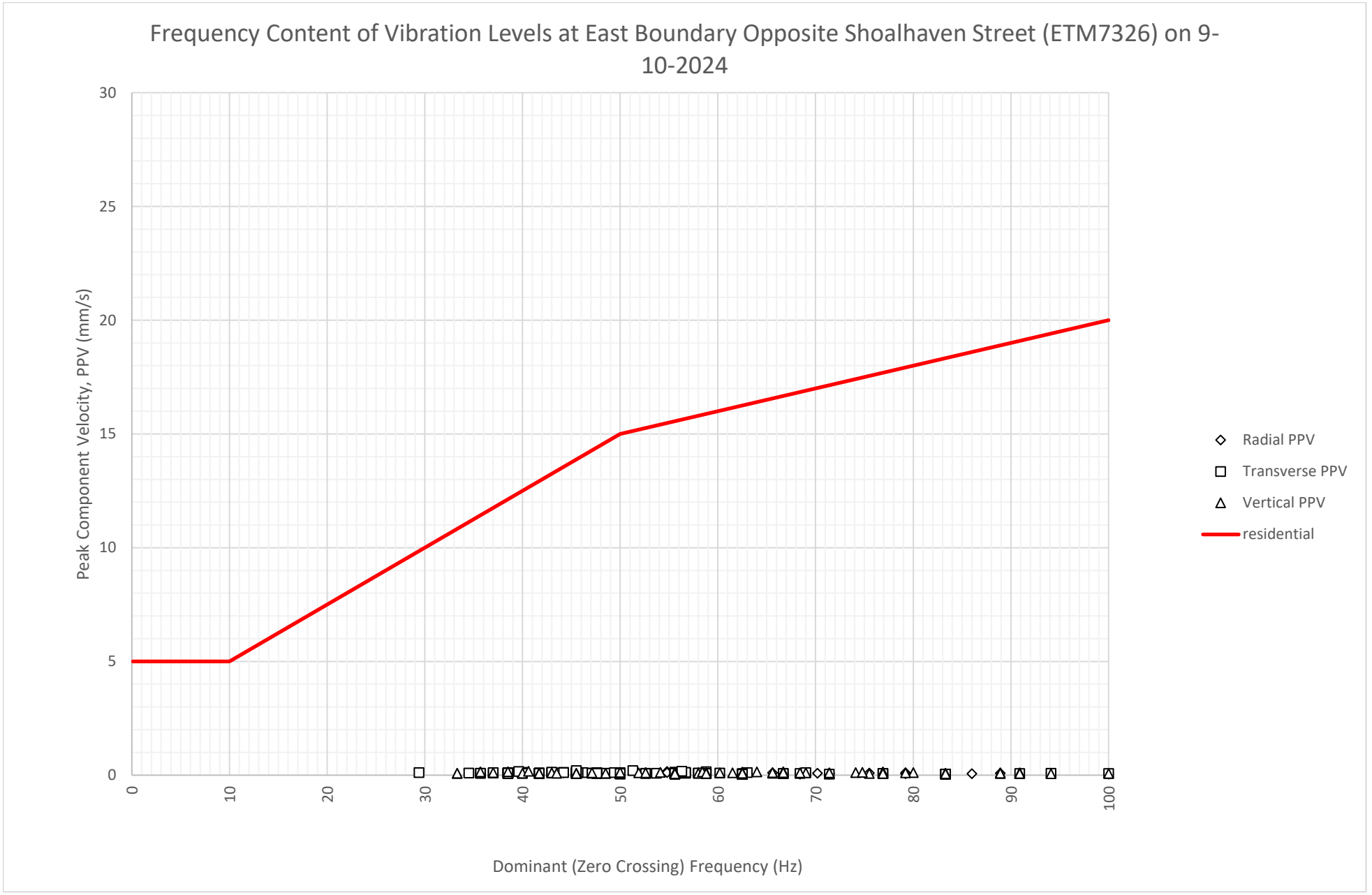

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 7-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 7-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

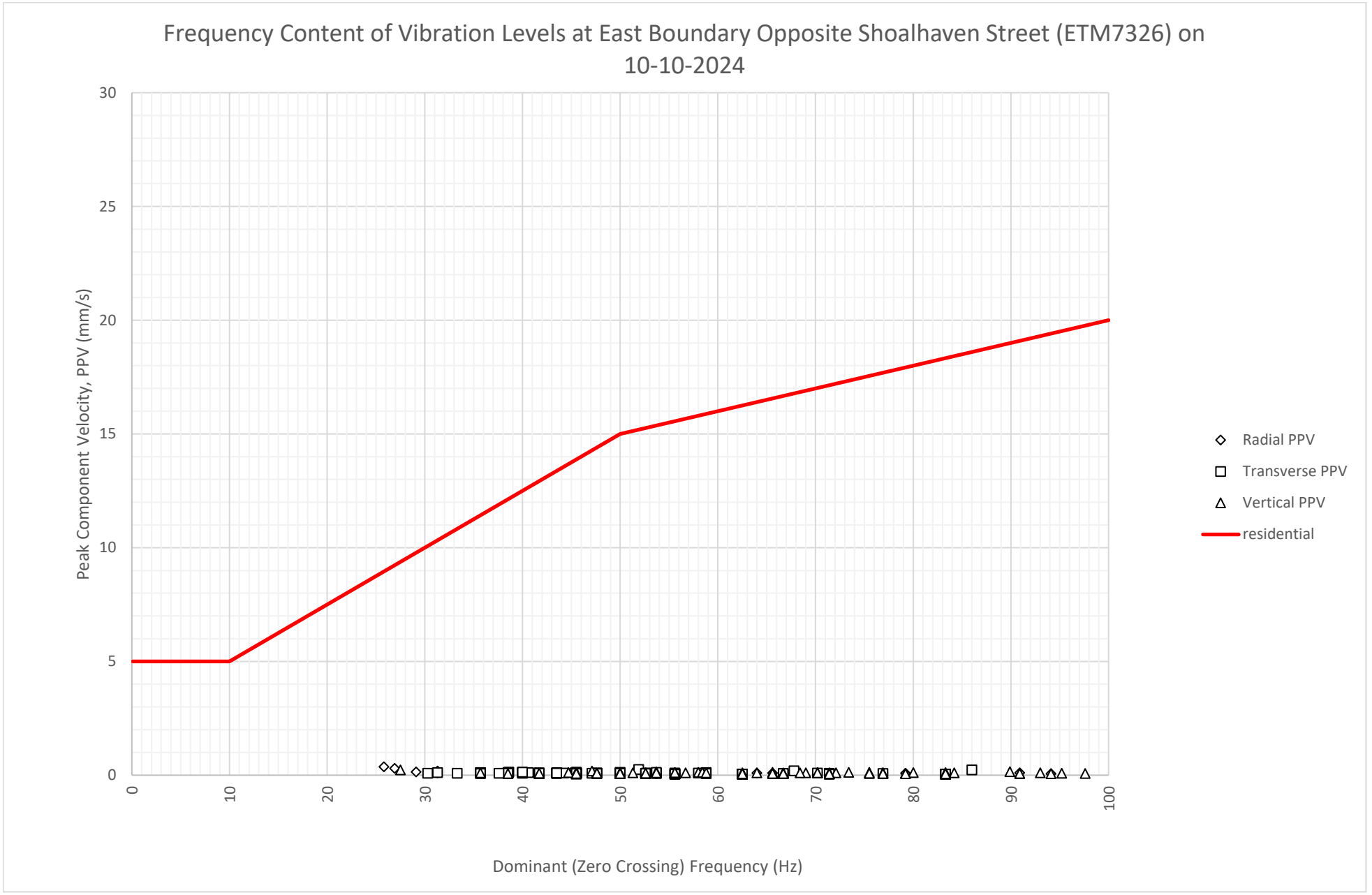

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 8-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 8-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

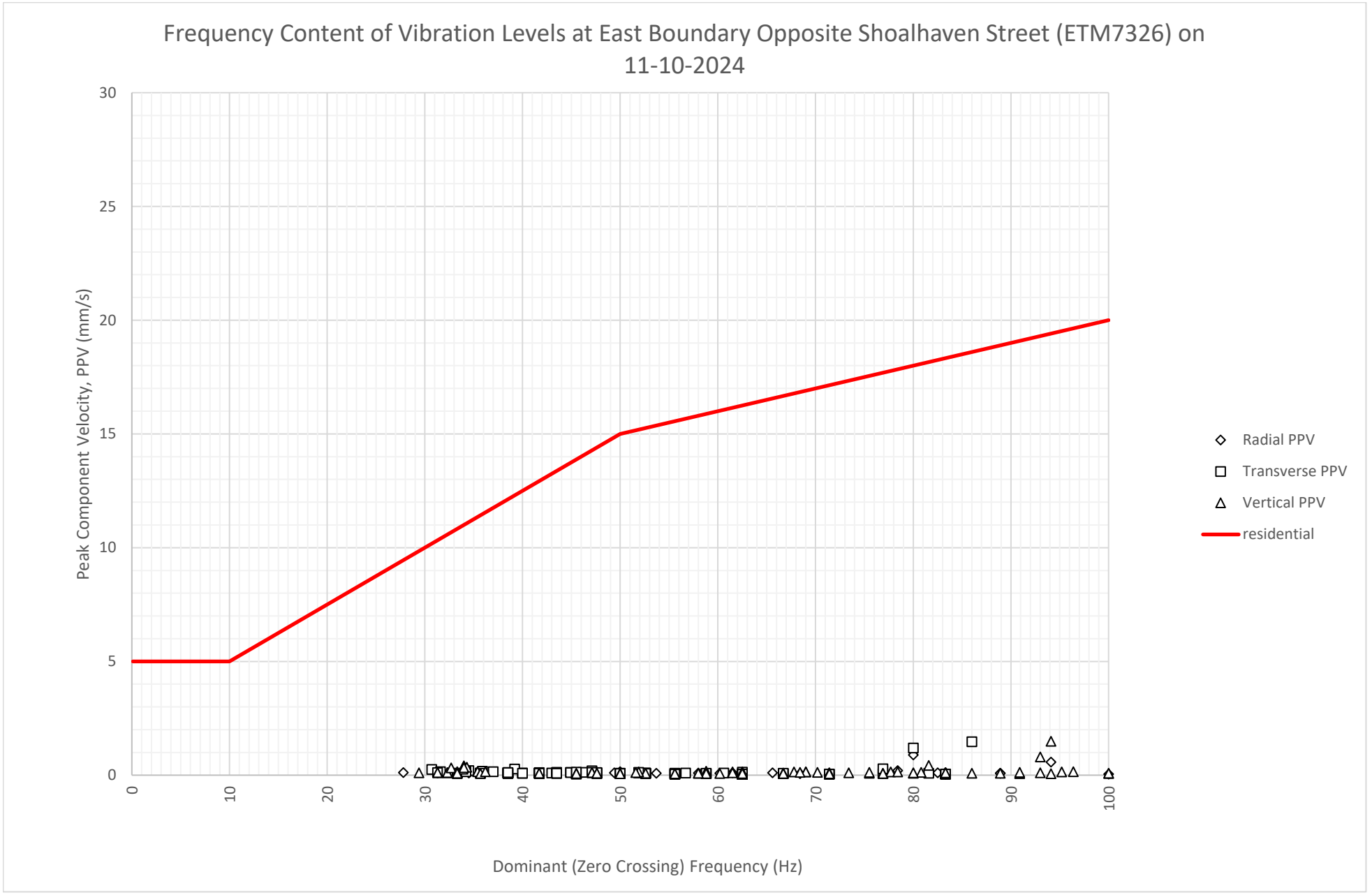

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 9-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 9-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

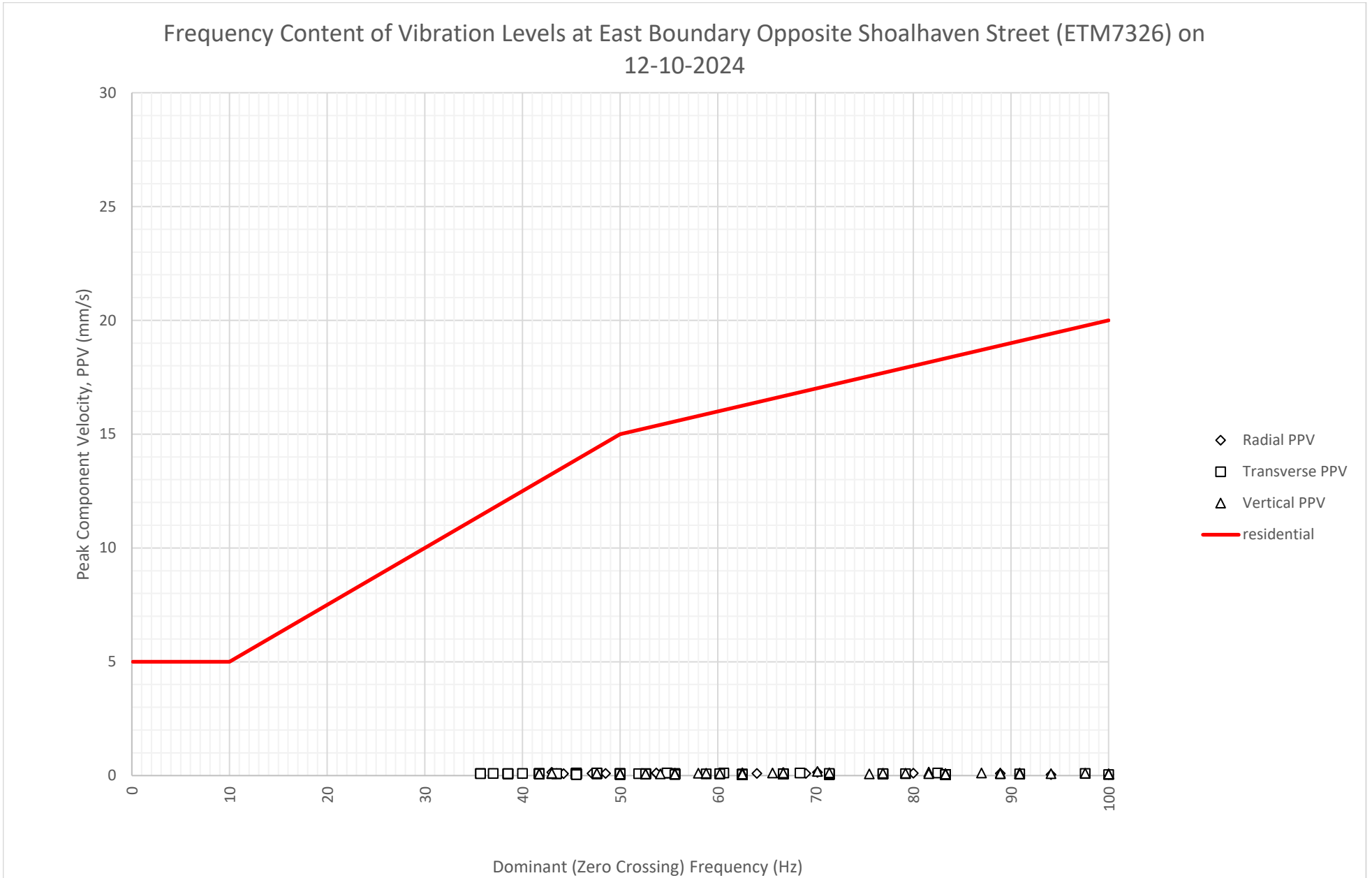

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 10-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 10-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

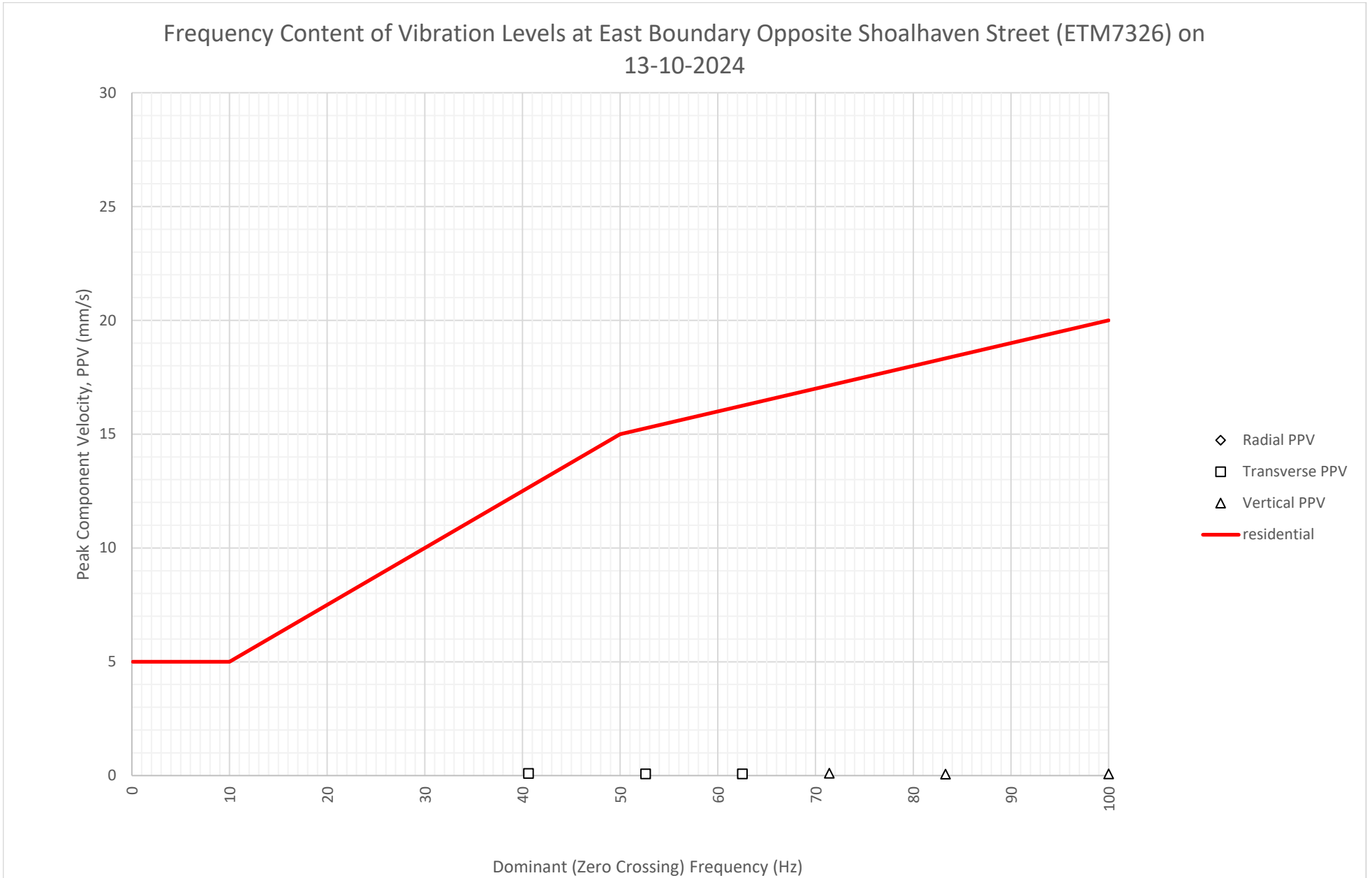

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 11-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 11-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

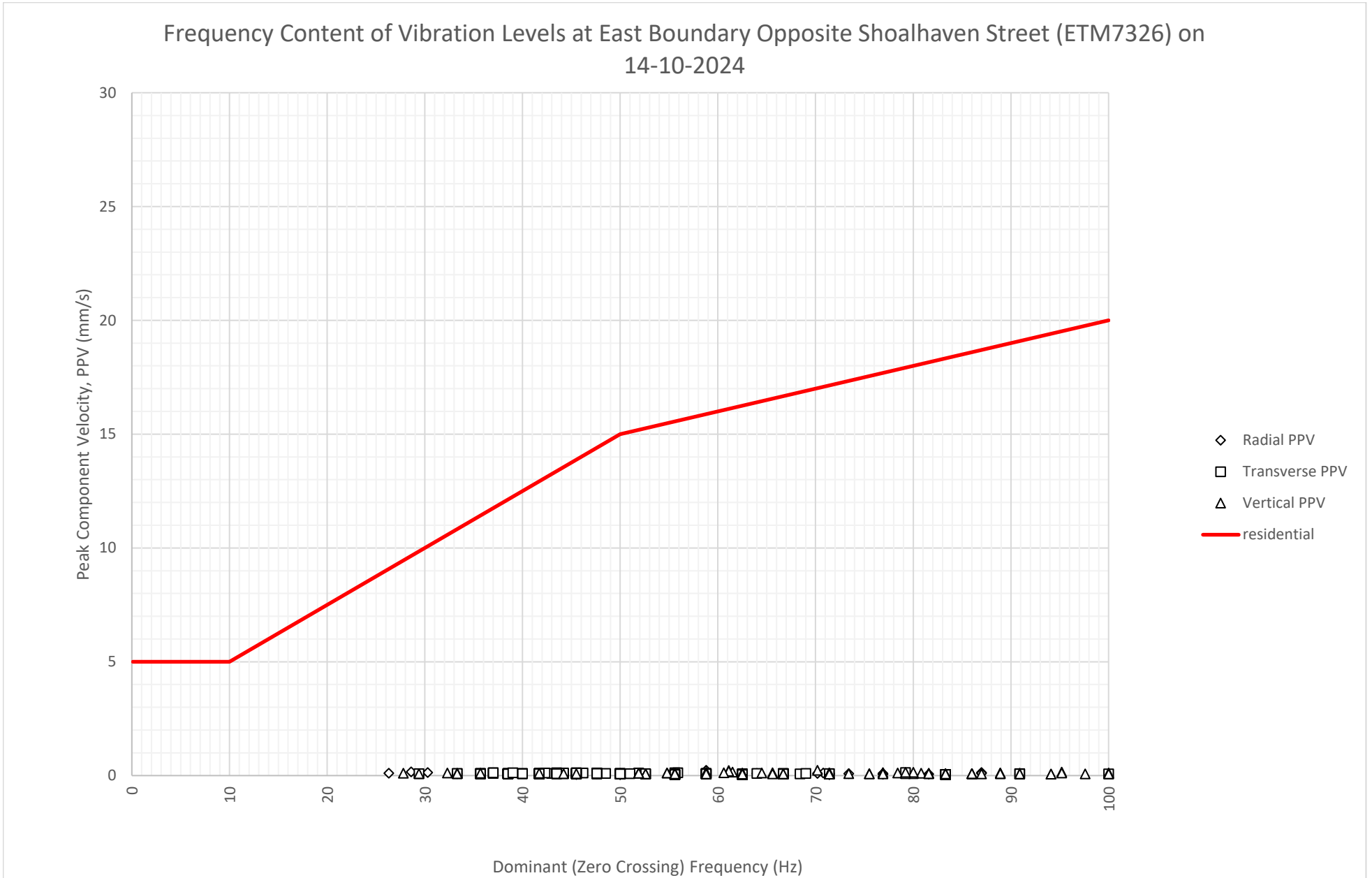

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 12-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 12-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

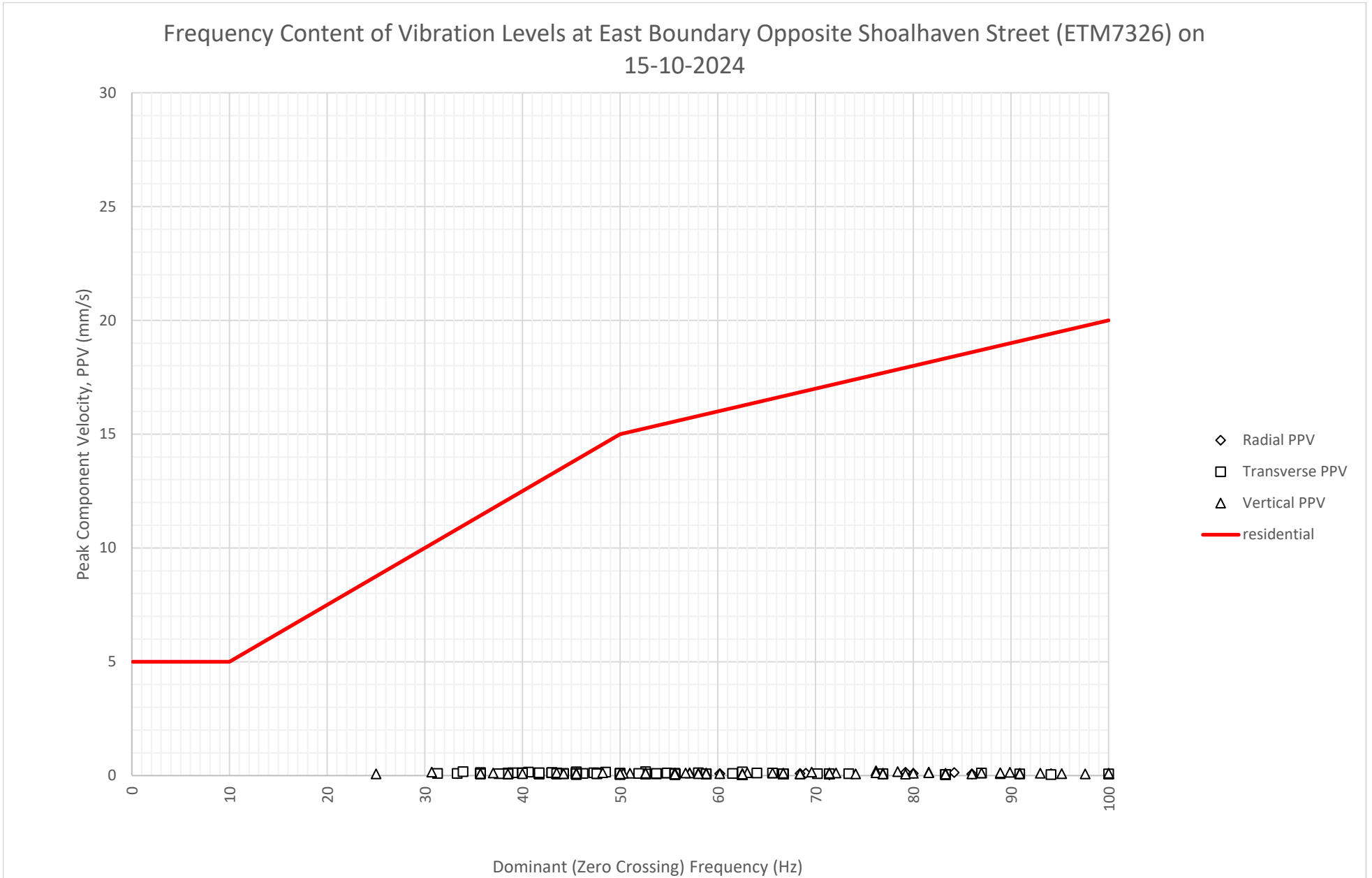

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 13-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 13-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

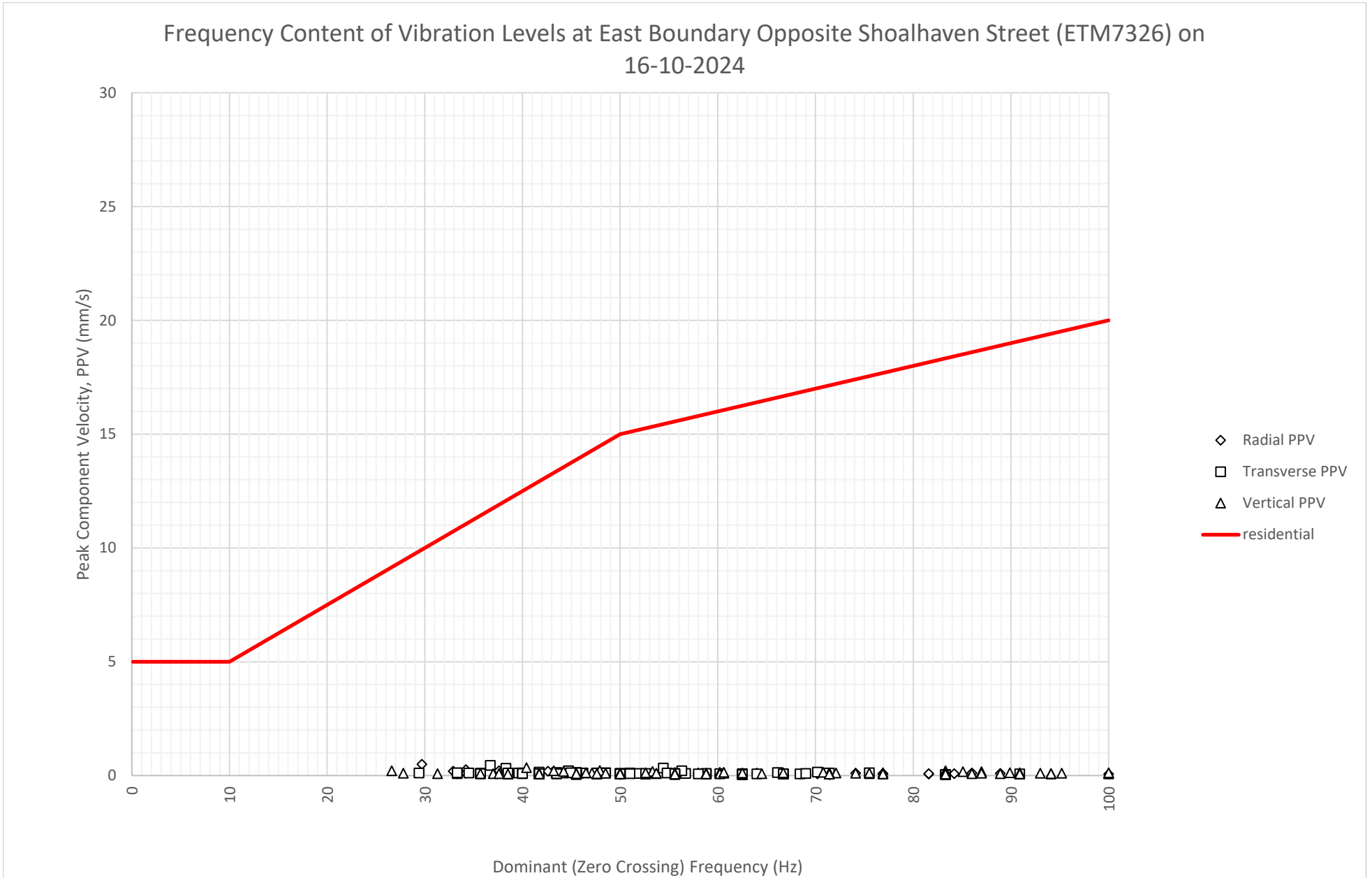

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 14-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 14-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

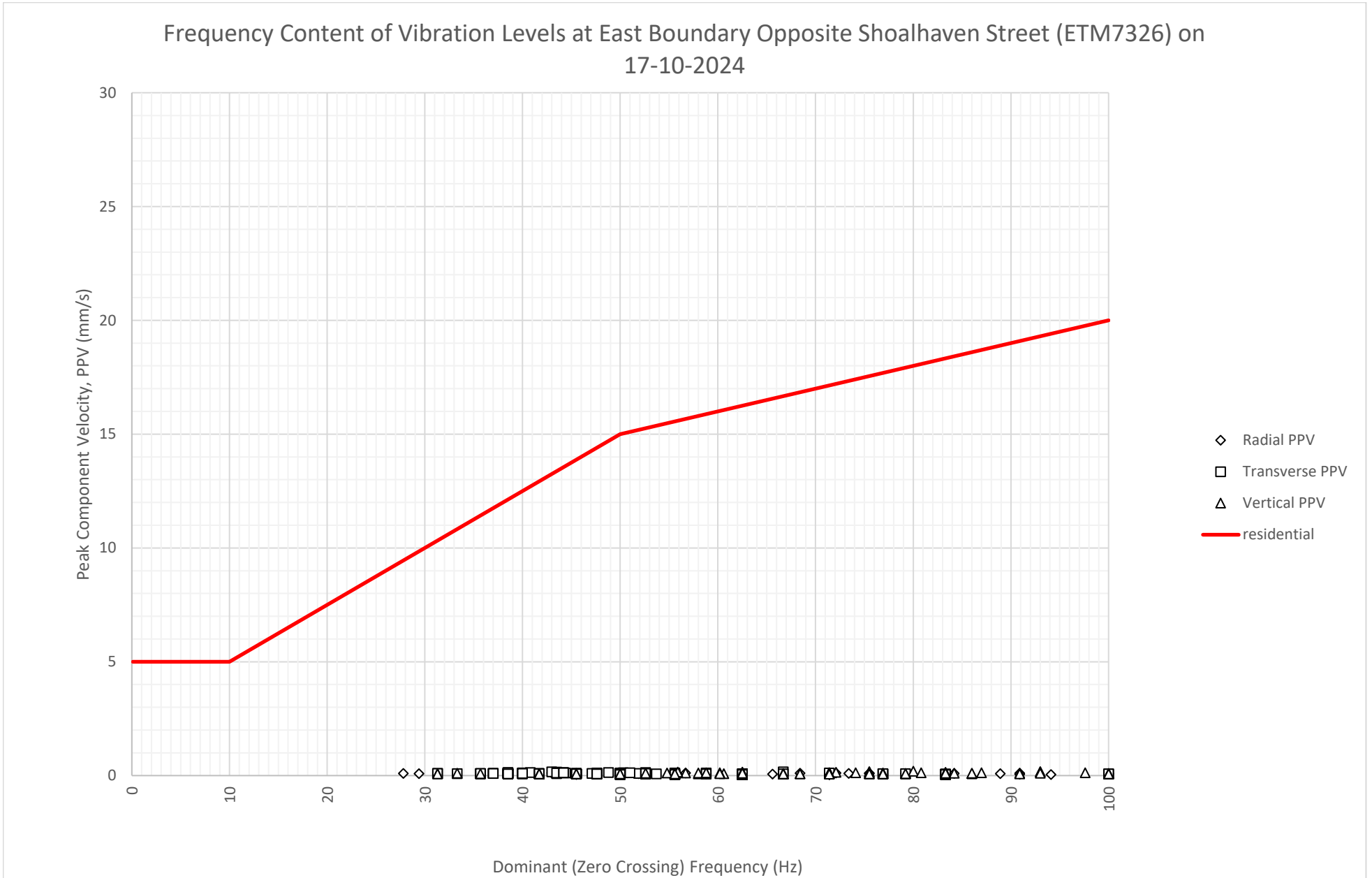

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 15-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 15-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

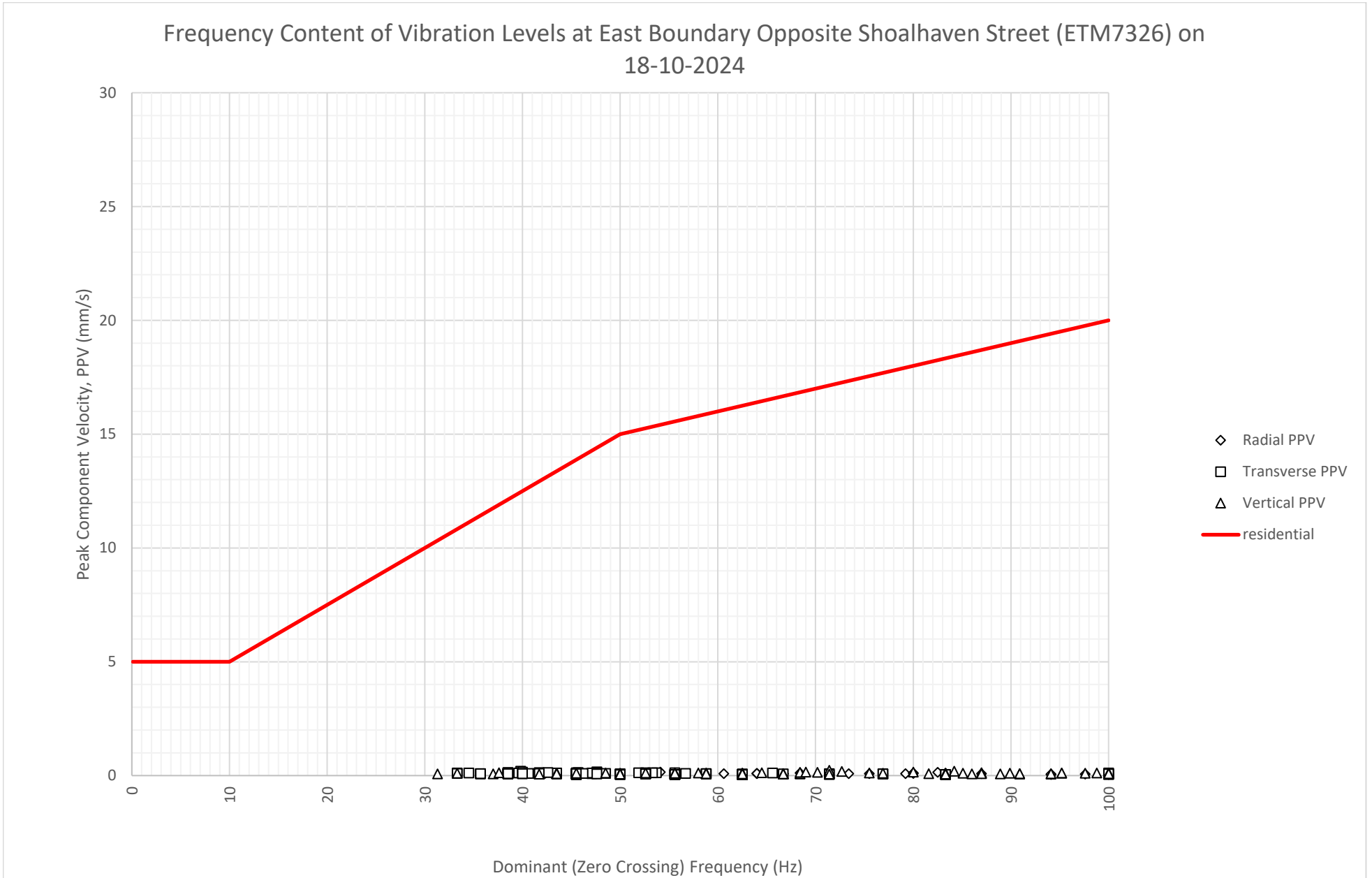

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 16-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 16-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

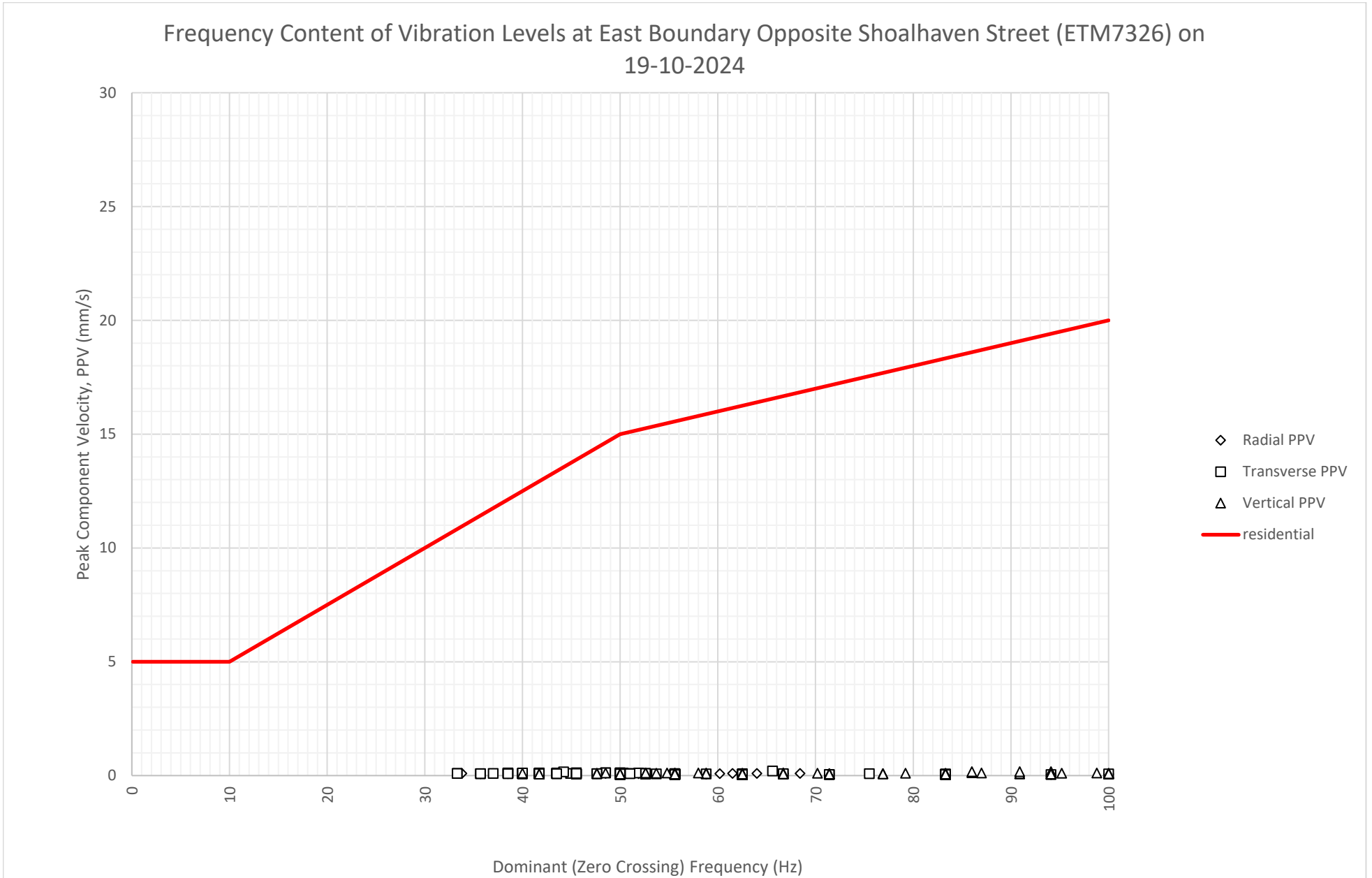

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 17-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 17-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

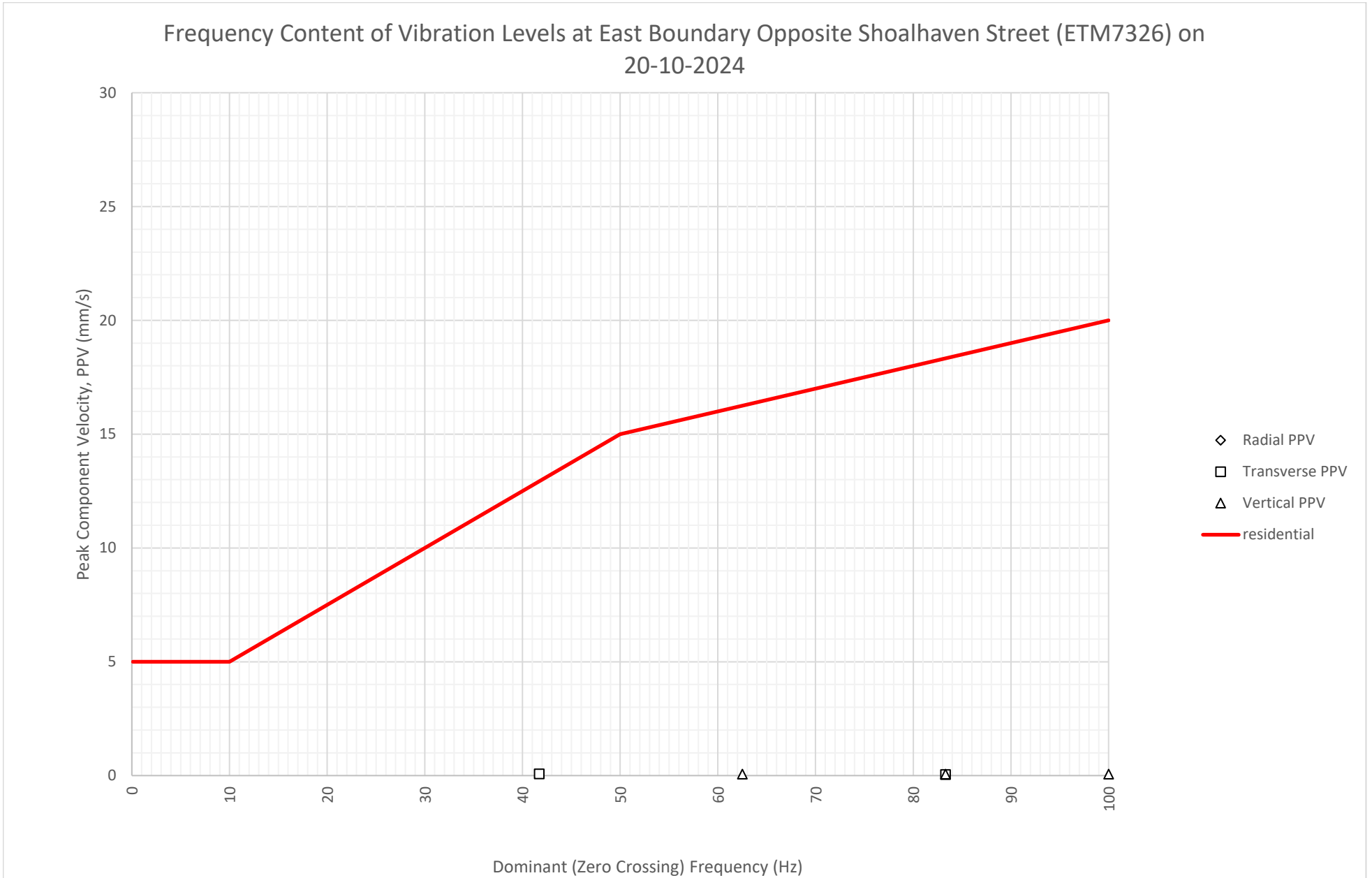

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 18-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 18-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

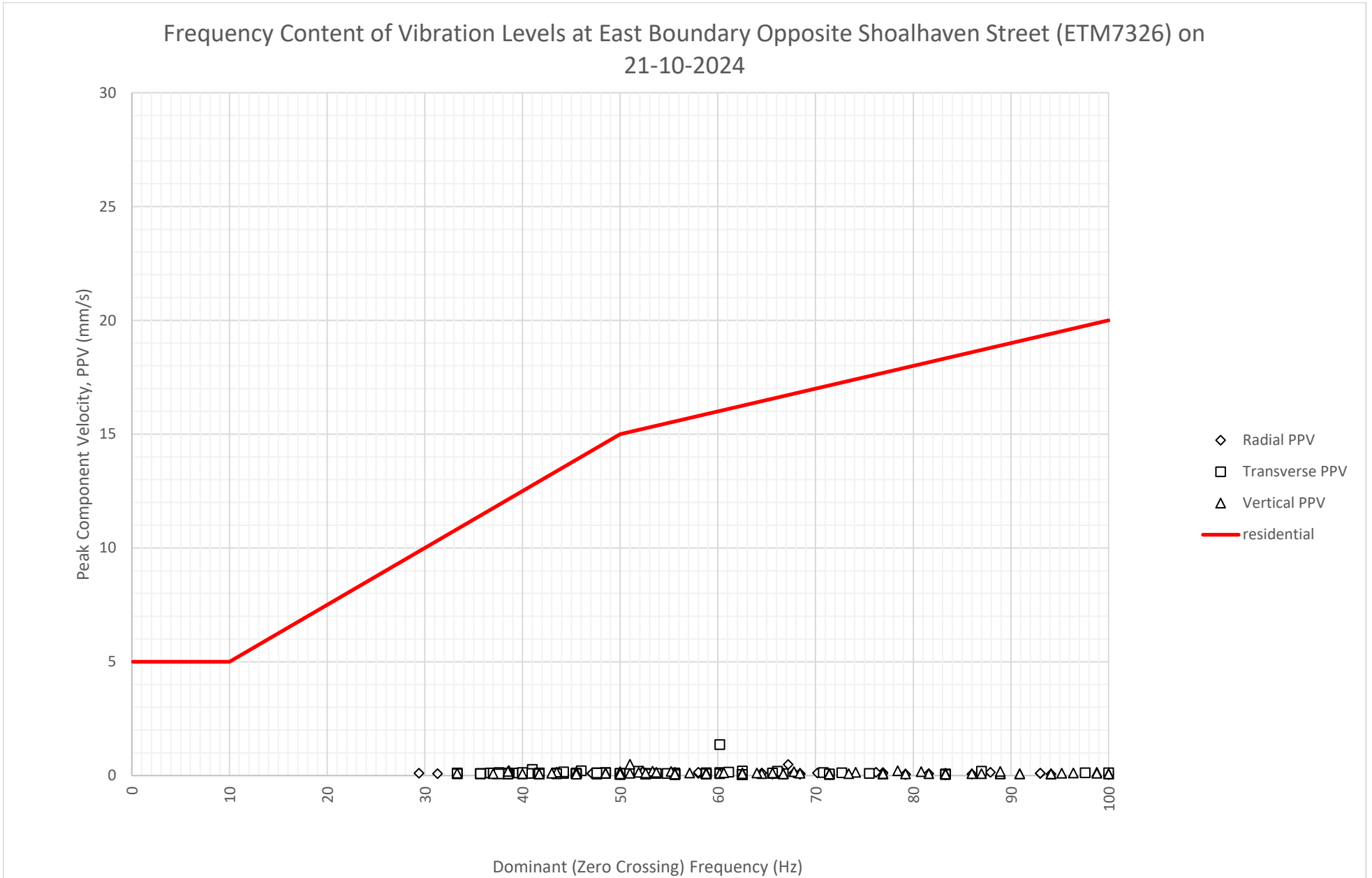

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 19-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 19-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

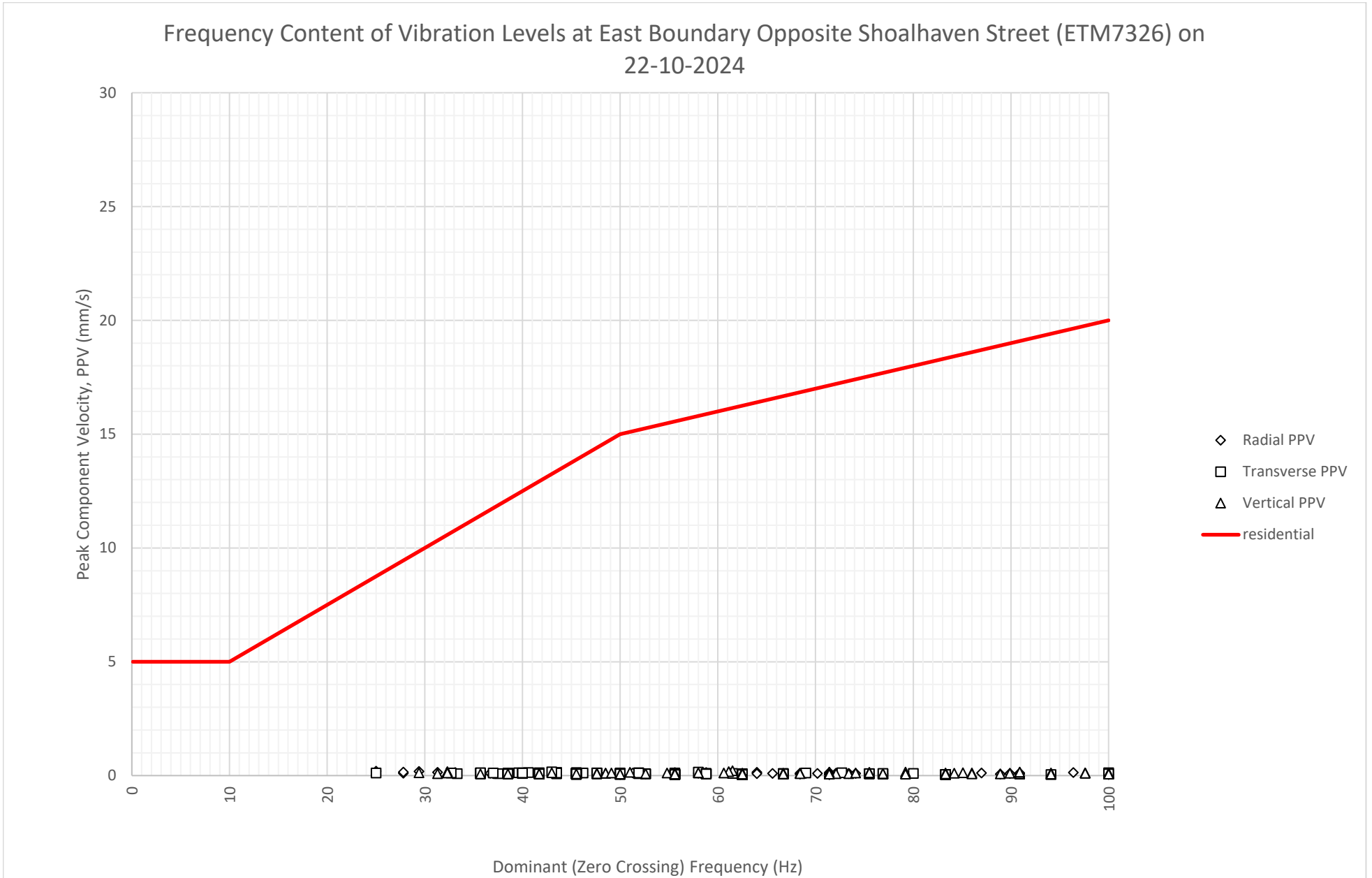

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 20-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 20-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

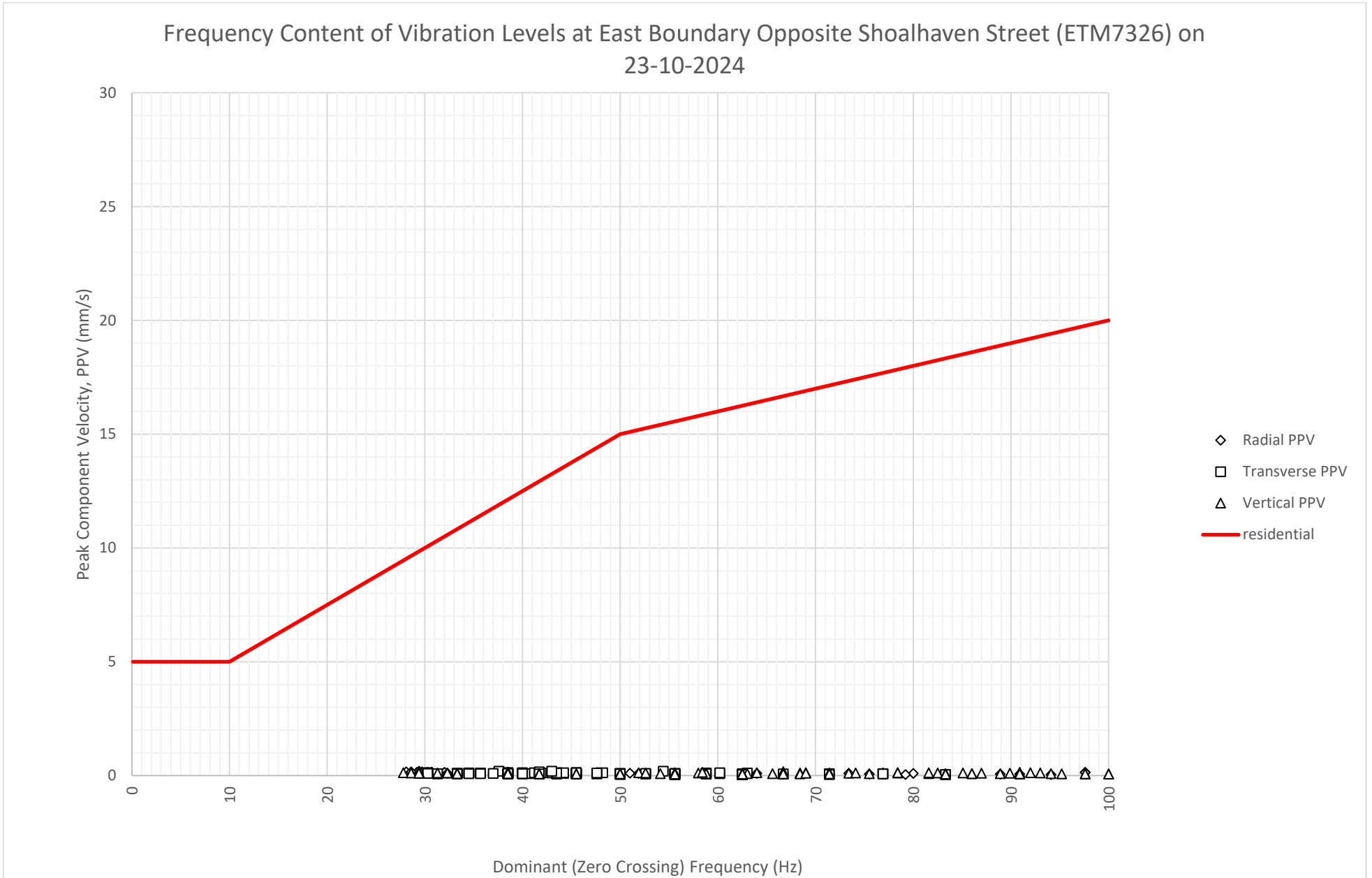

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 21-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 21-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

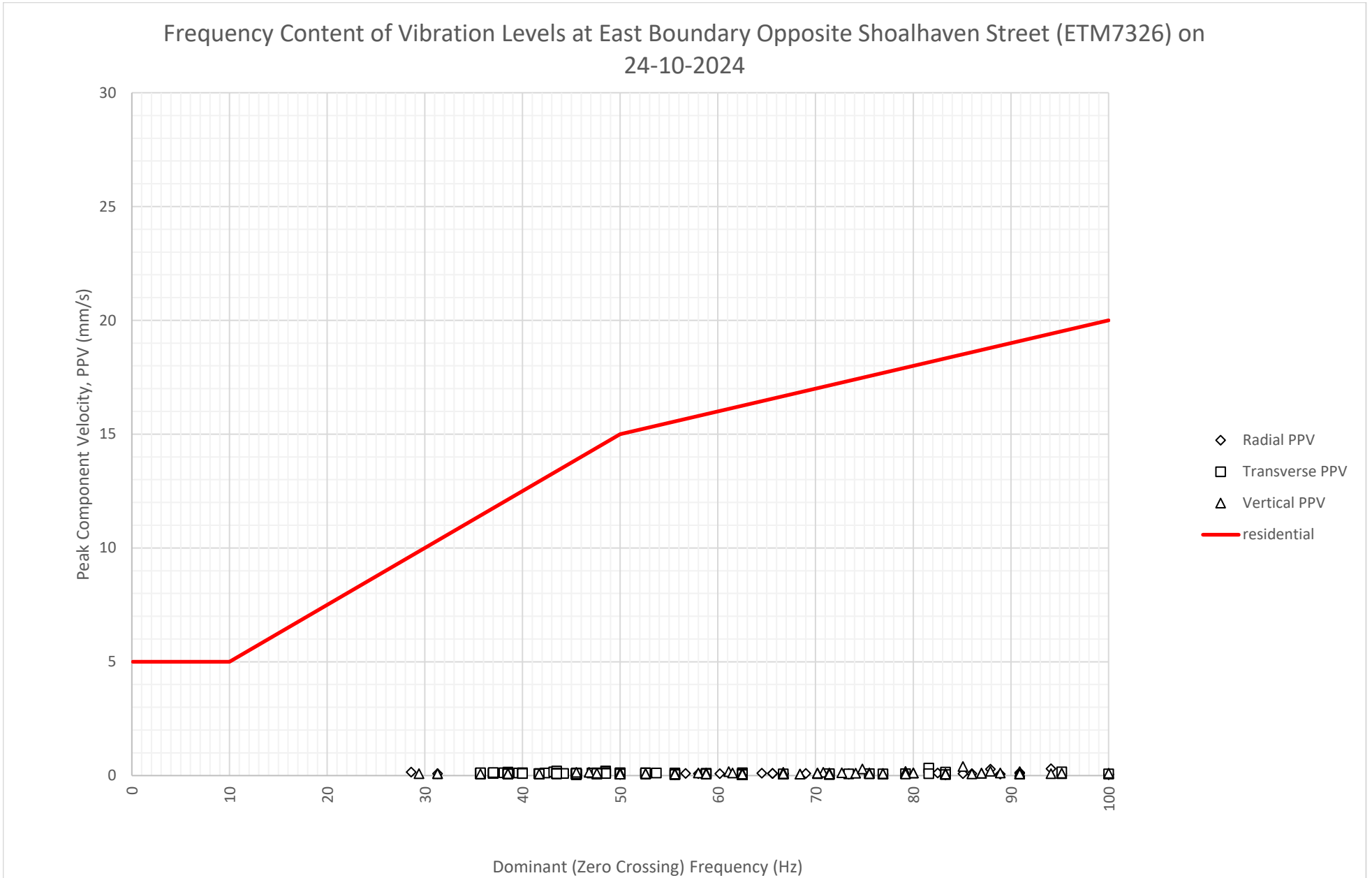

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 22-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 22-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

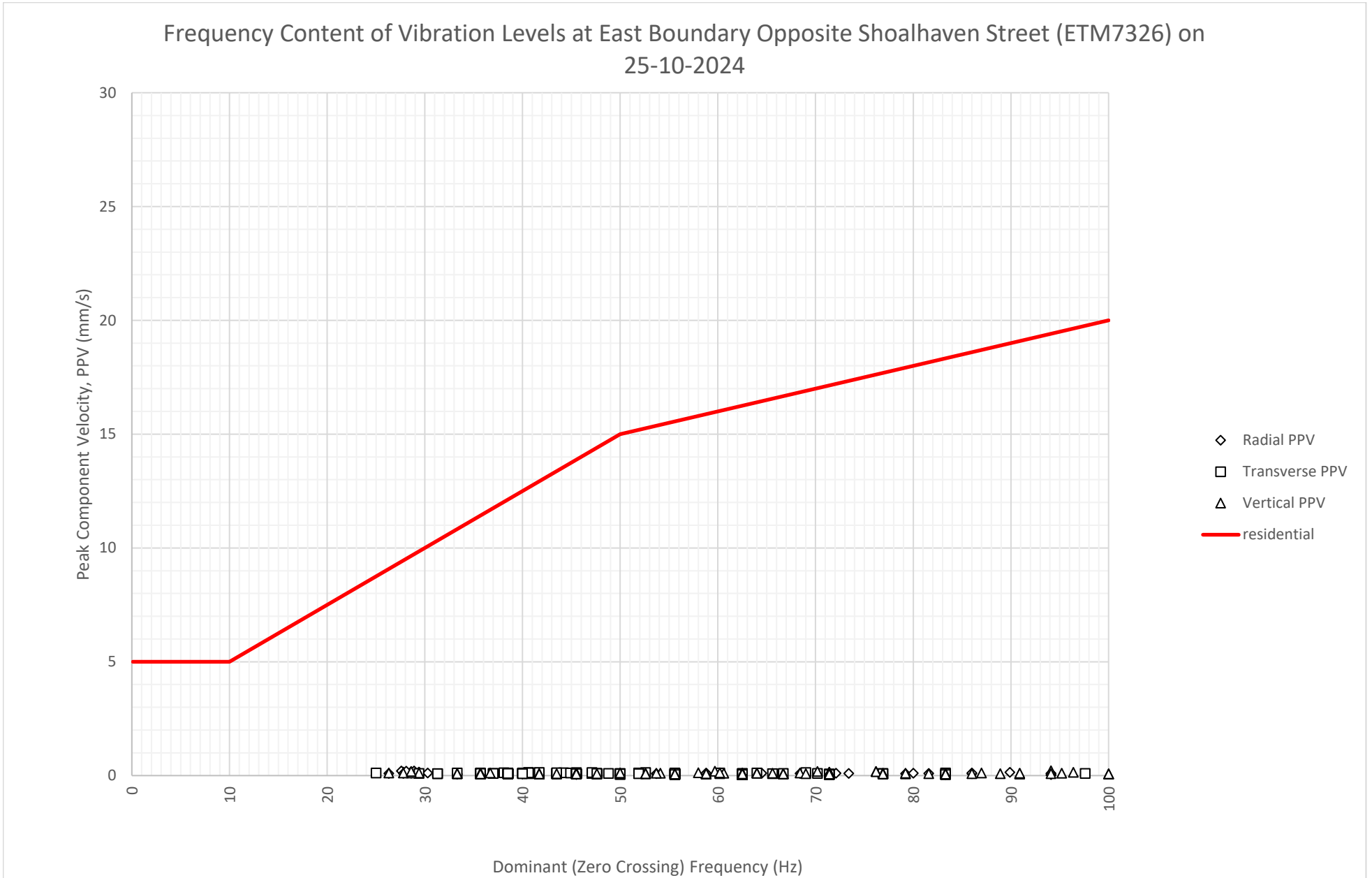

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 23-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 23-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

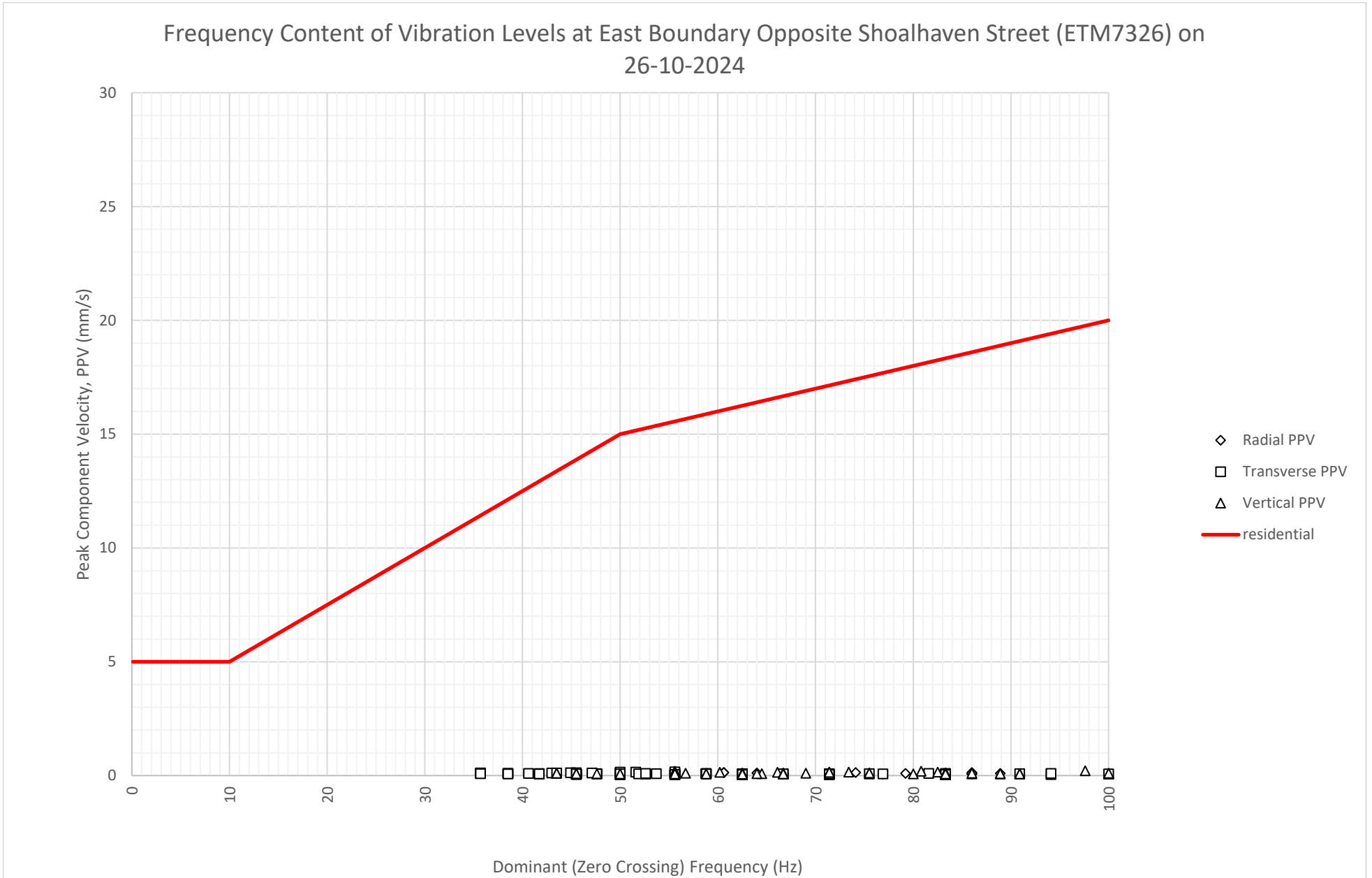

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 24-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 24-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

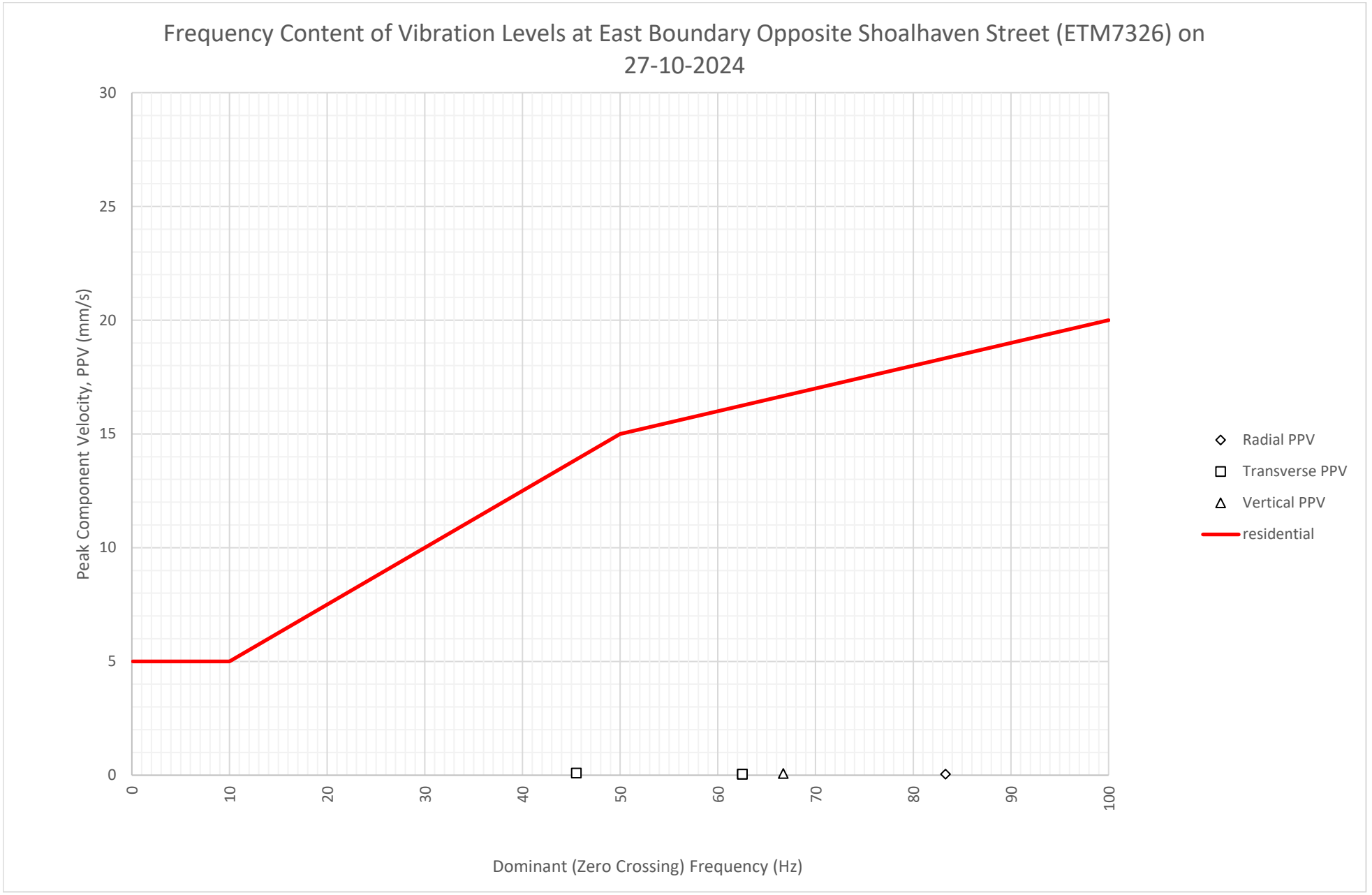

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 25-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 25-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

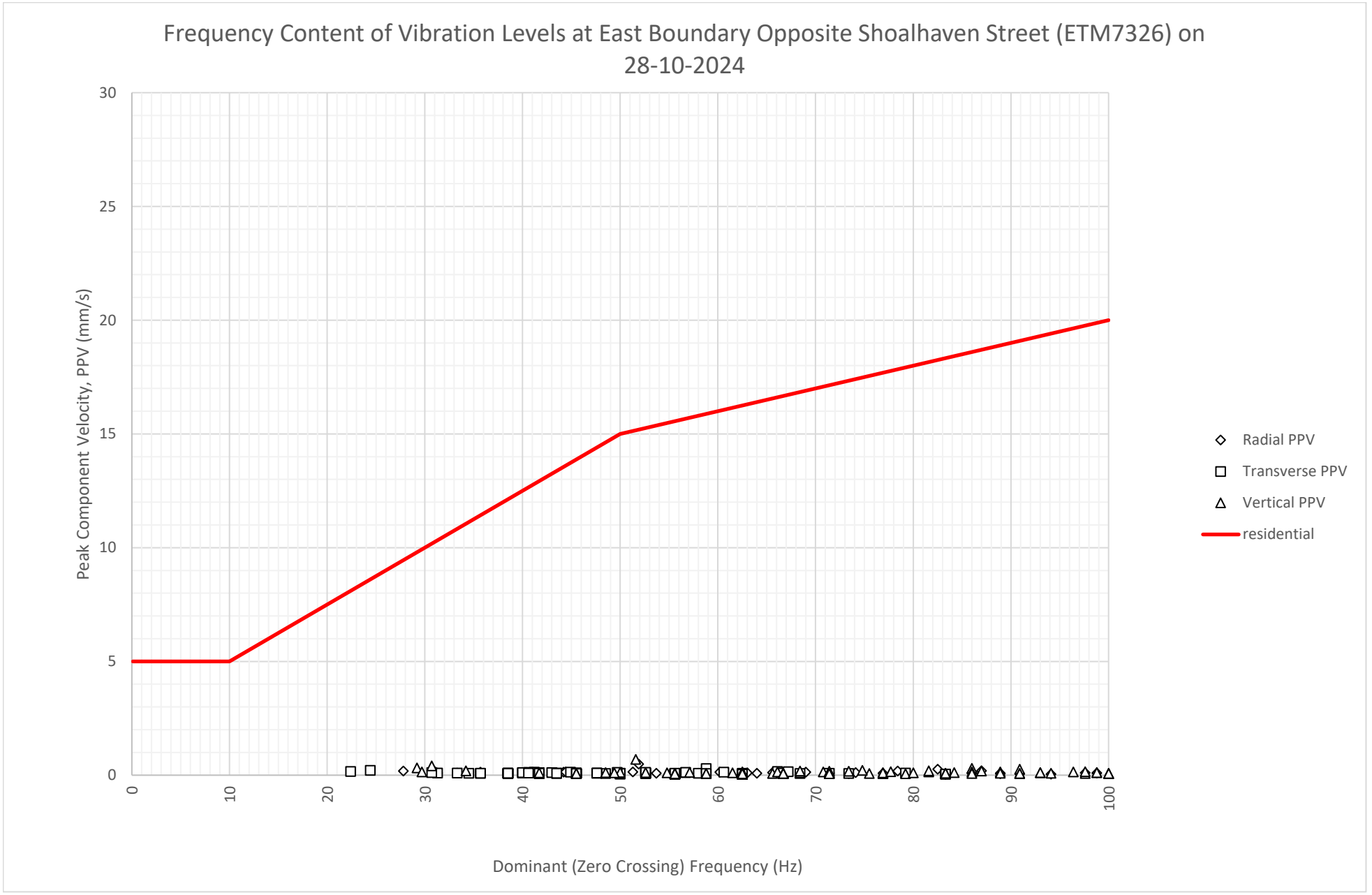

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 26-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 26-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

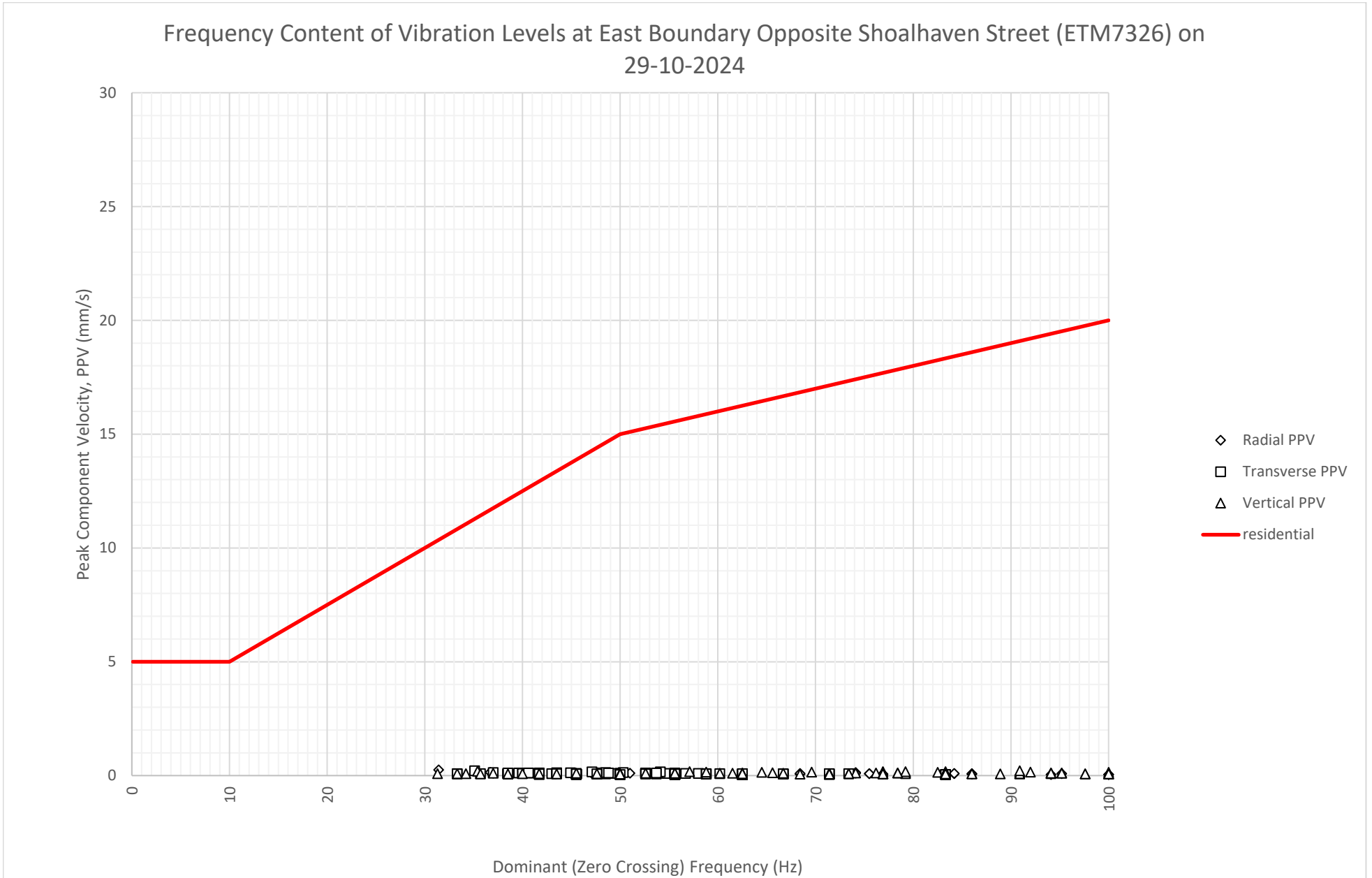

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 27-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 27-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

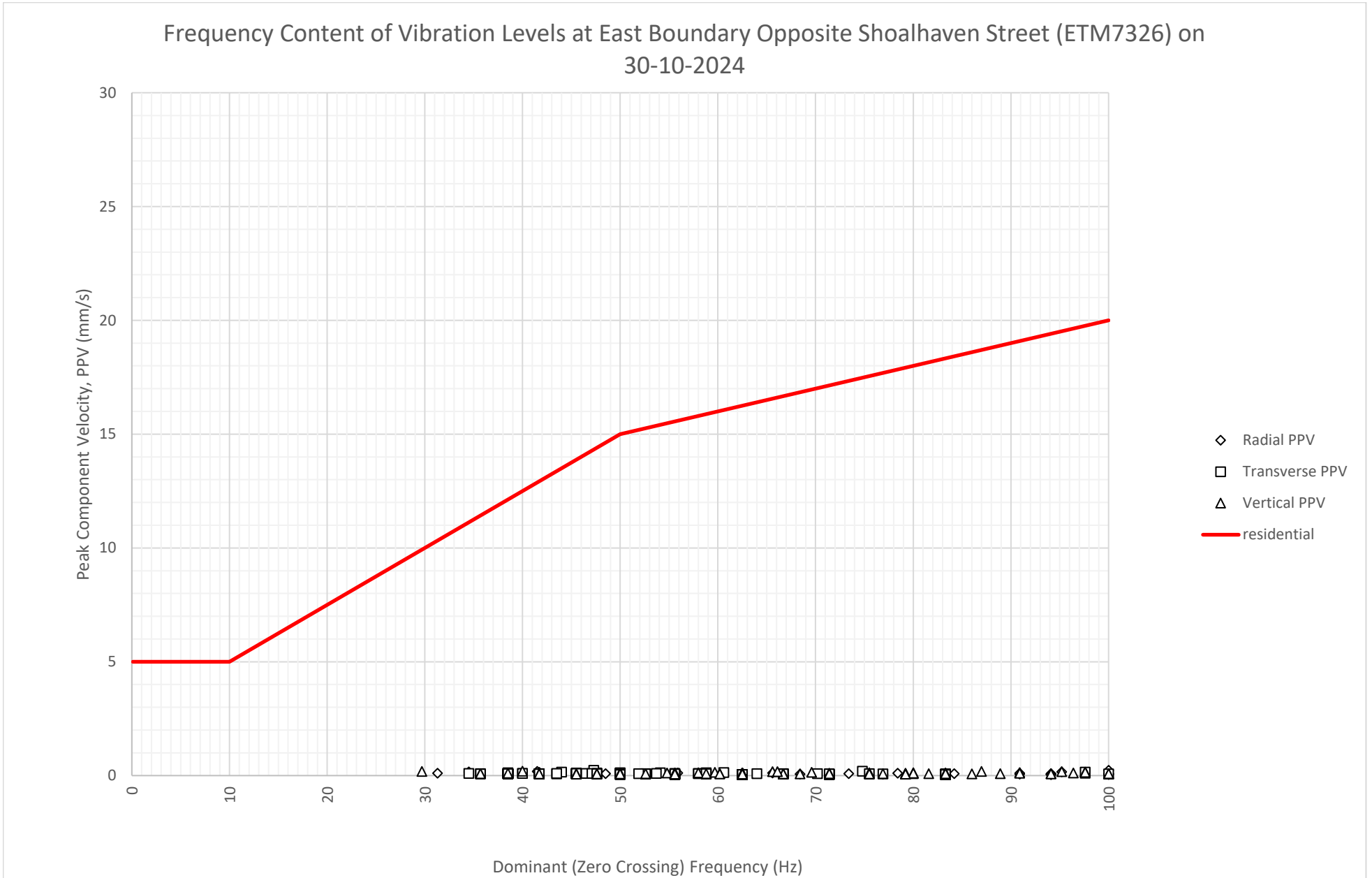

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 28-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 28-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential

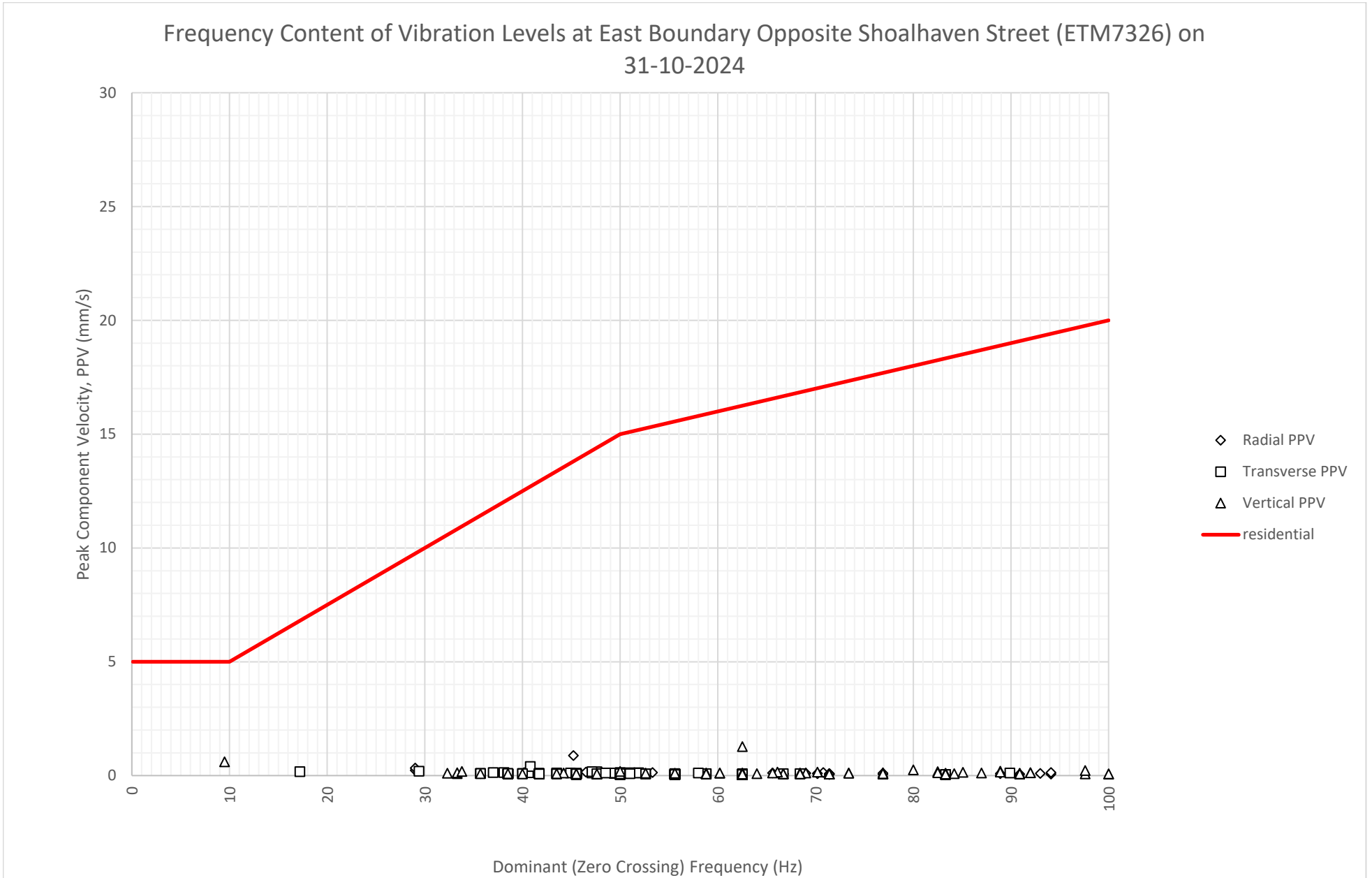

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 29-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

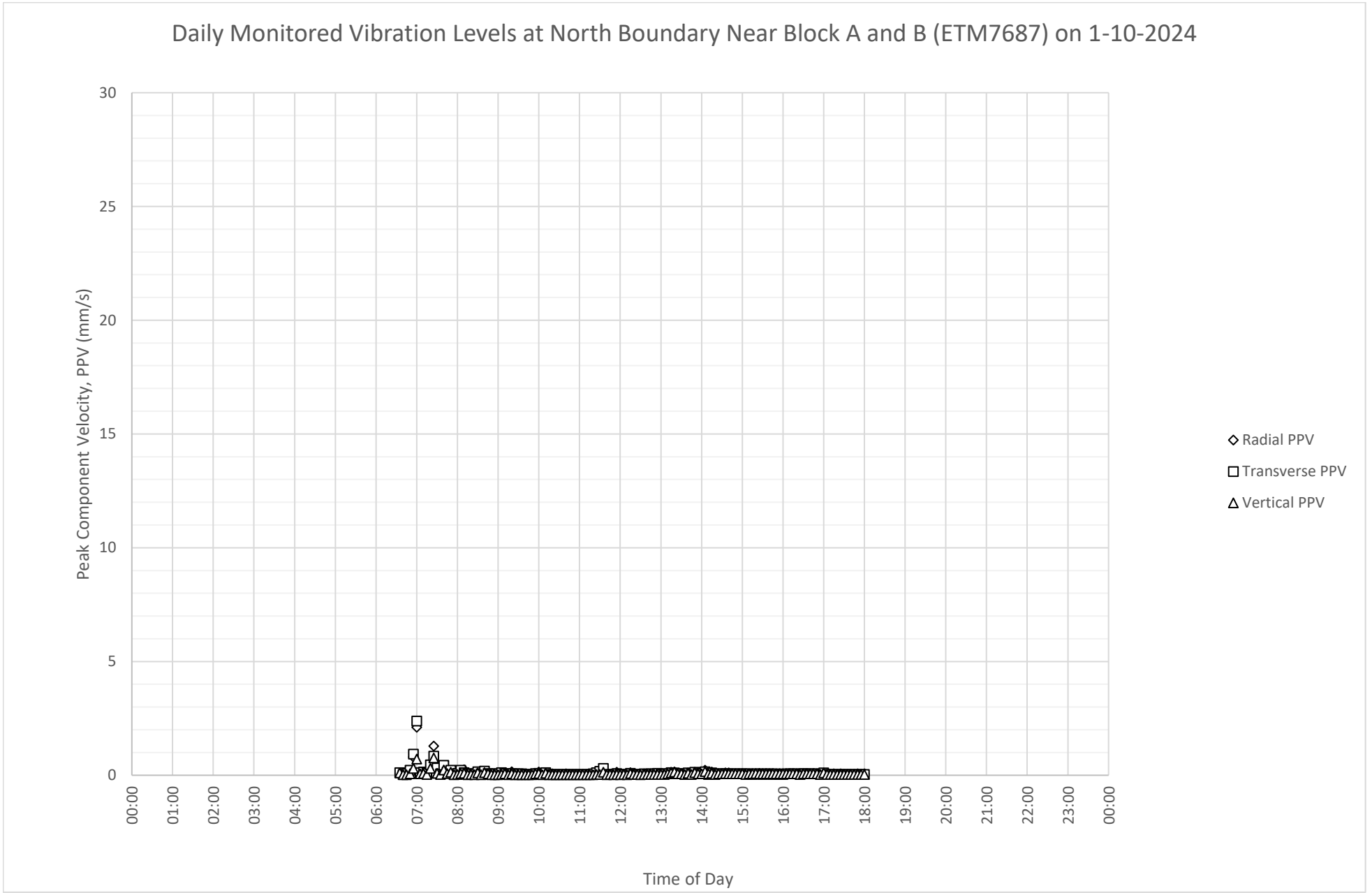

Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 29-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential

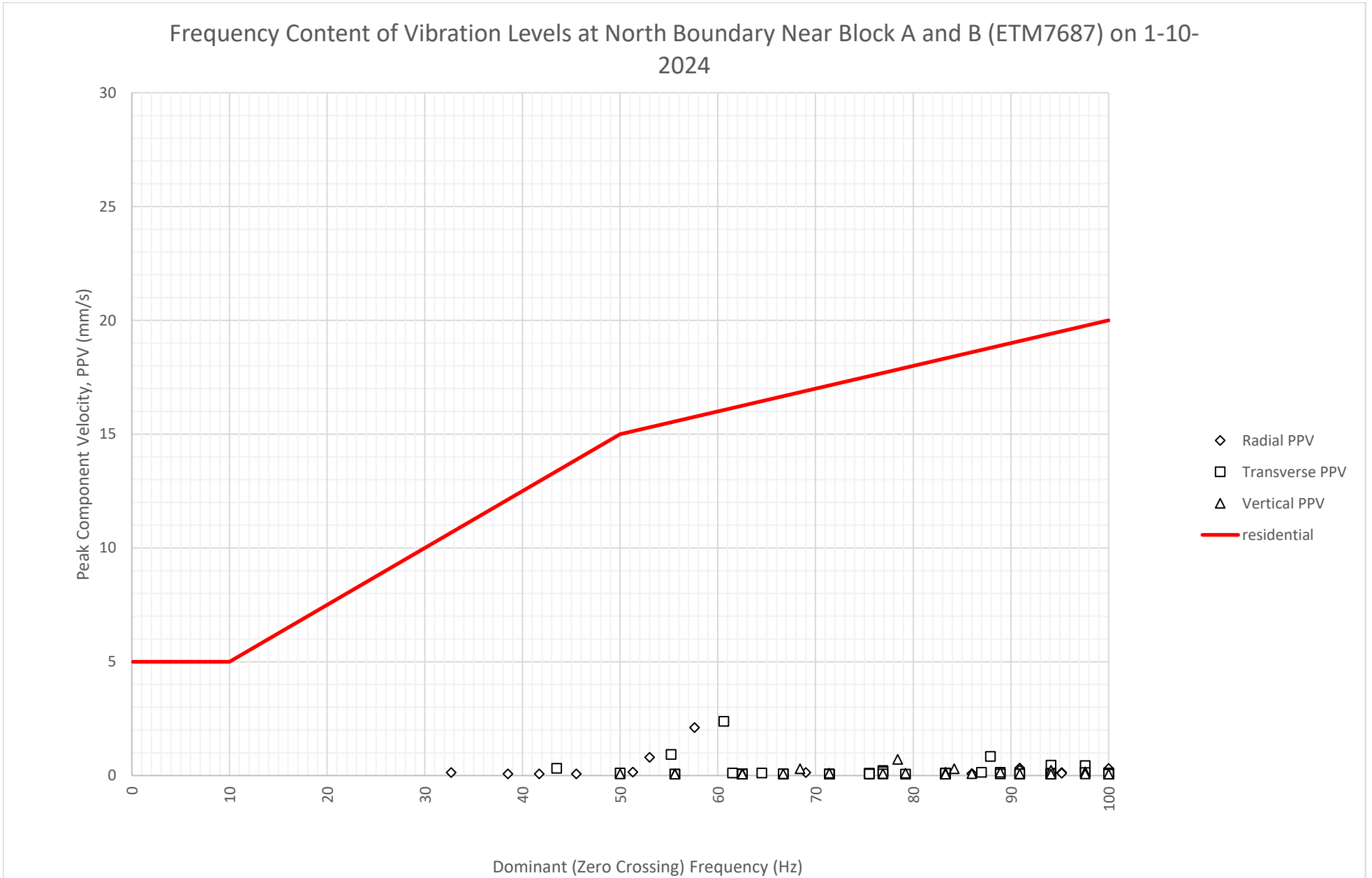

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 30-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

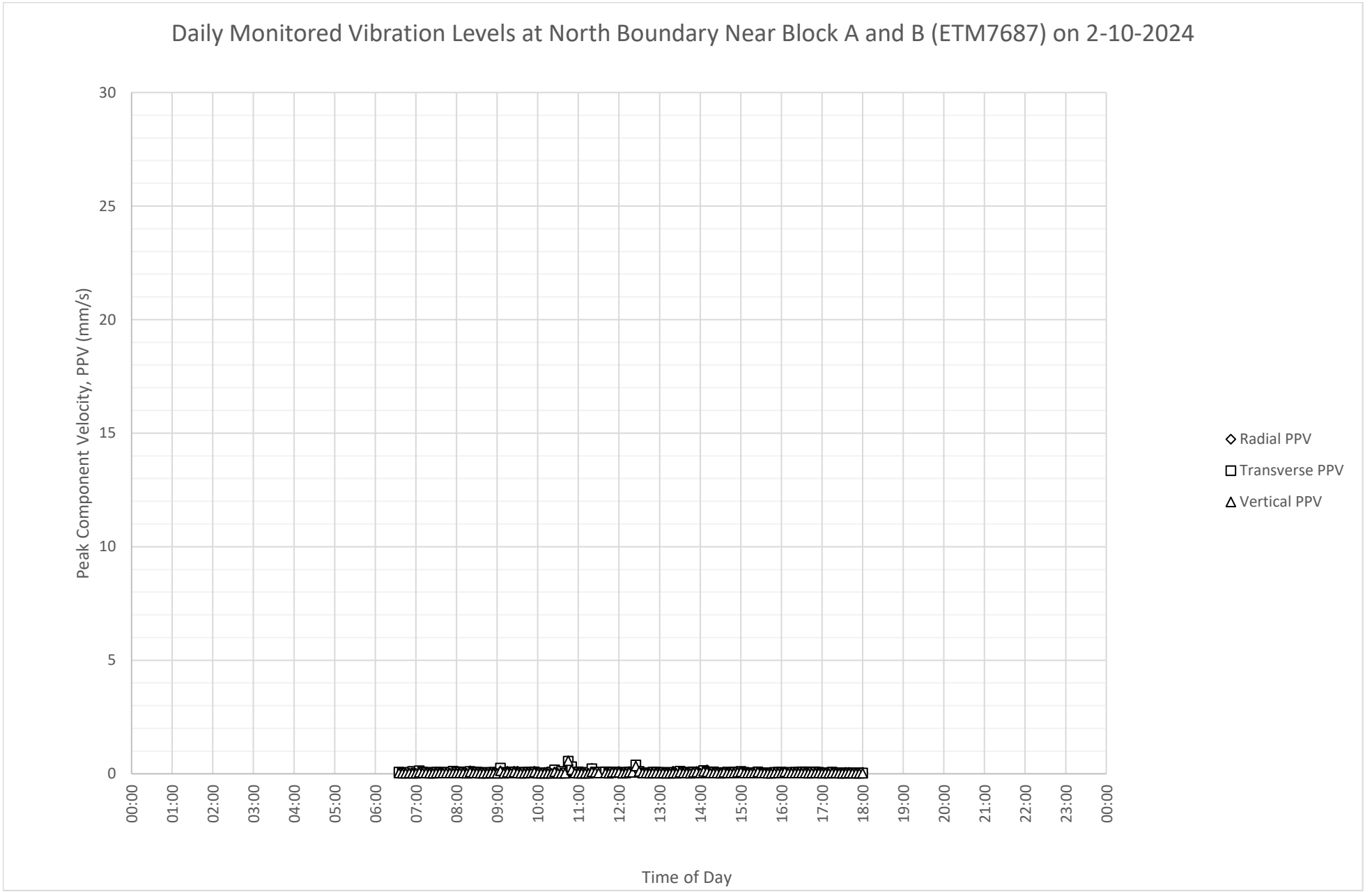

Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 30-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential

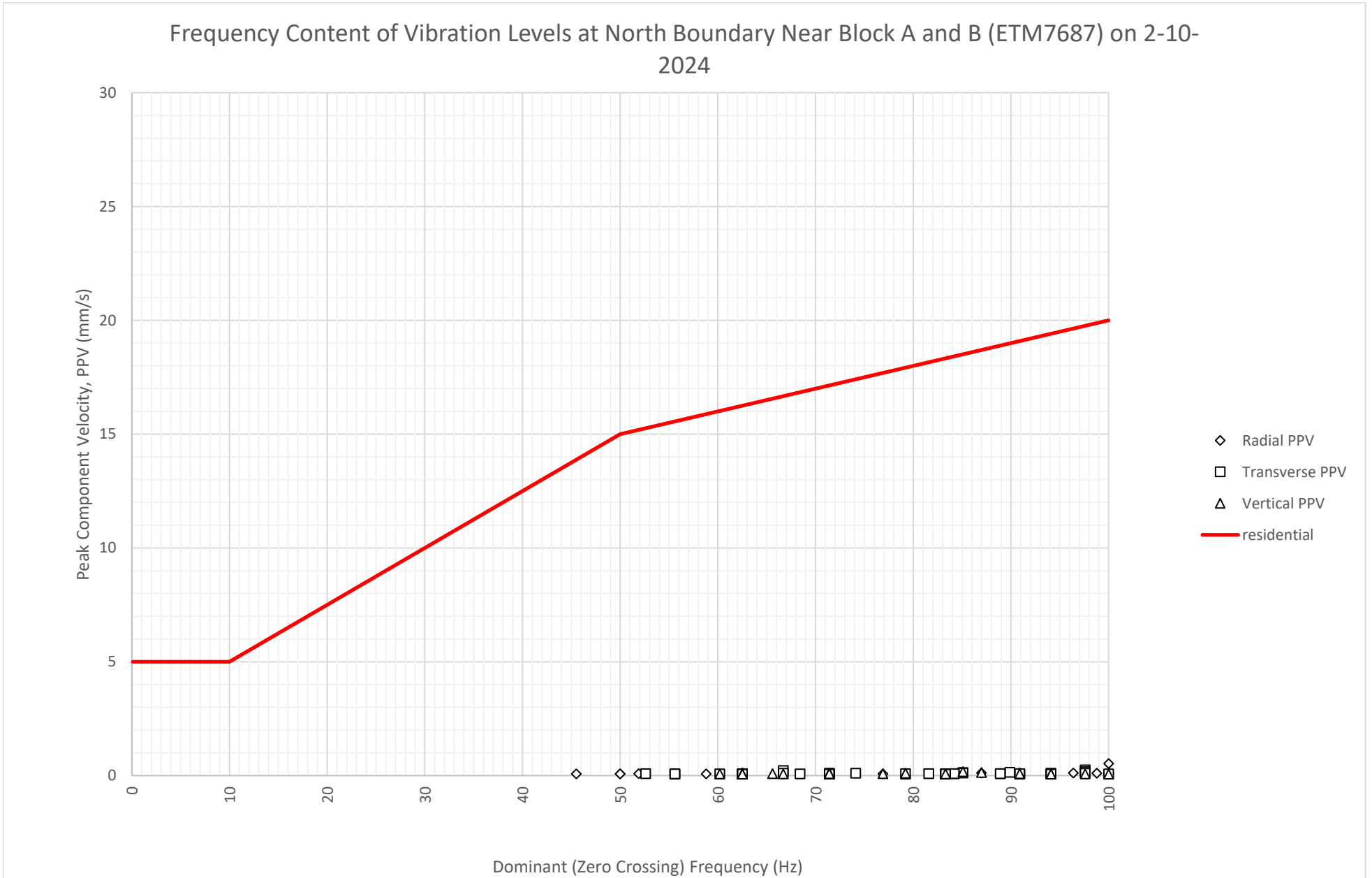

Daily Monitored Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 31-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

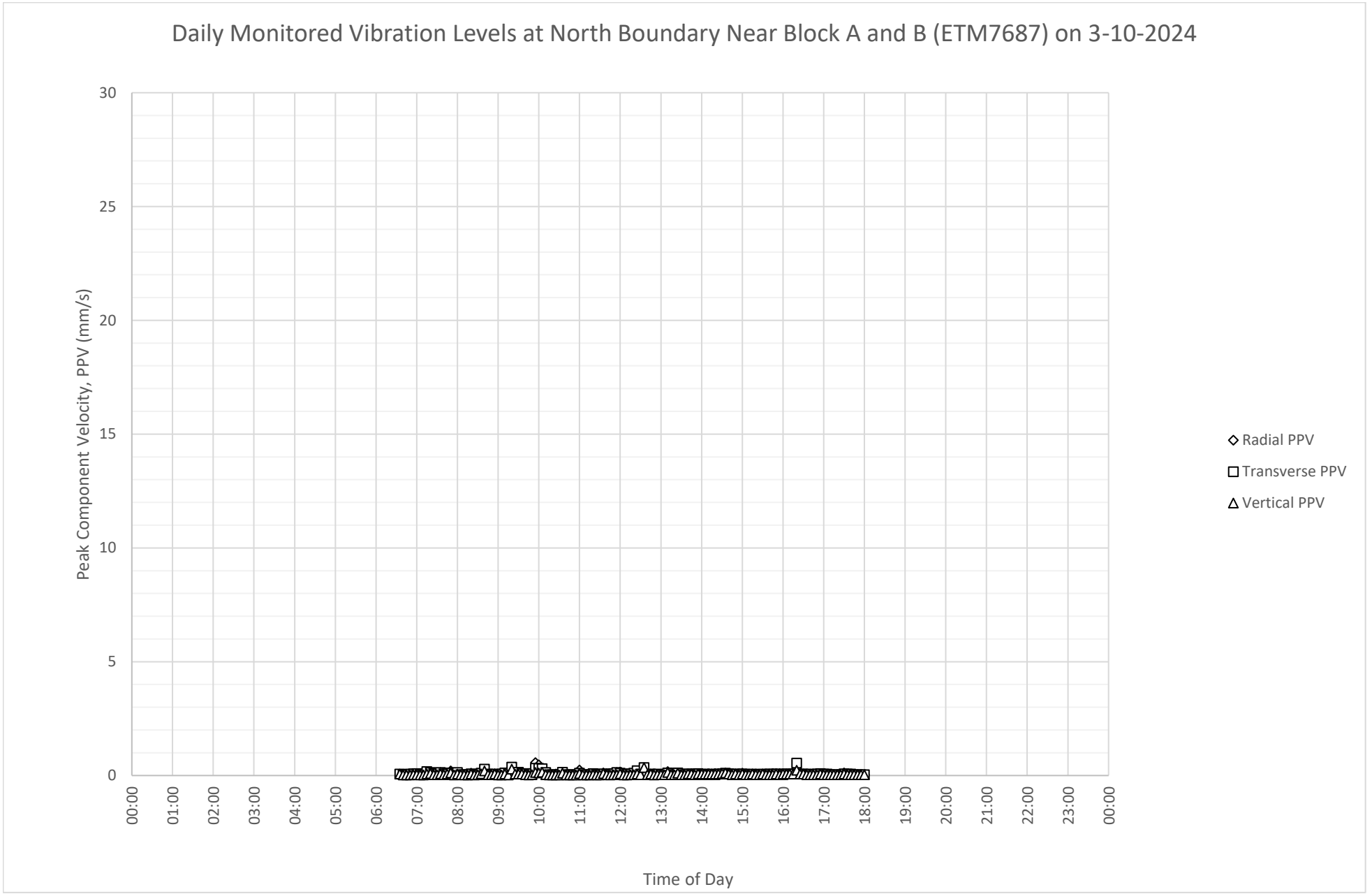

Frequency Content of Vibration Levels at East Boundary Opposite Shoalhaven Street (ETM7326) on 31-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential

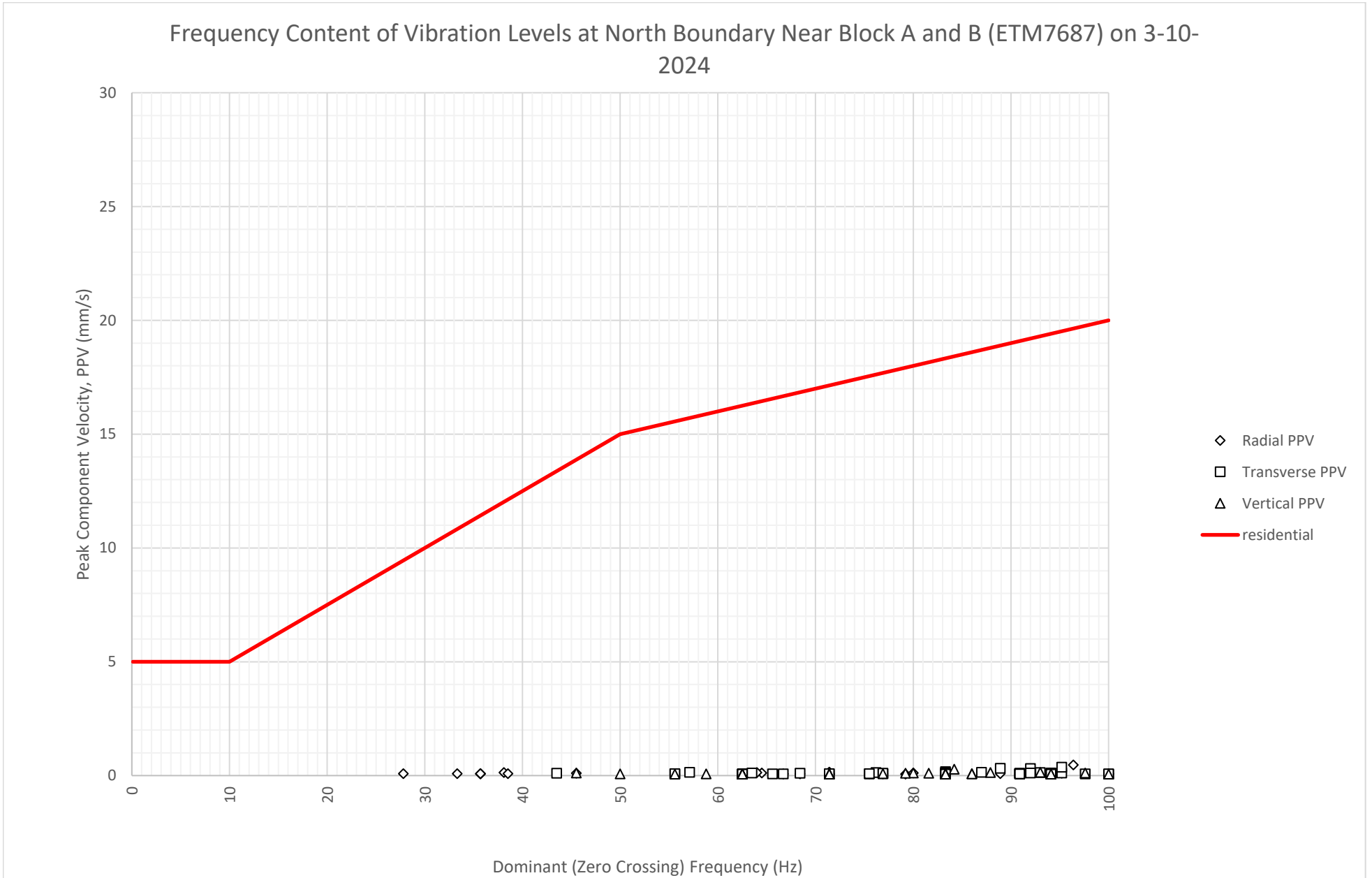

Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 1-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

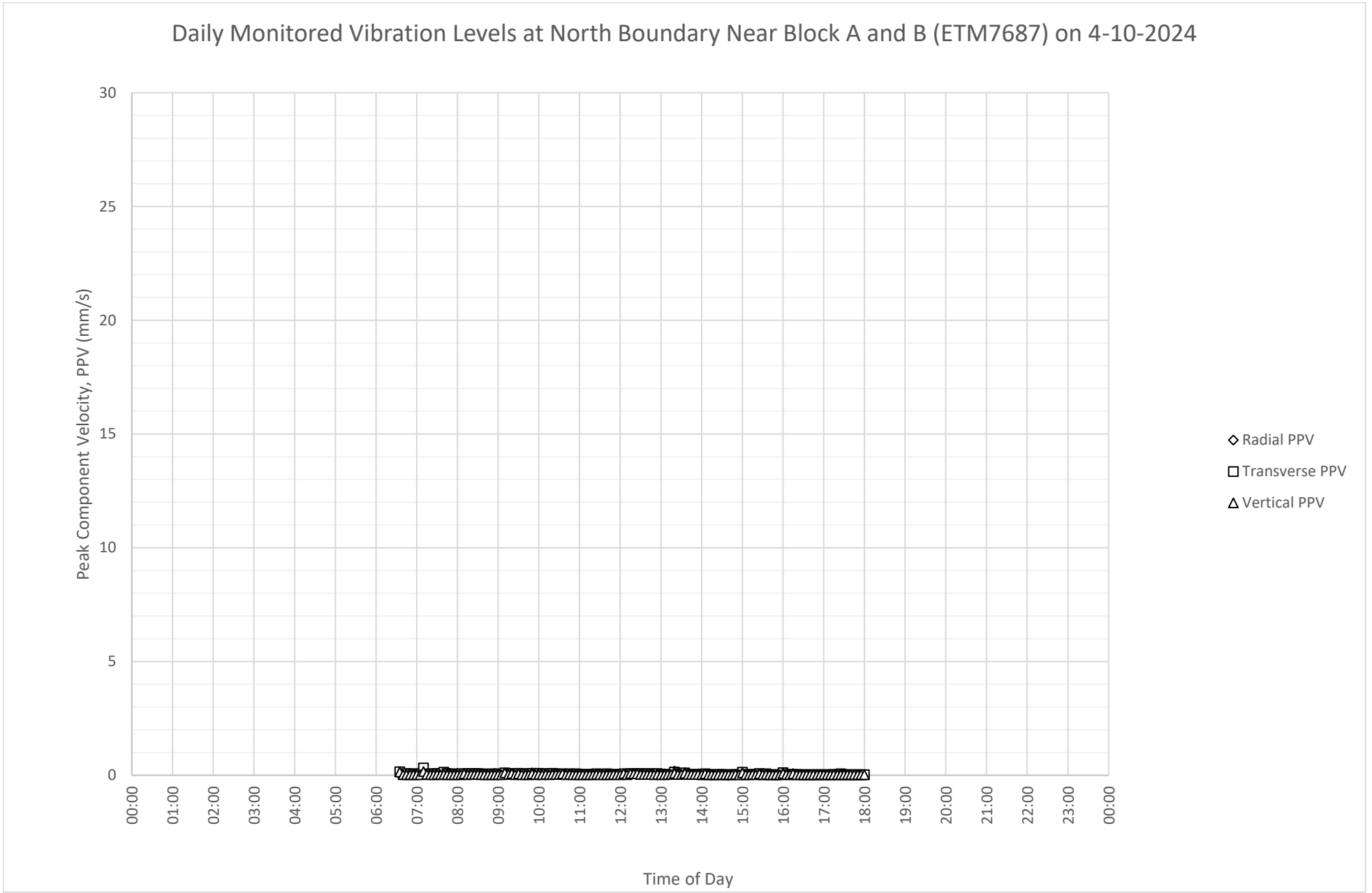

Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 1-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential

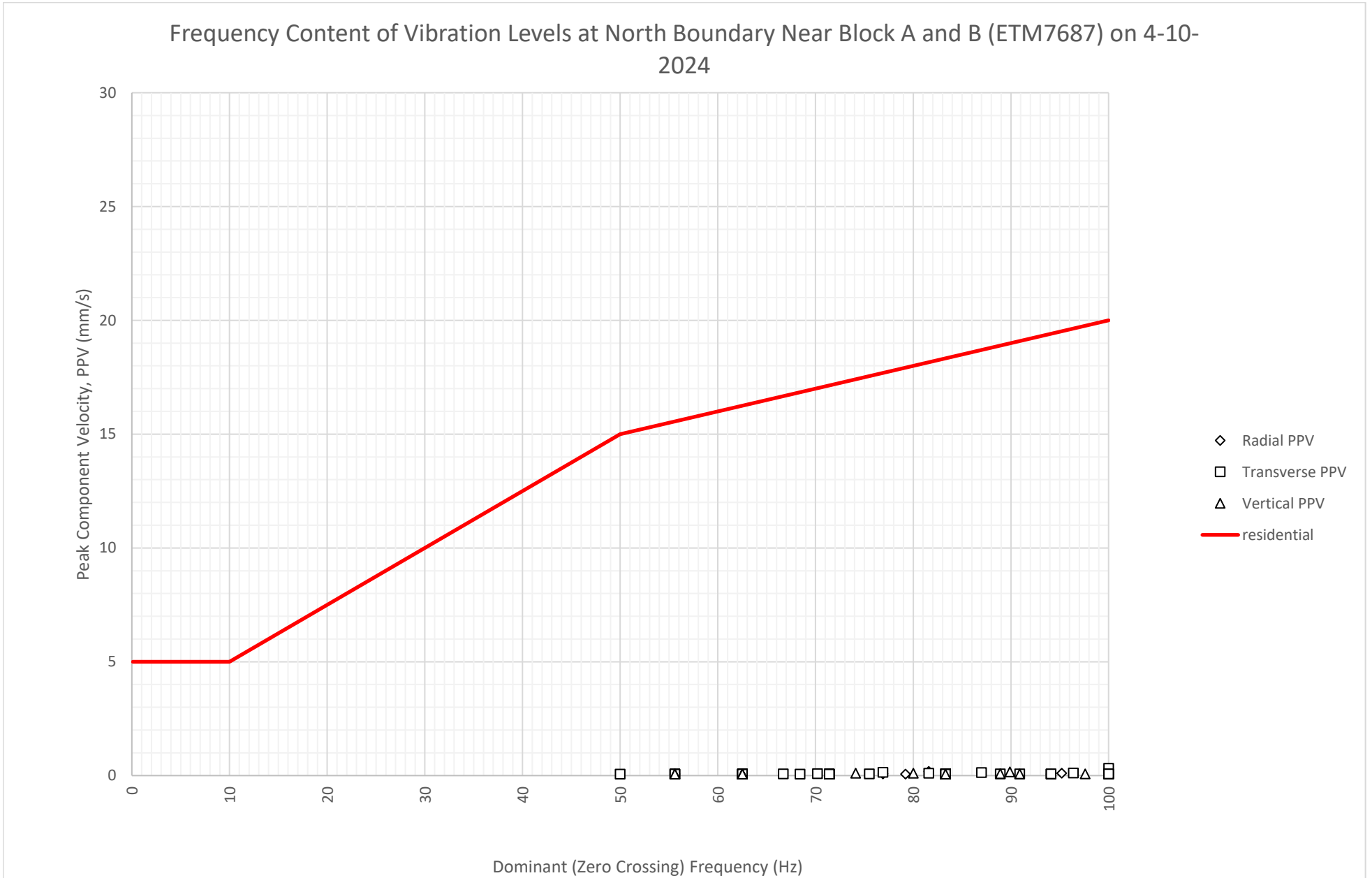

Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 2-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

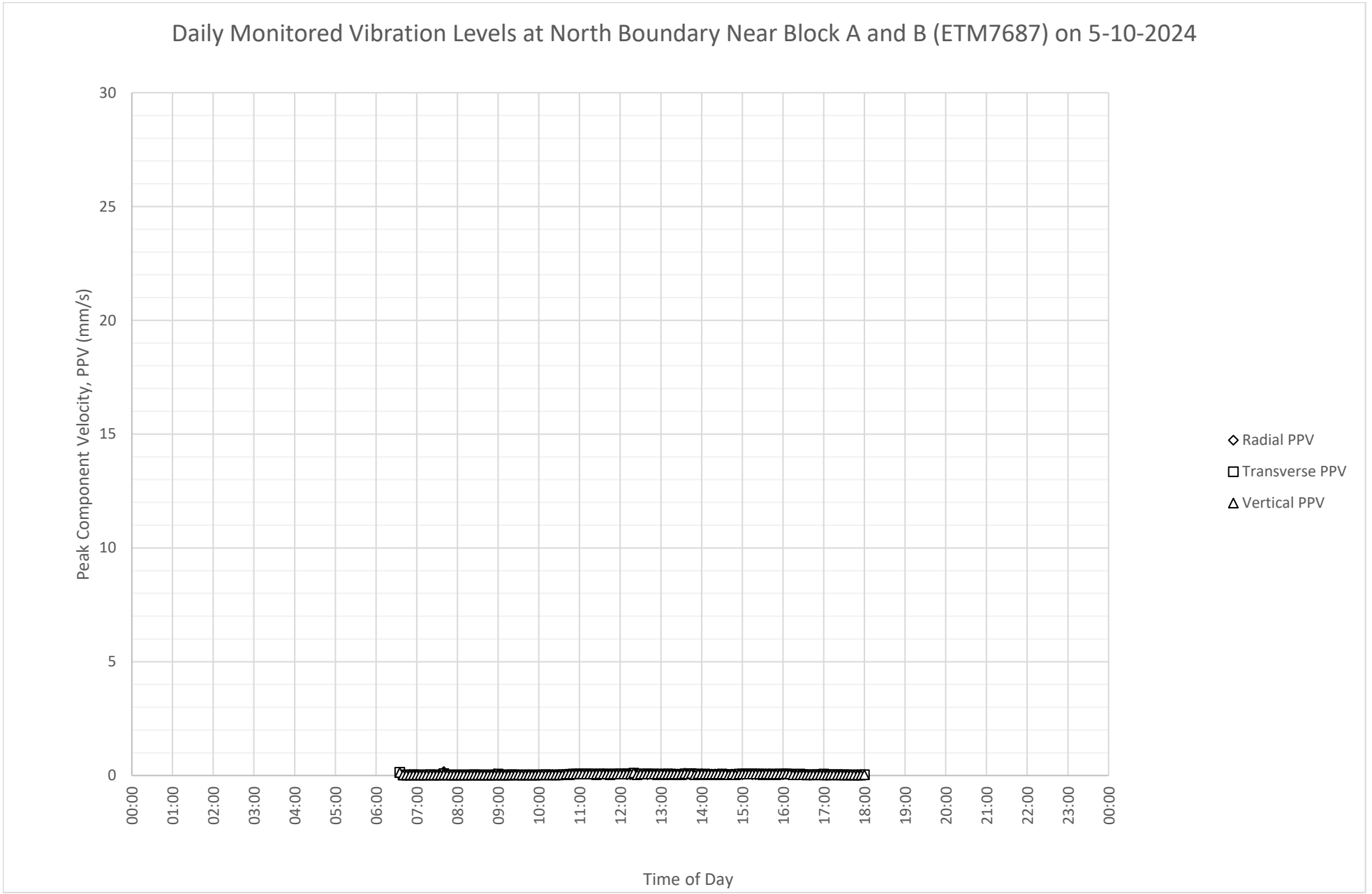

Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 2-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential

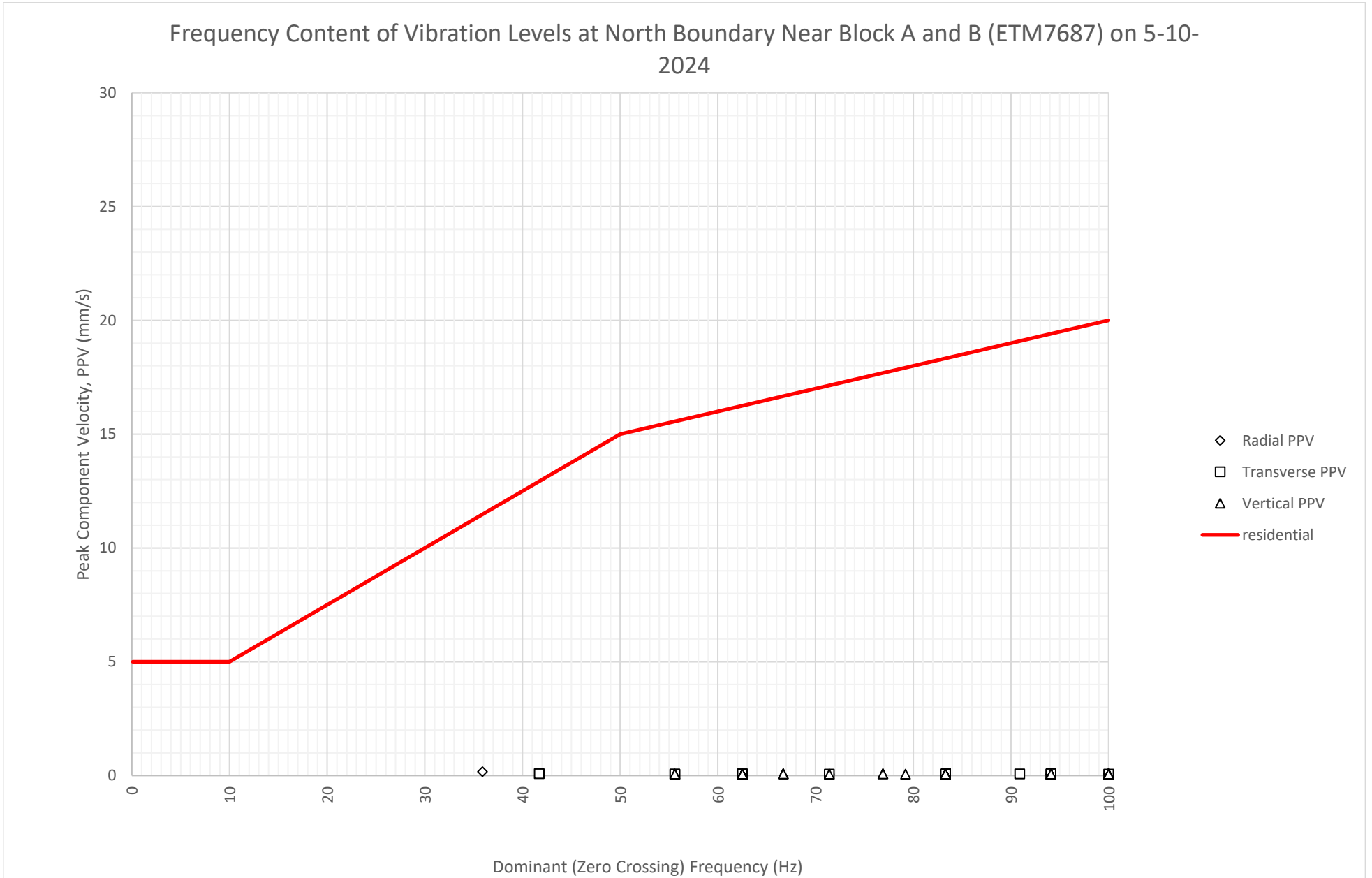

Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 3-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

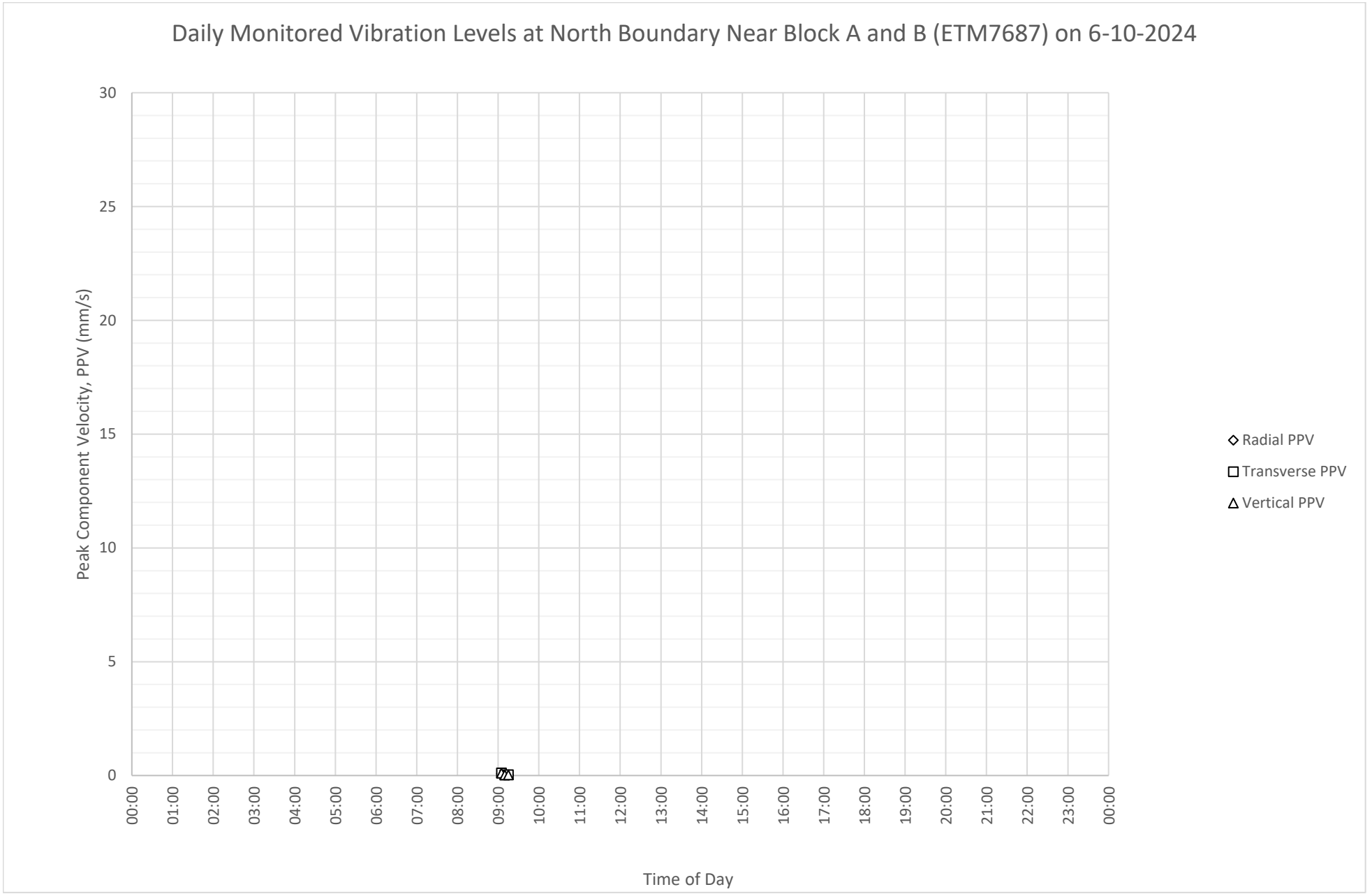

Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 3-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential

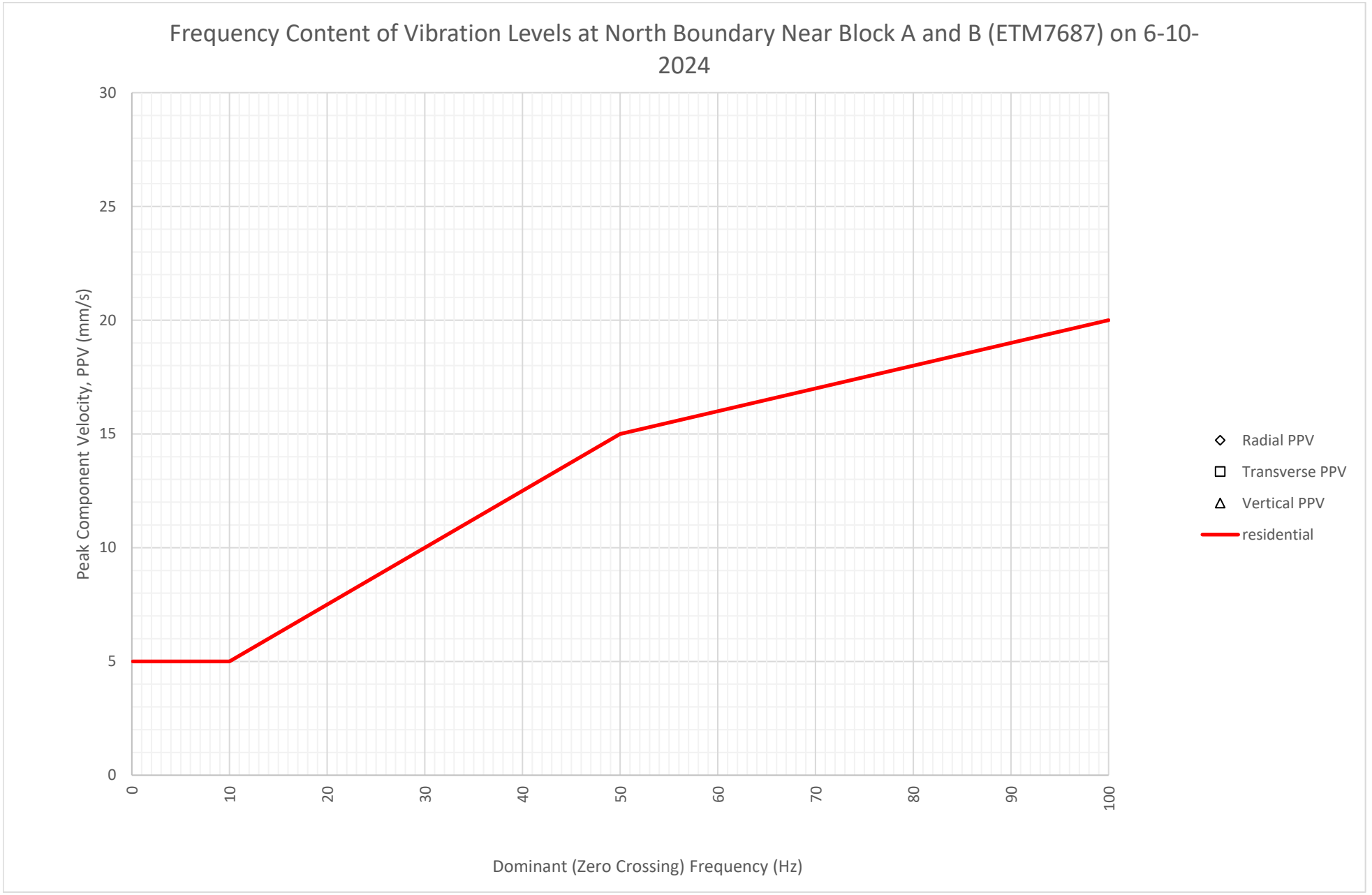

Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 4-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV

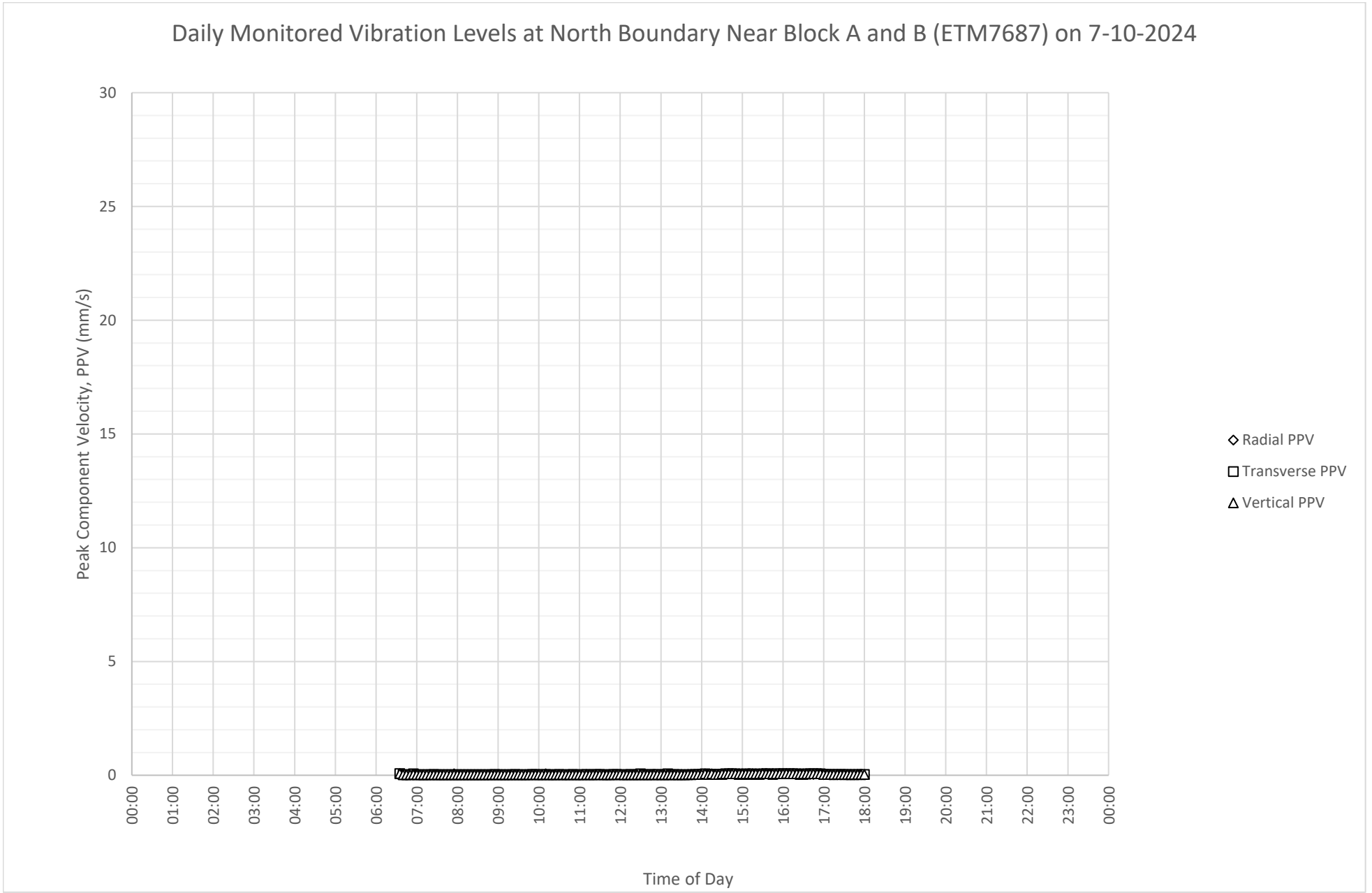

Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 4-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 5-10-2024
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 North Boundary Near Block A and B (ETM7687) on 5-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 6-10-2024
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 North Boundary Near Block A and B (ETM7687) on 6-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 7-10-2024
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
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16:00
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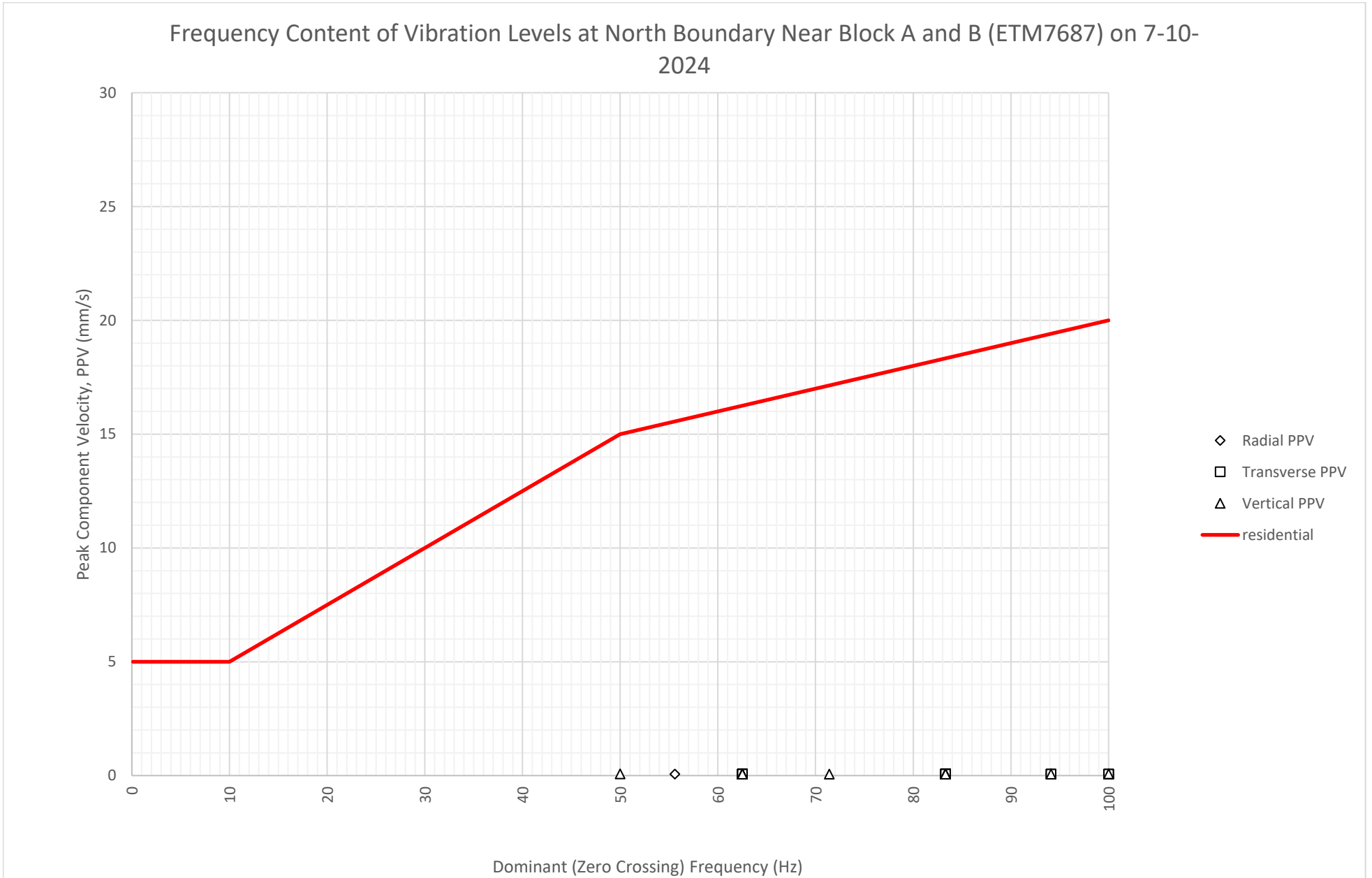
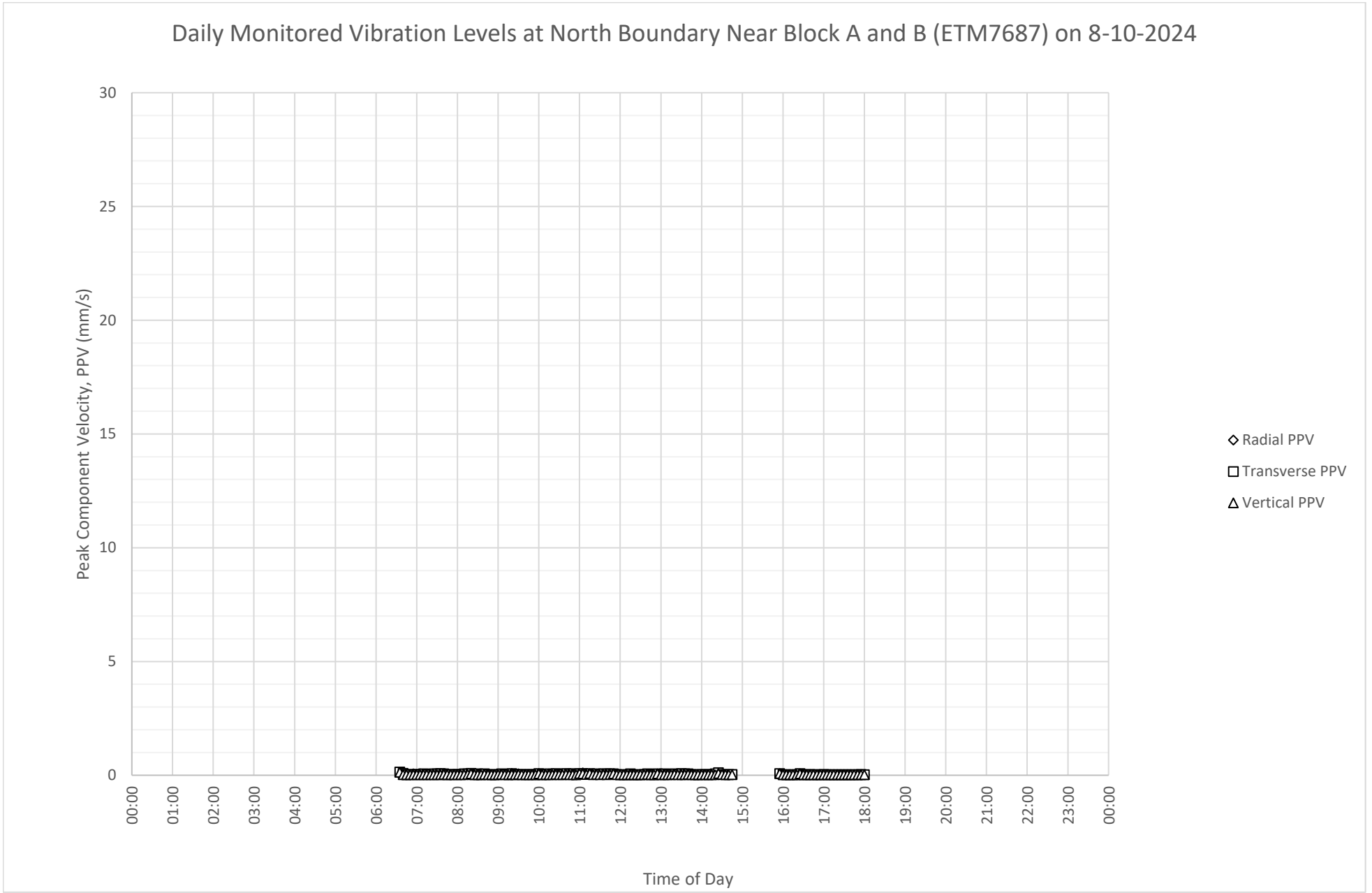
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 7-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 8-10-2024
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
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13:00
14:00
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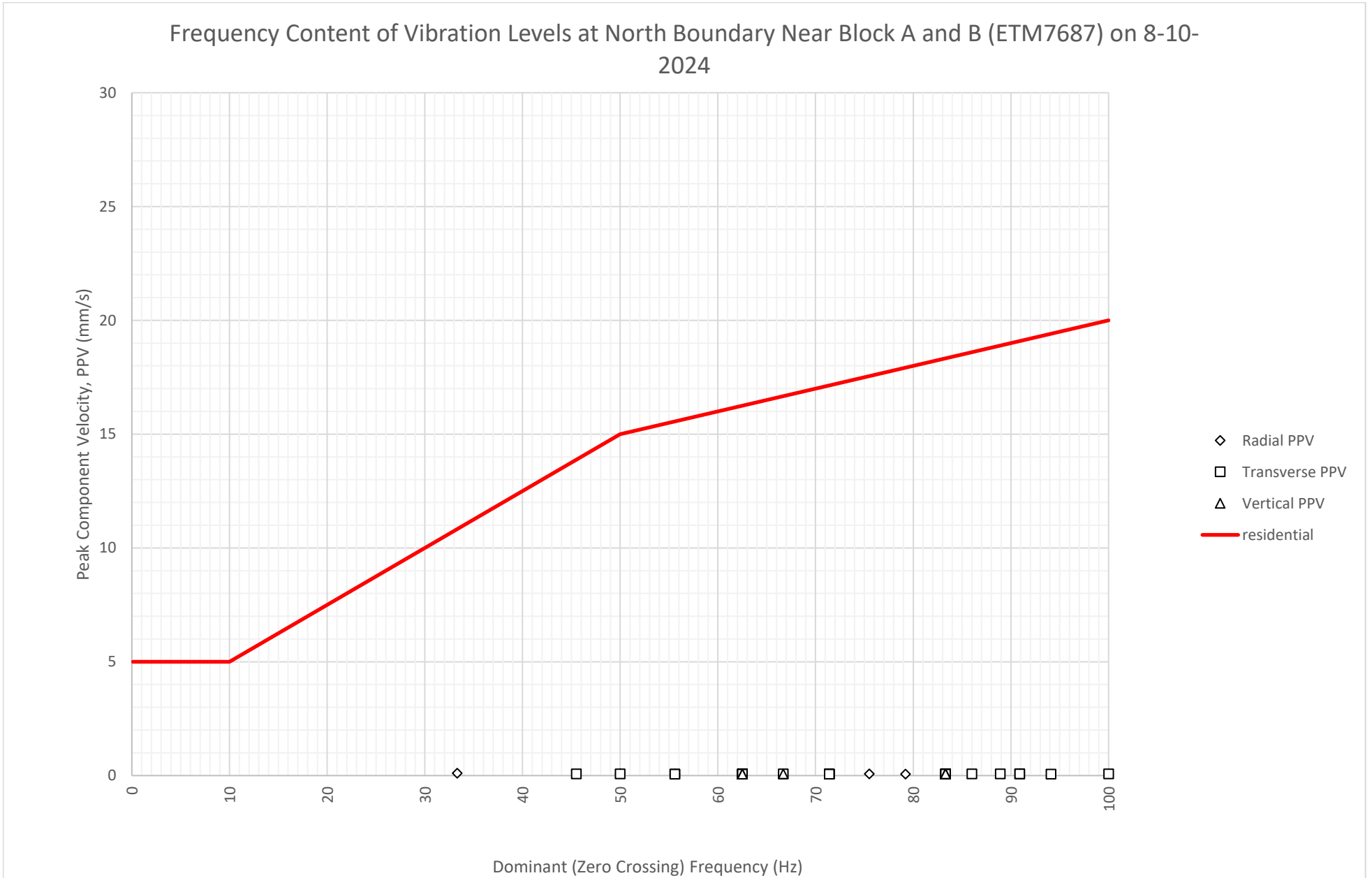
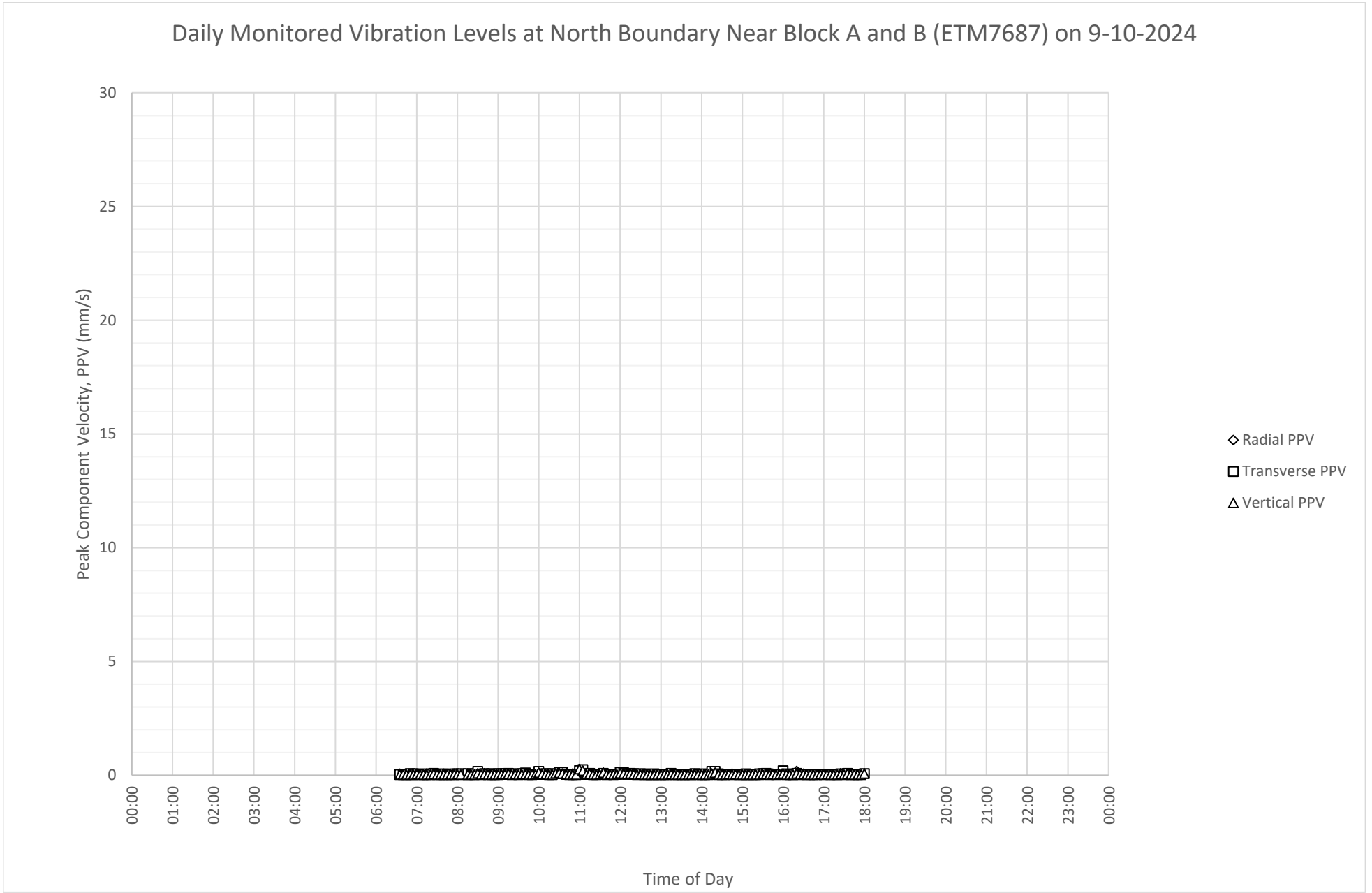
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 8-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 9-10-2024
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
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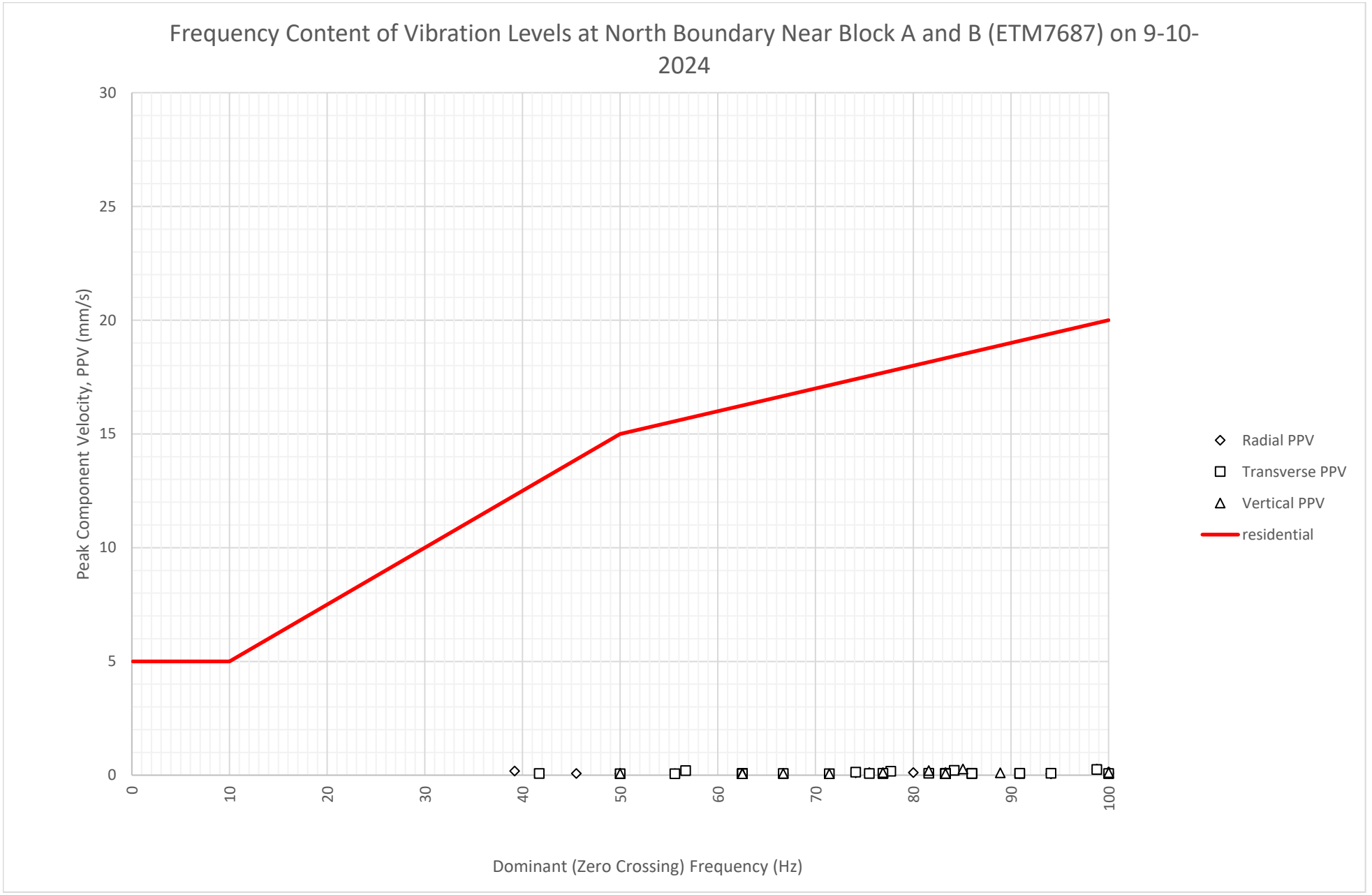
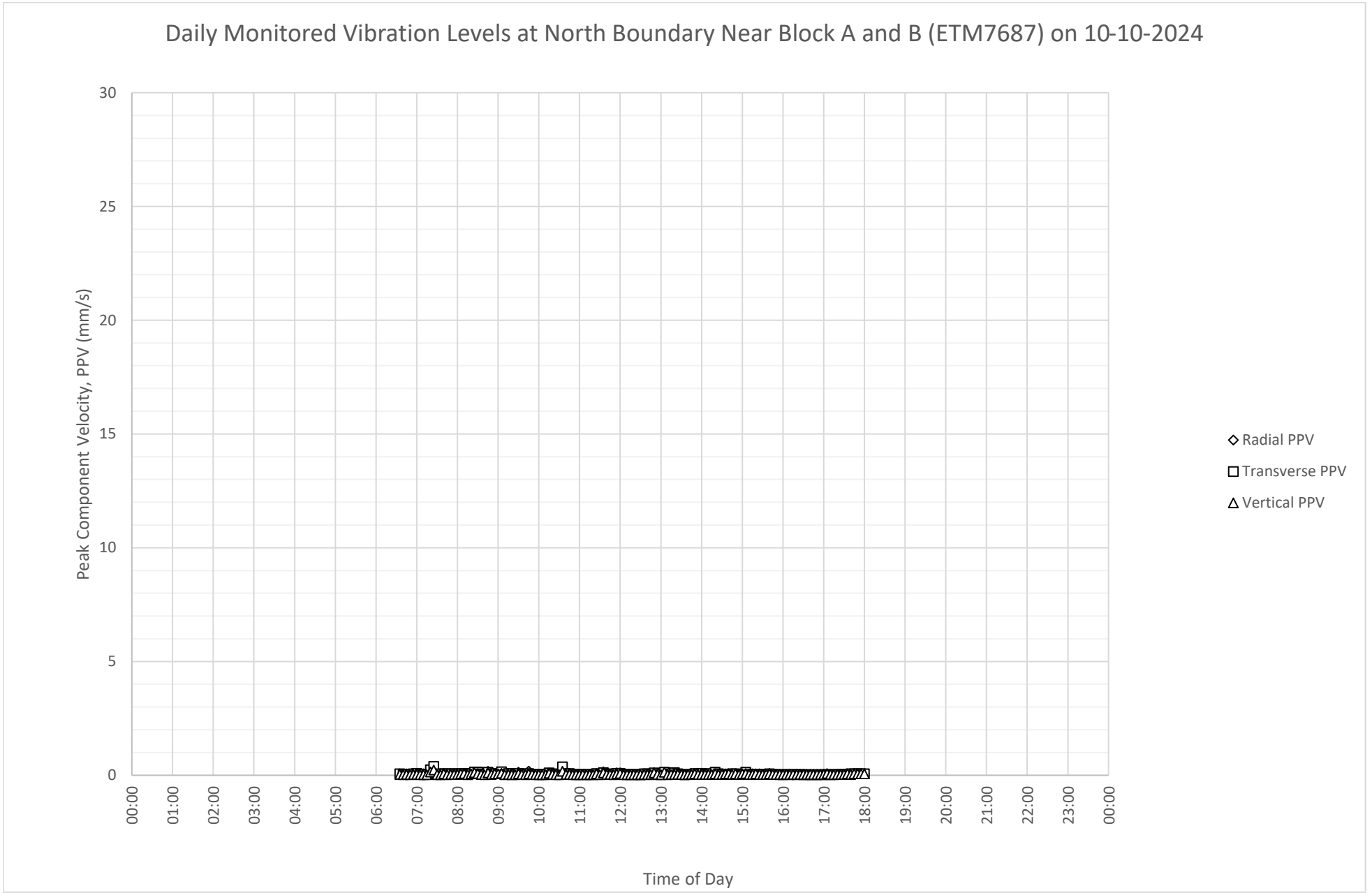
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 9-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 10-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
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00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
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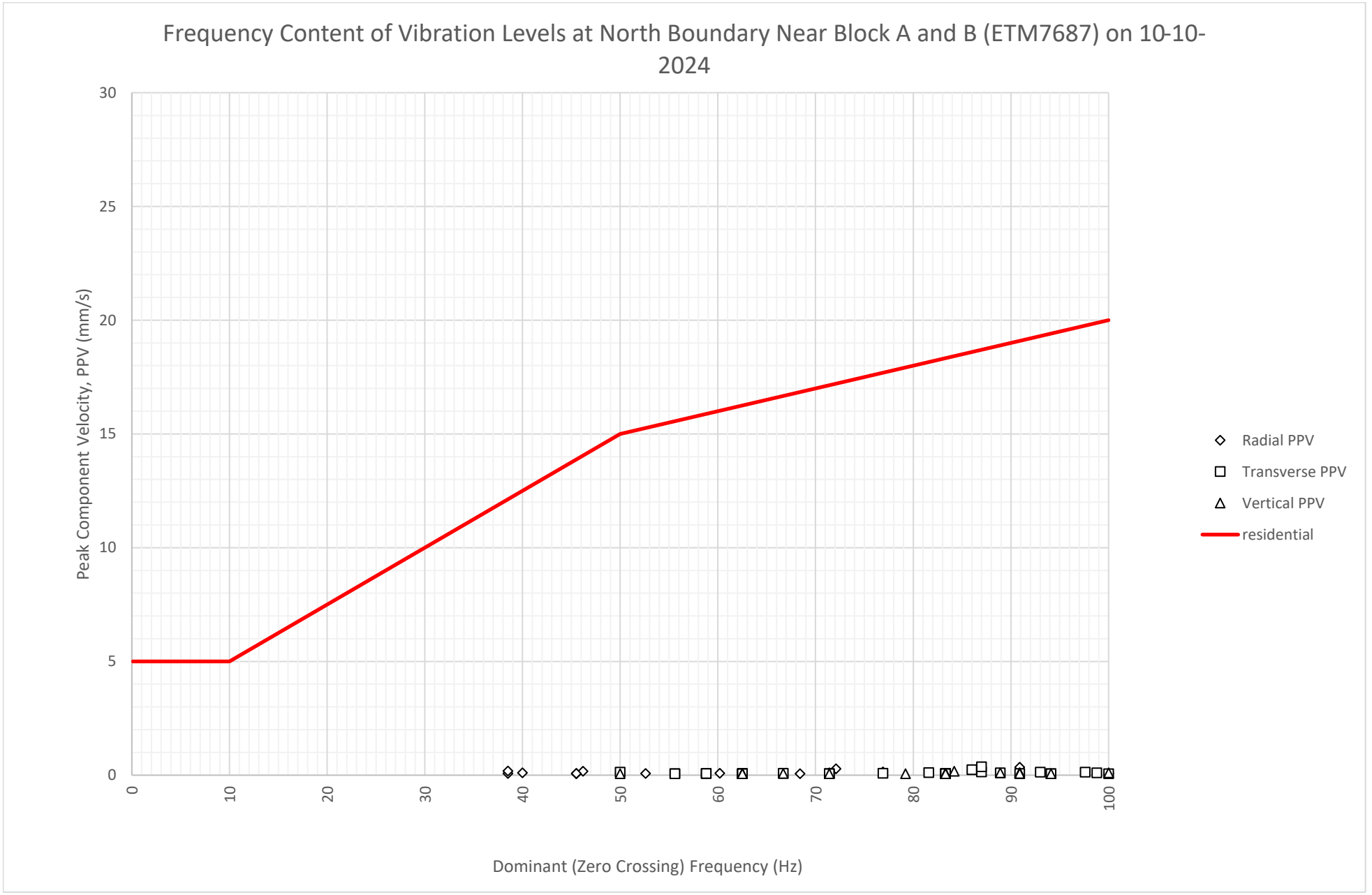
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 10-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
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60
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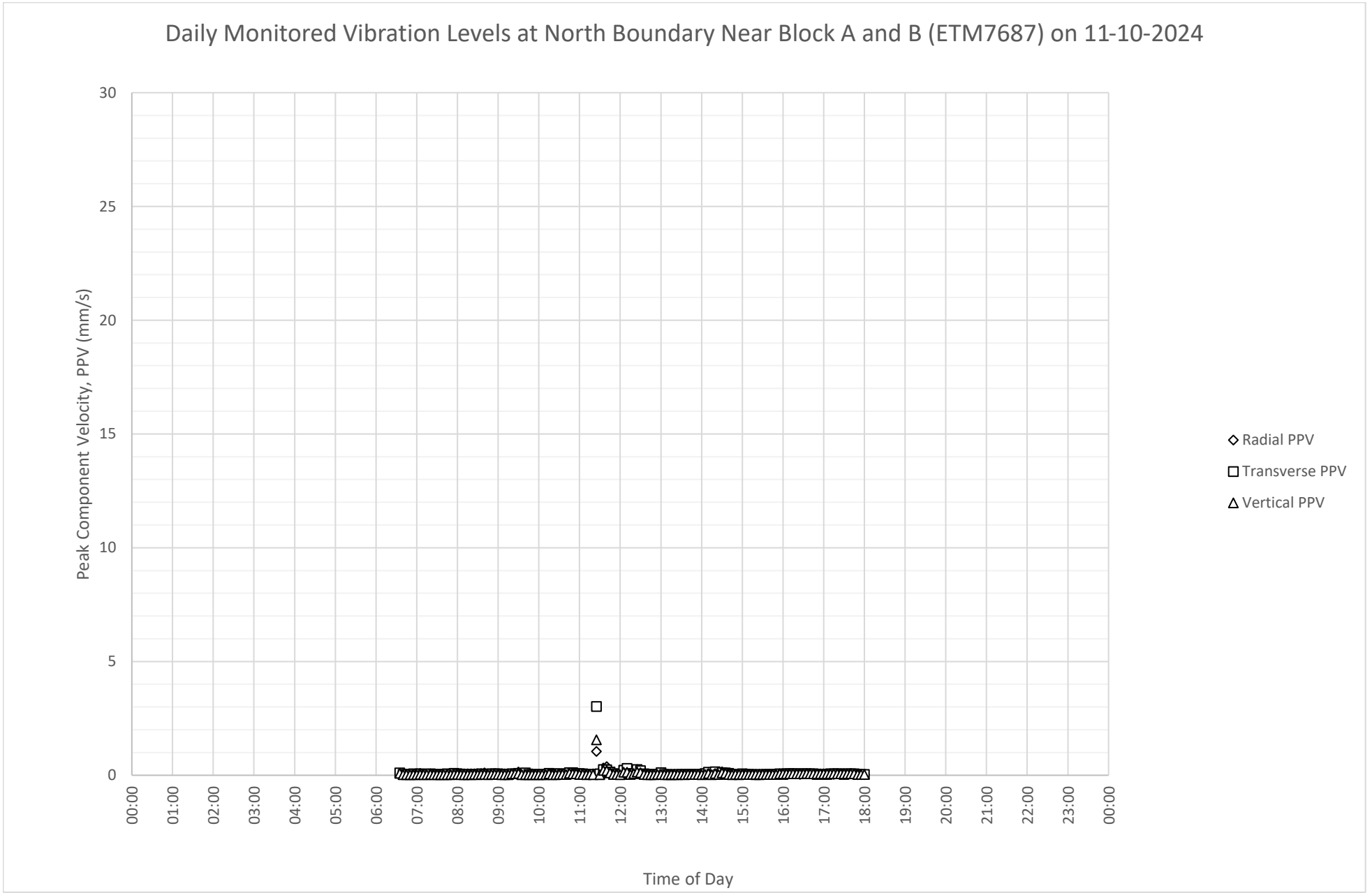
90
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 11-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
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00:00
01:00
02:00
03:00
04:00
05:00
06:00
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08:00
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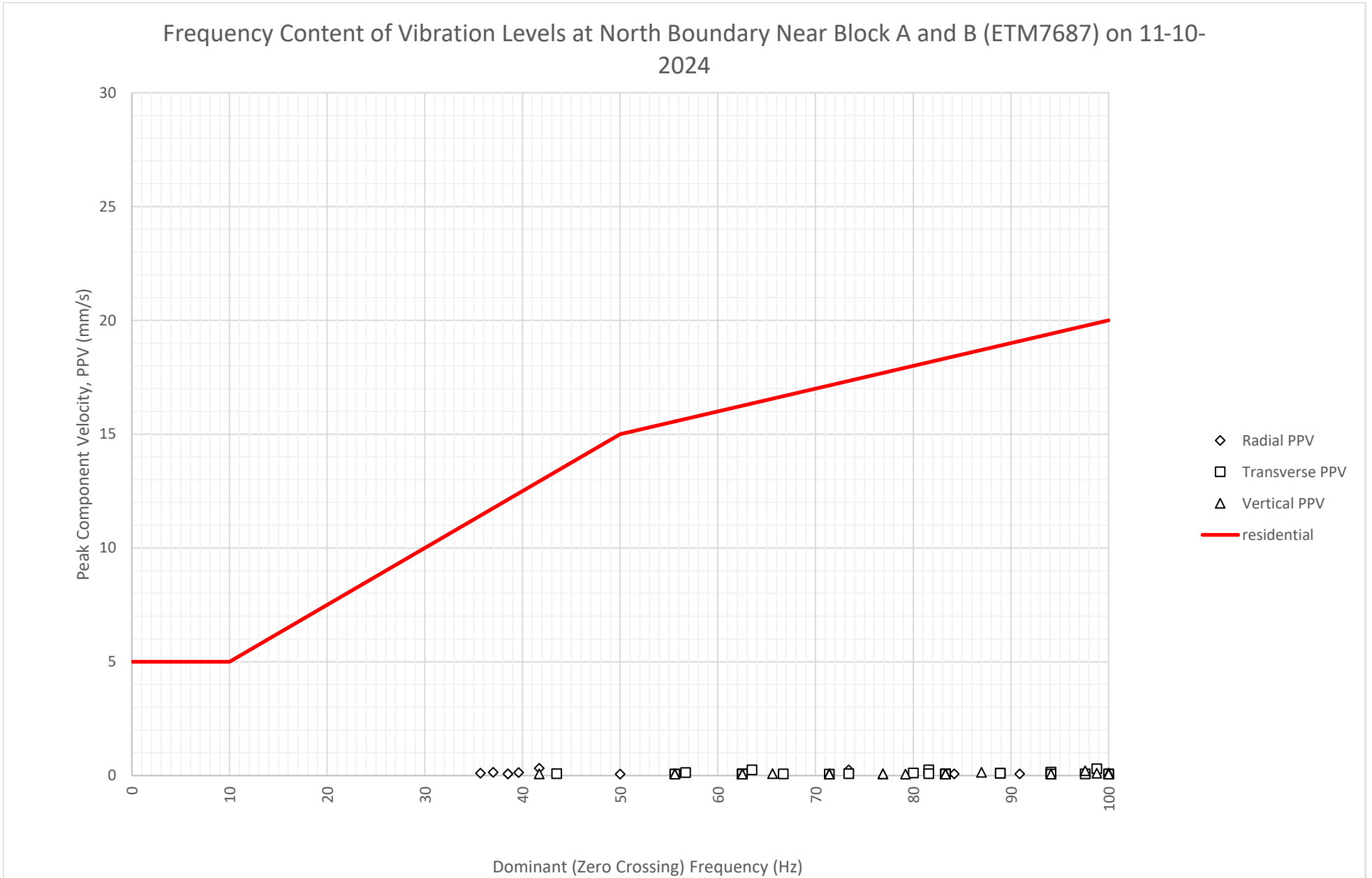
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 11-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
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10
5
0
0
10
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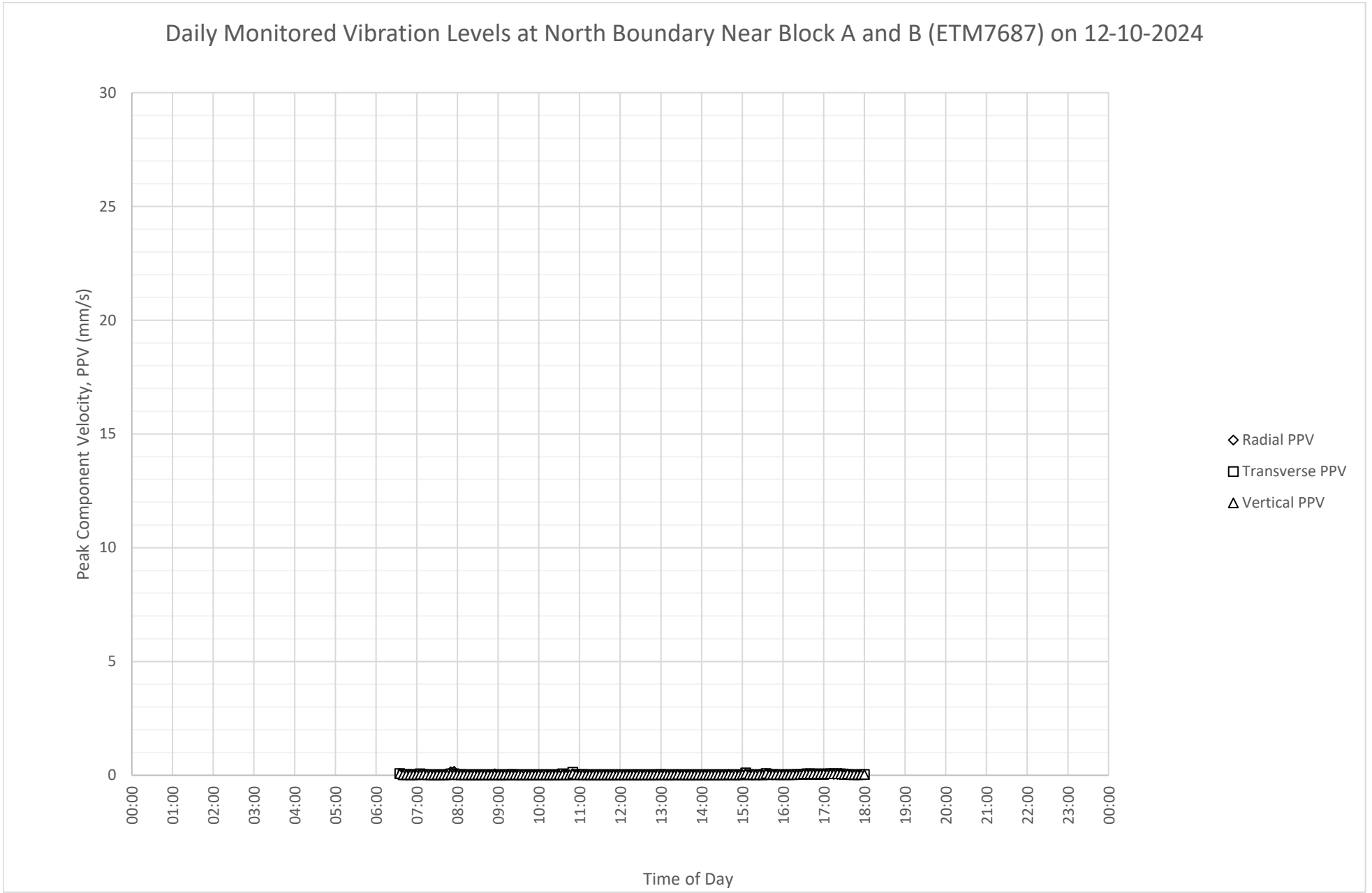
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 12-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
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04:00
05:00
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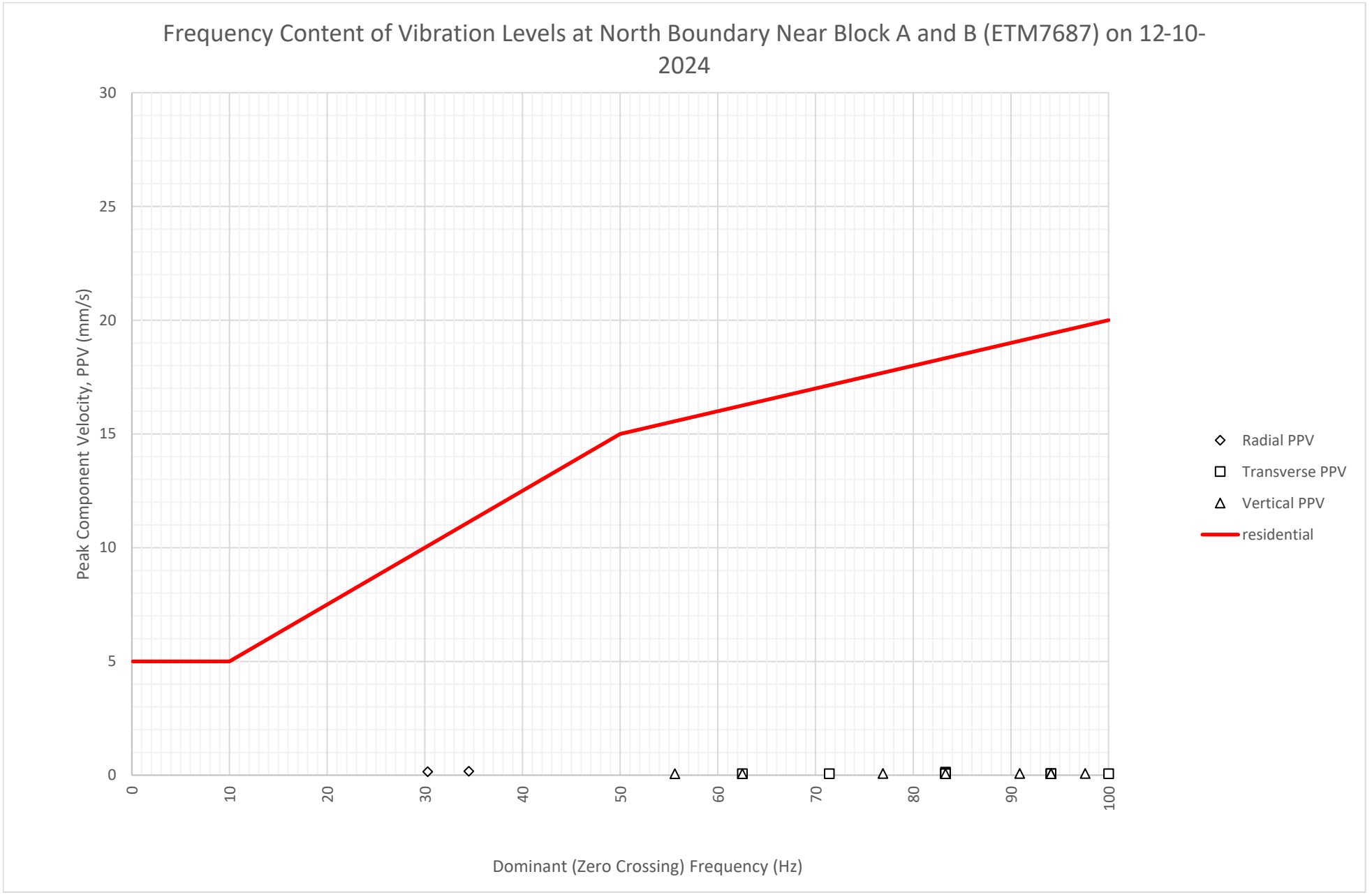
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 12-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
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0
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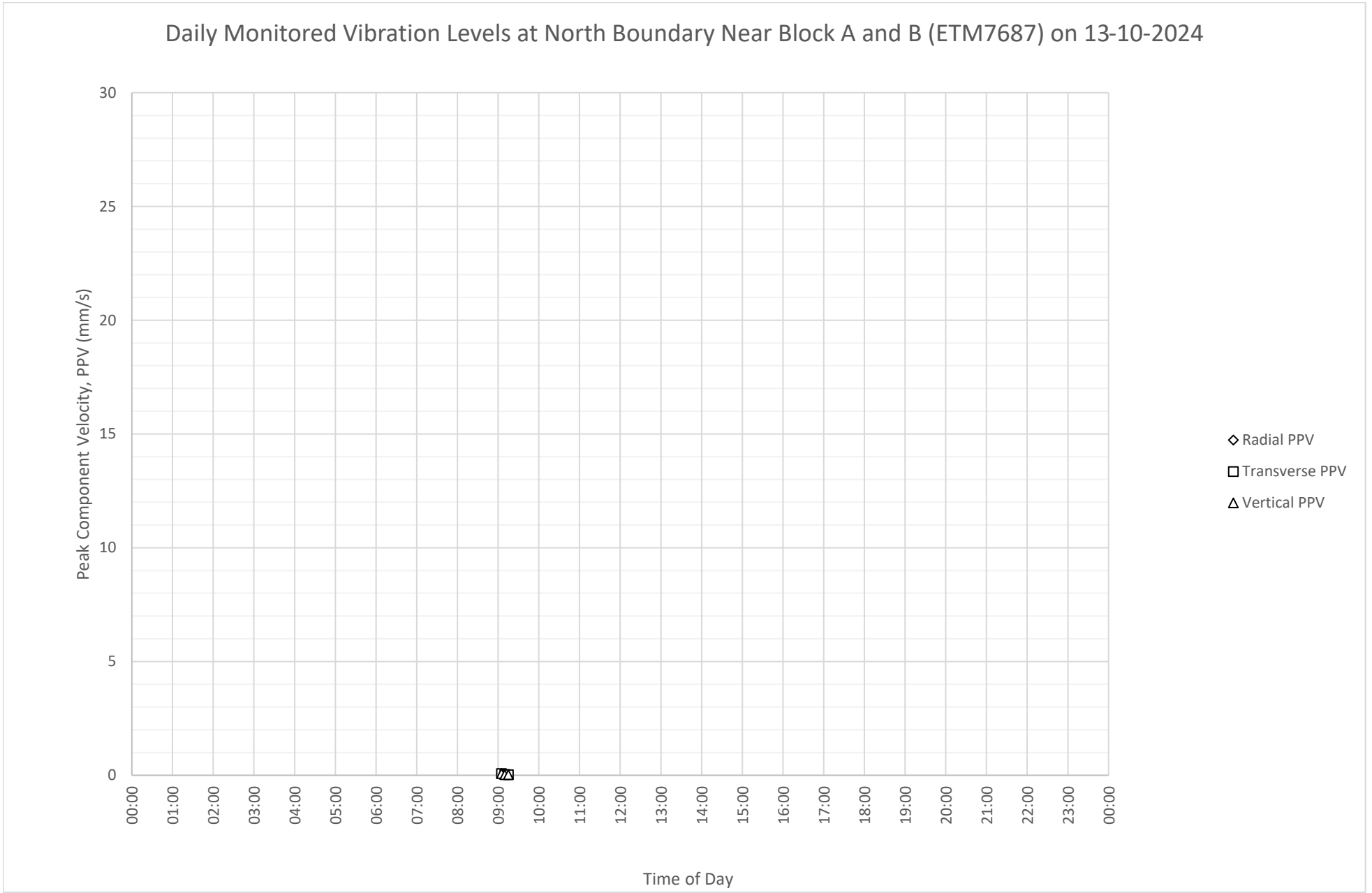
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 13-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
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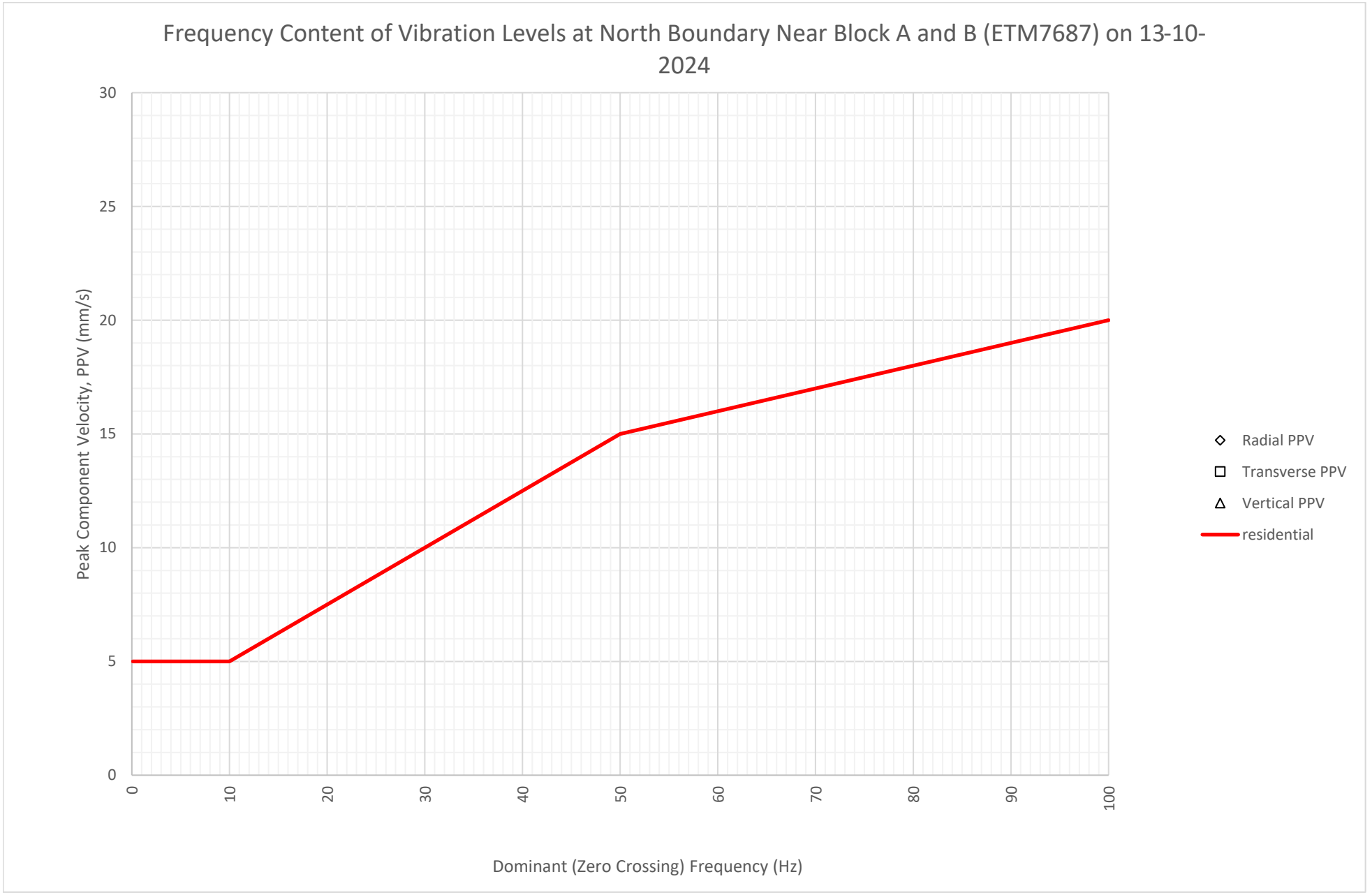
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 13-10-2024
Peak Component Velocity, PPV (mm/s)
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25
20
15
10
5
0
0
10
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60
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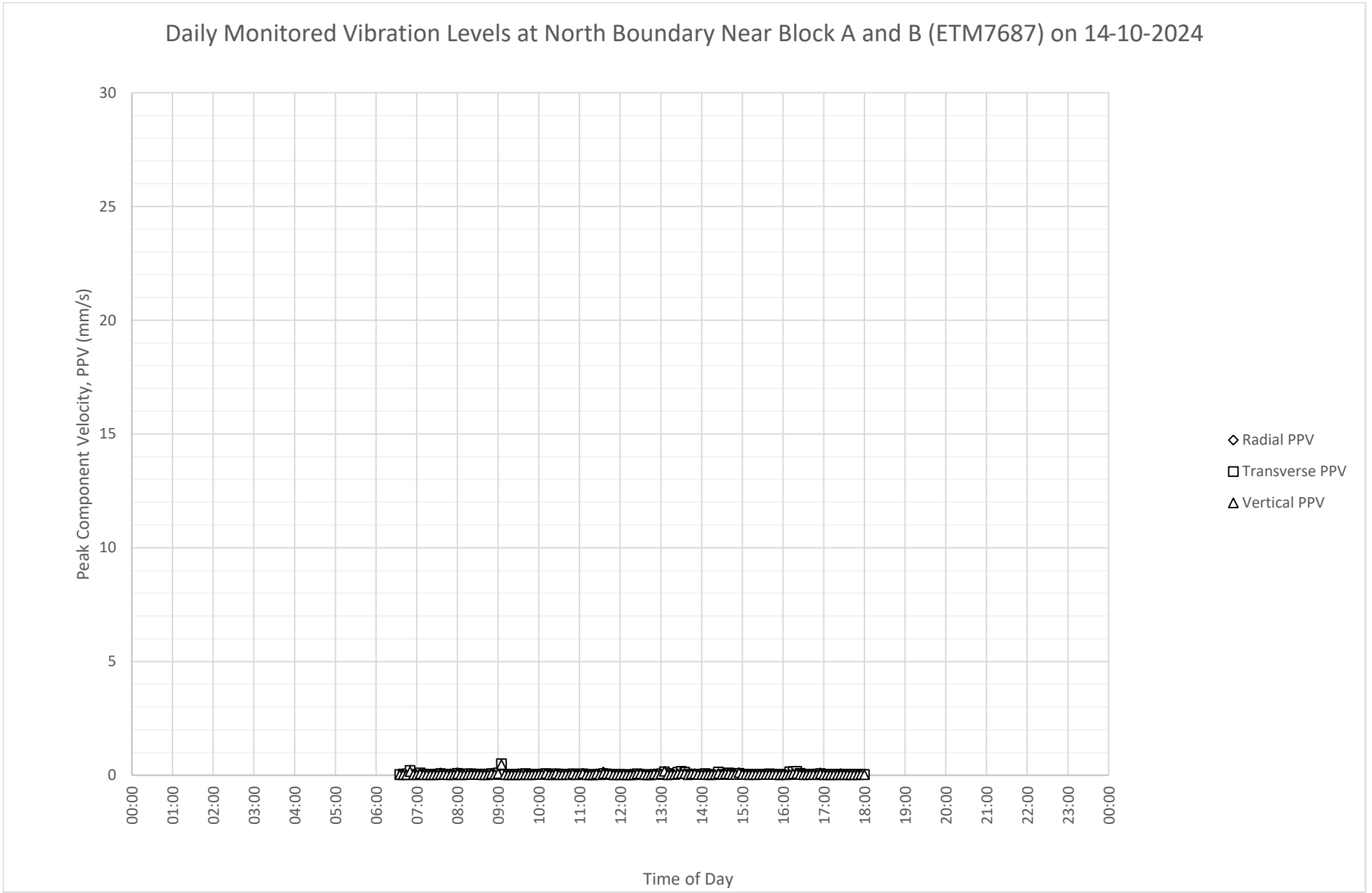
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 14-10-2024
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
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23:00
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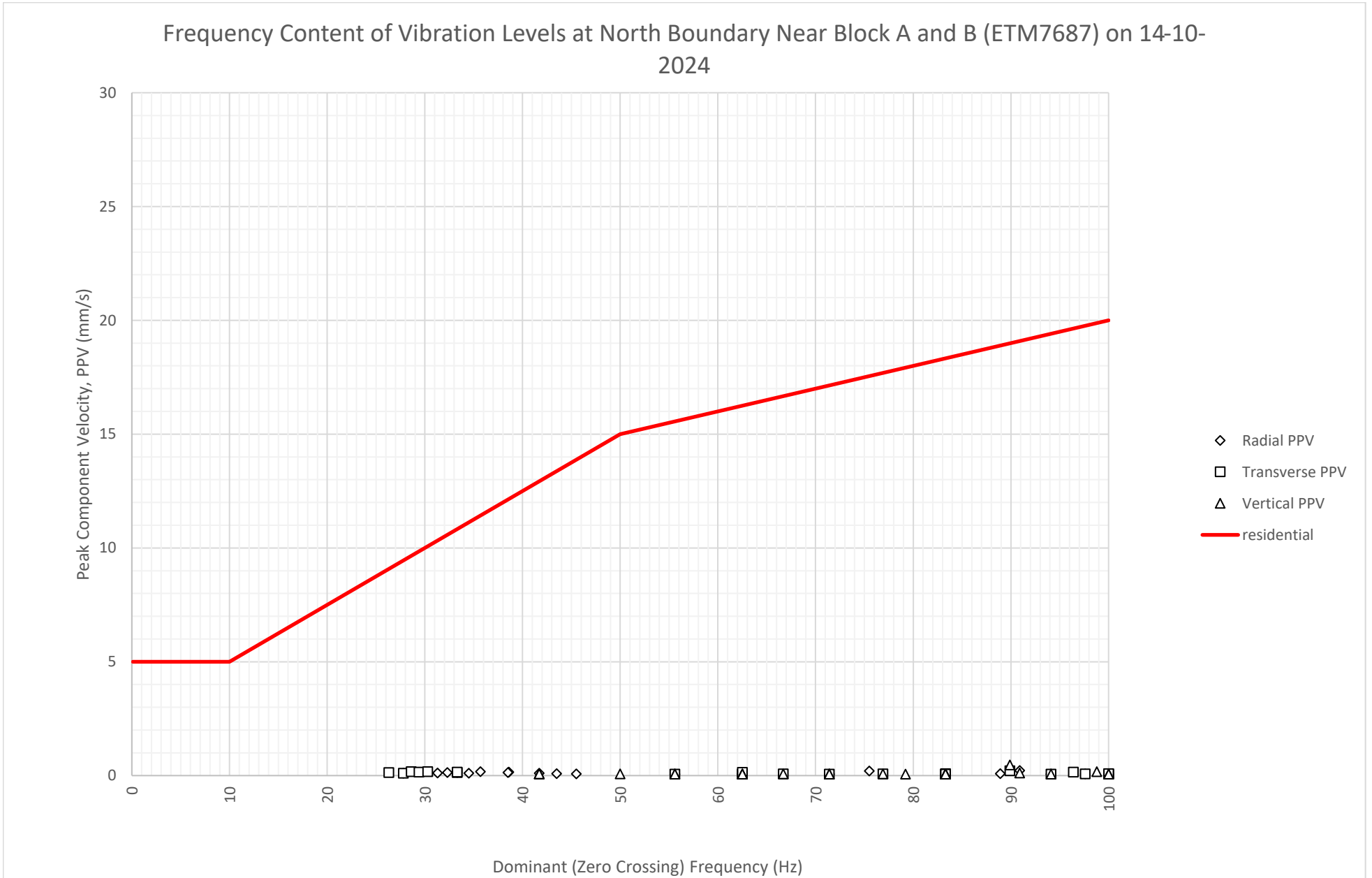
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 14-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
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30
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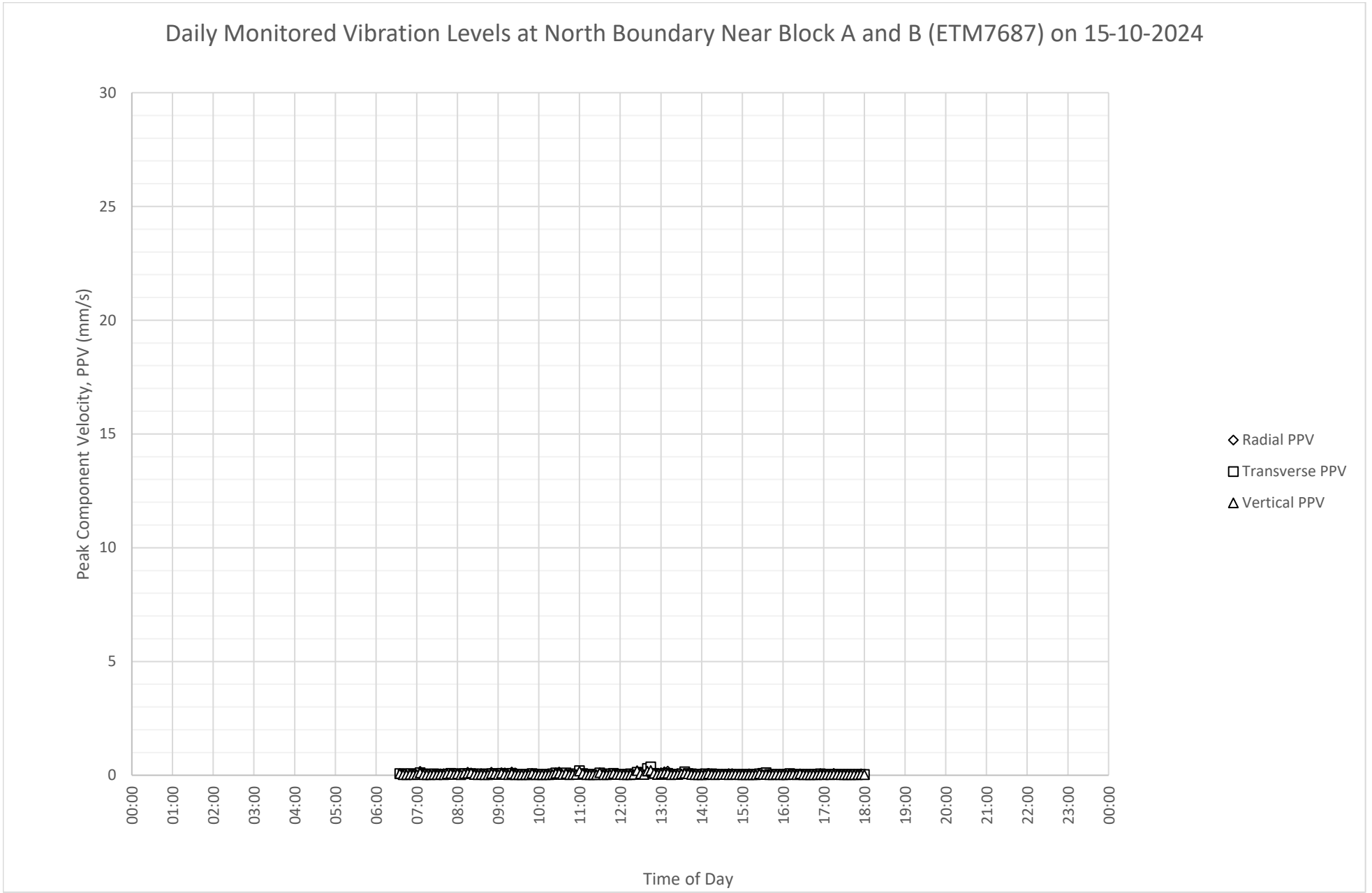
50
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 15-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
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00:00
01:00
02:00
03:00
04:00
05:00
06:00
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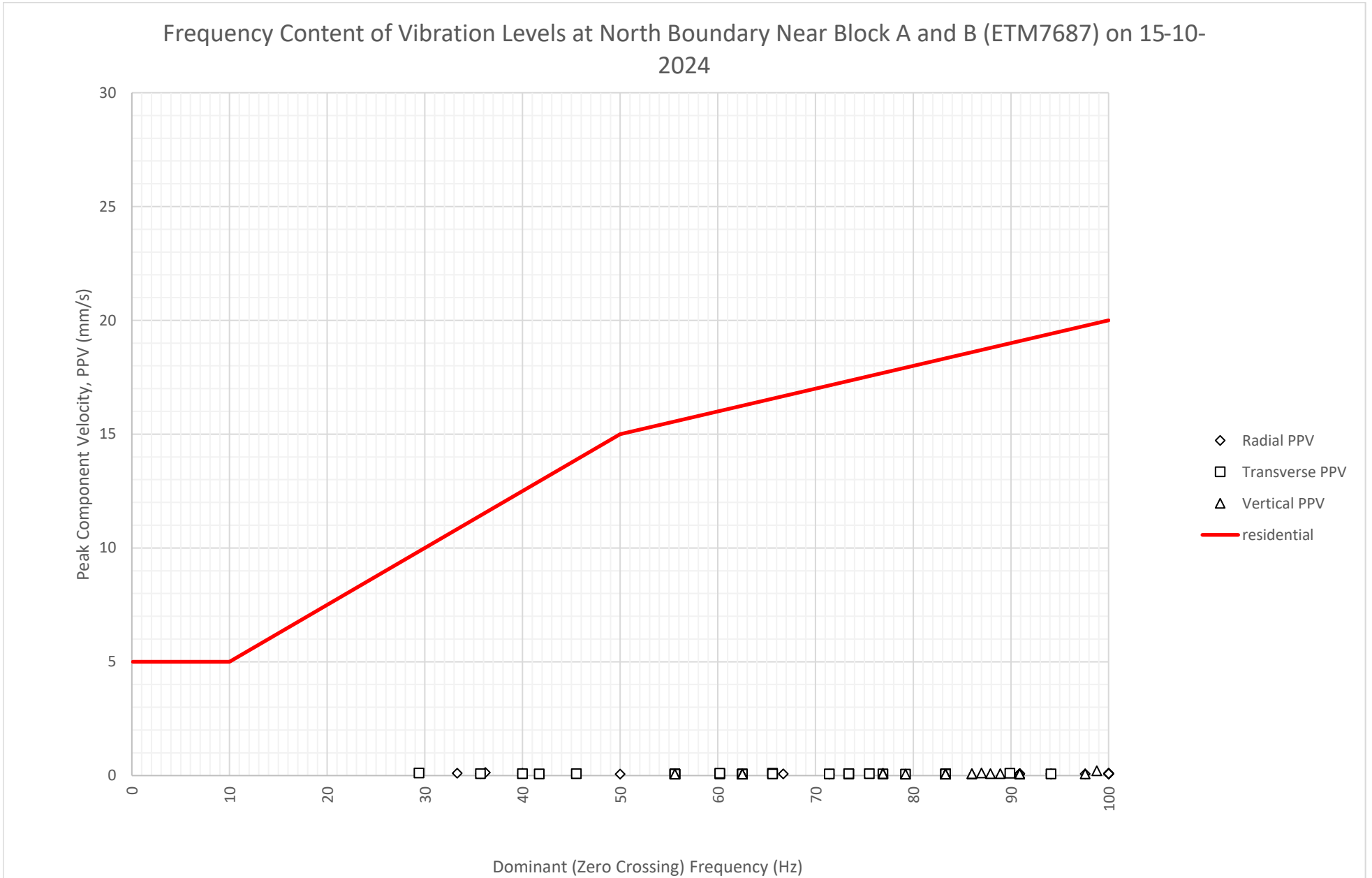
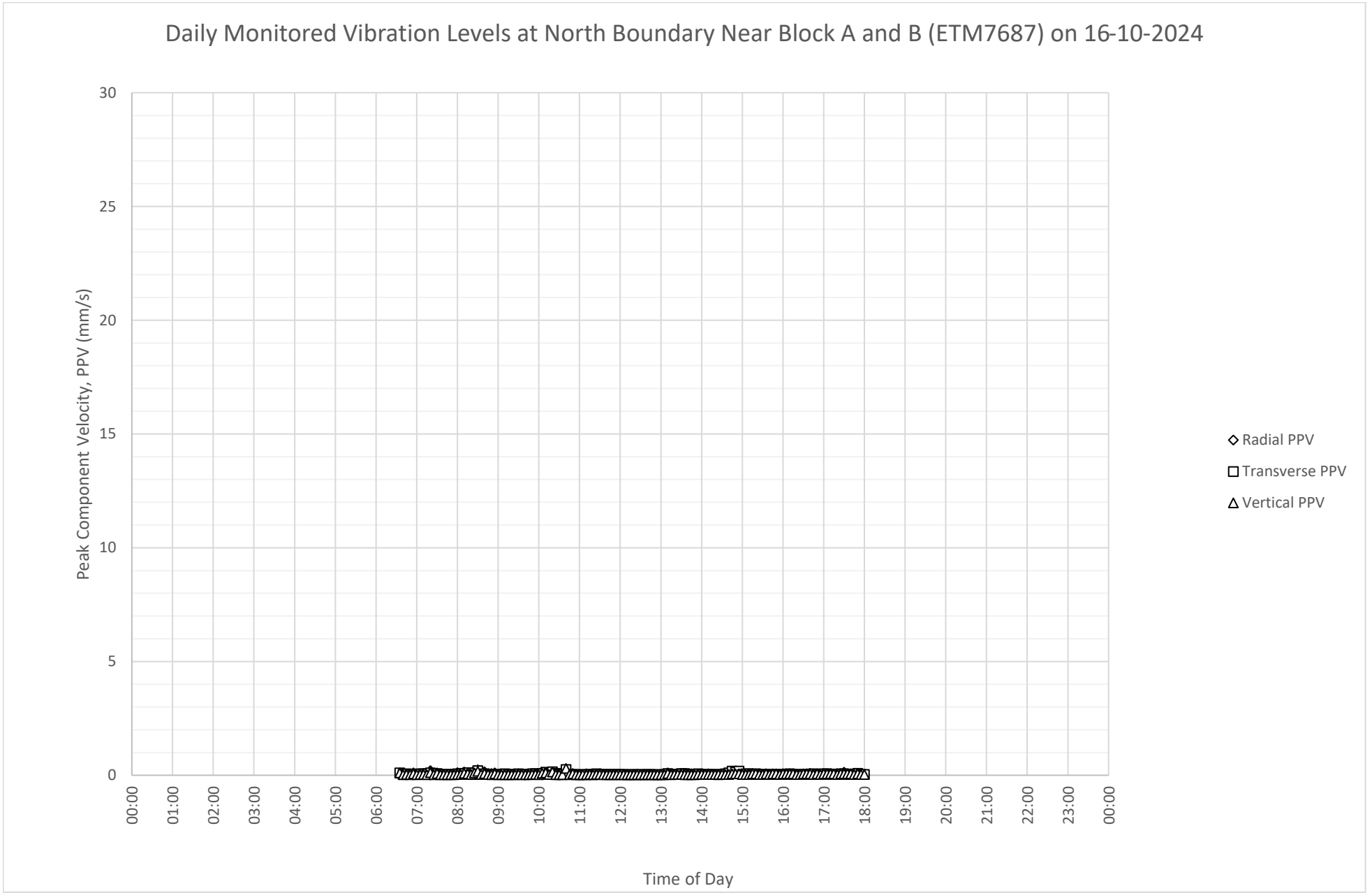
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 15-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 16-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
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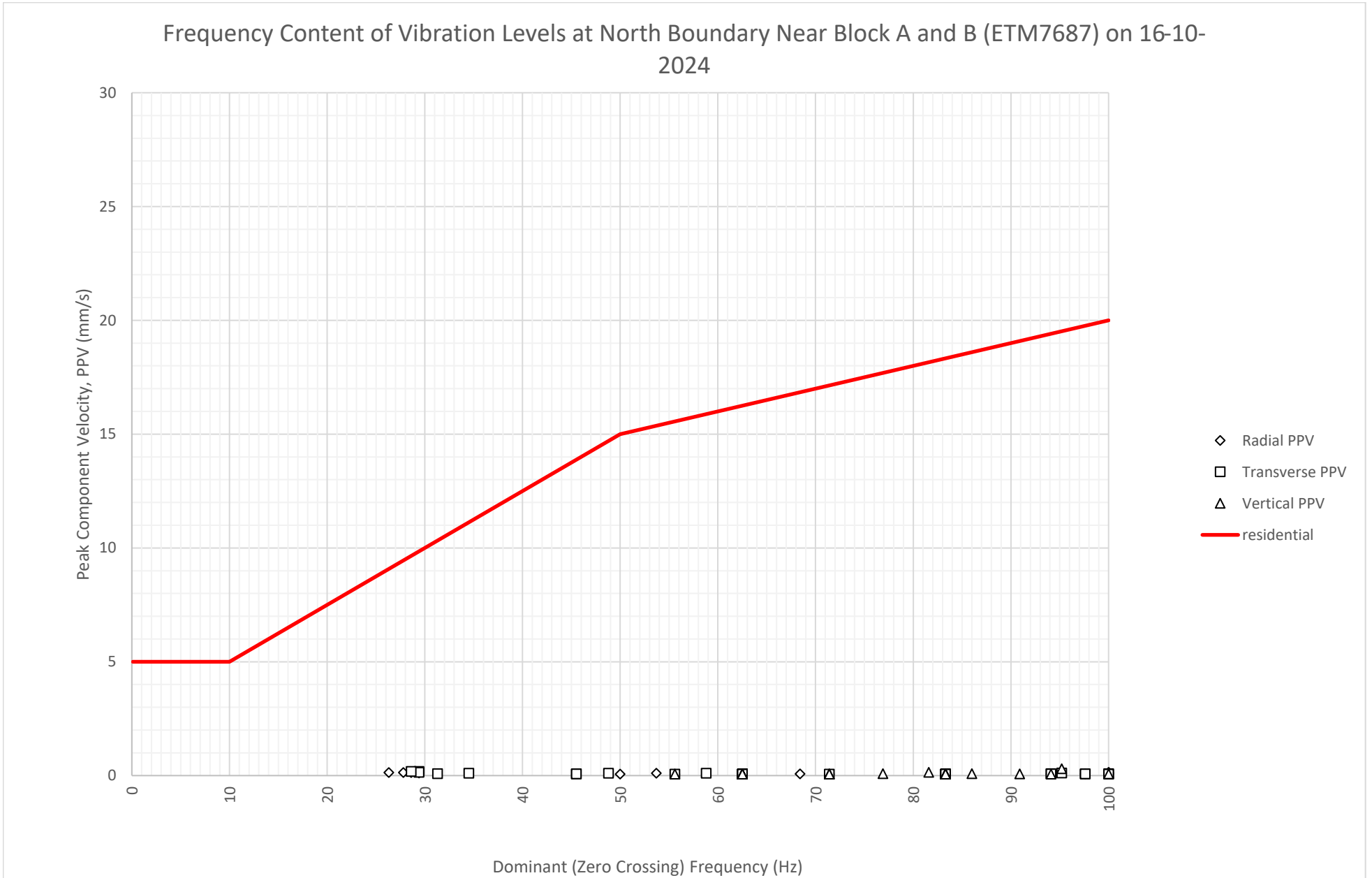
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 16-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
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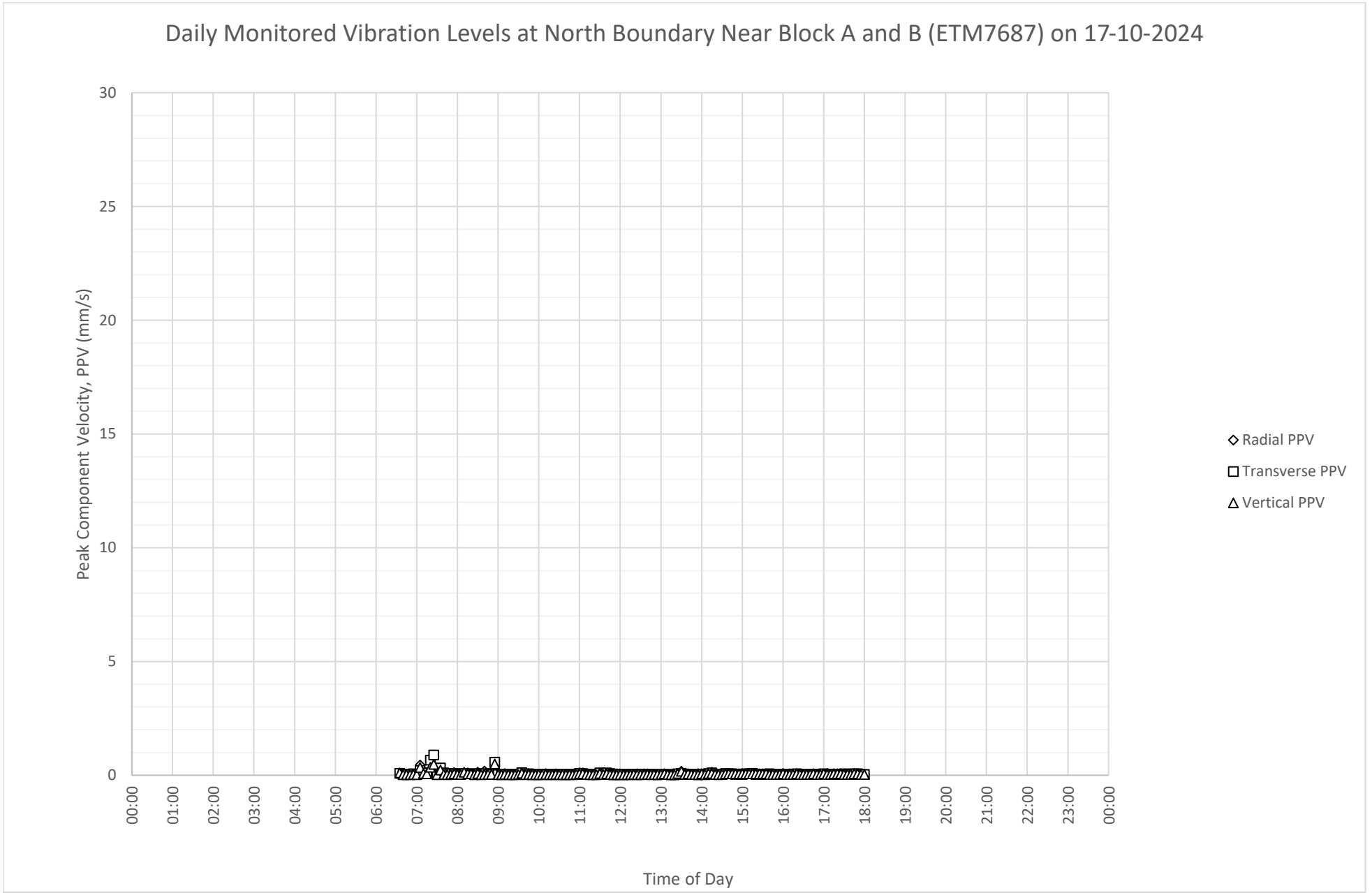
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 17-10-2024
Peak Component Velocity, PPV (mm/s)
30
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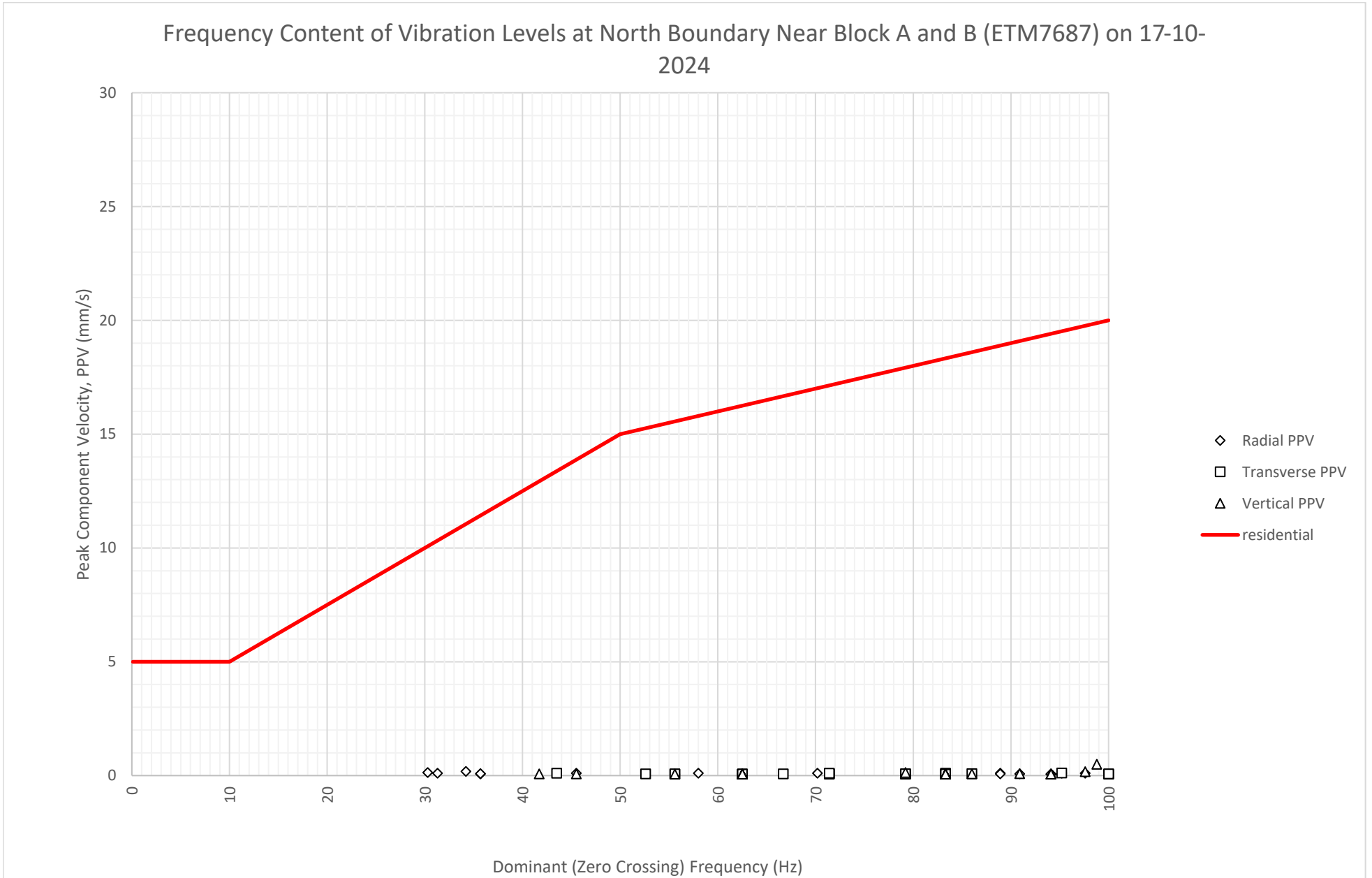
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 17-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
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10
5
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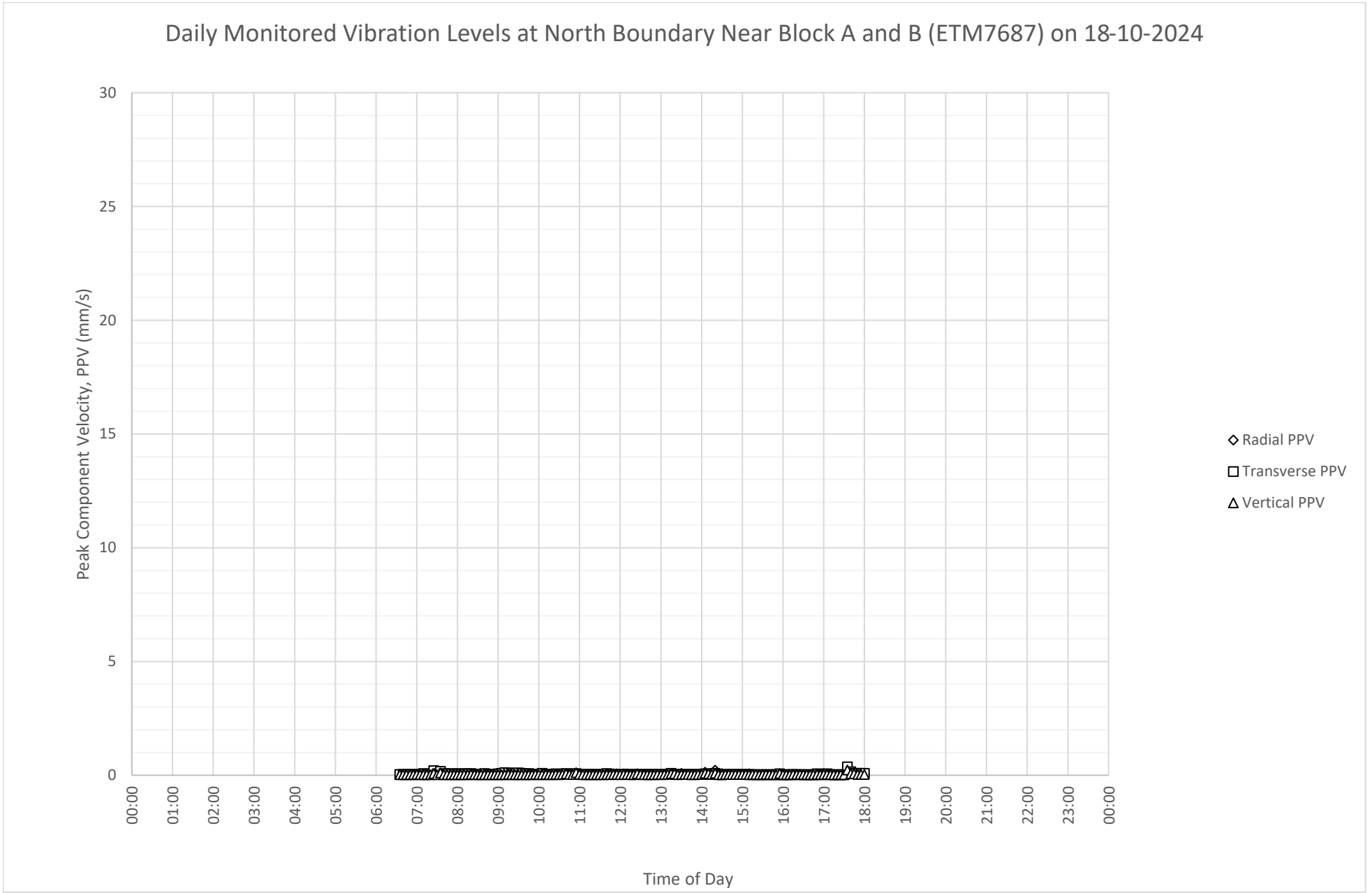
90
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 18-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
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00:00
01:00
02:00
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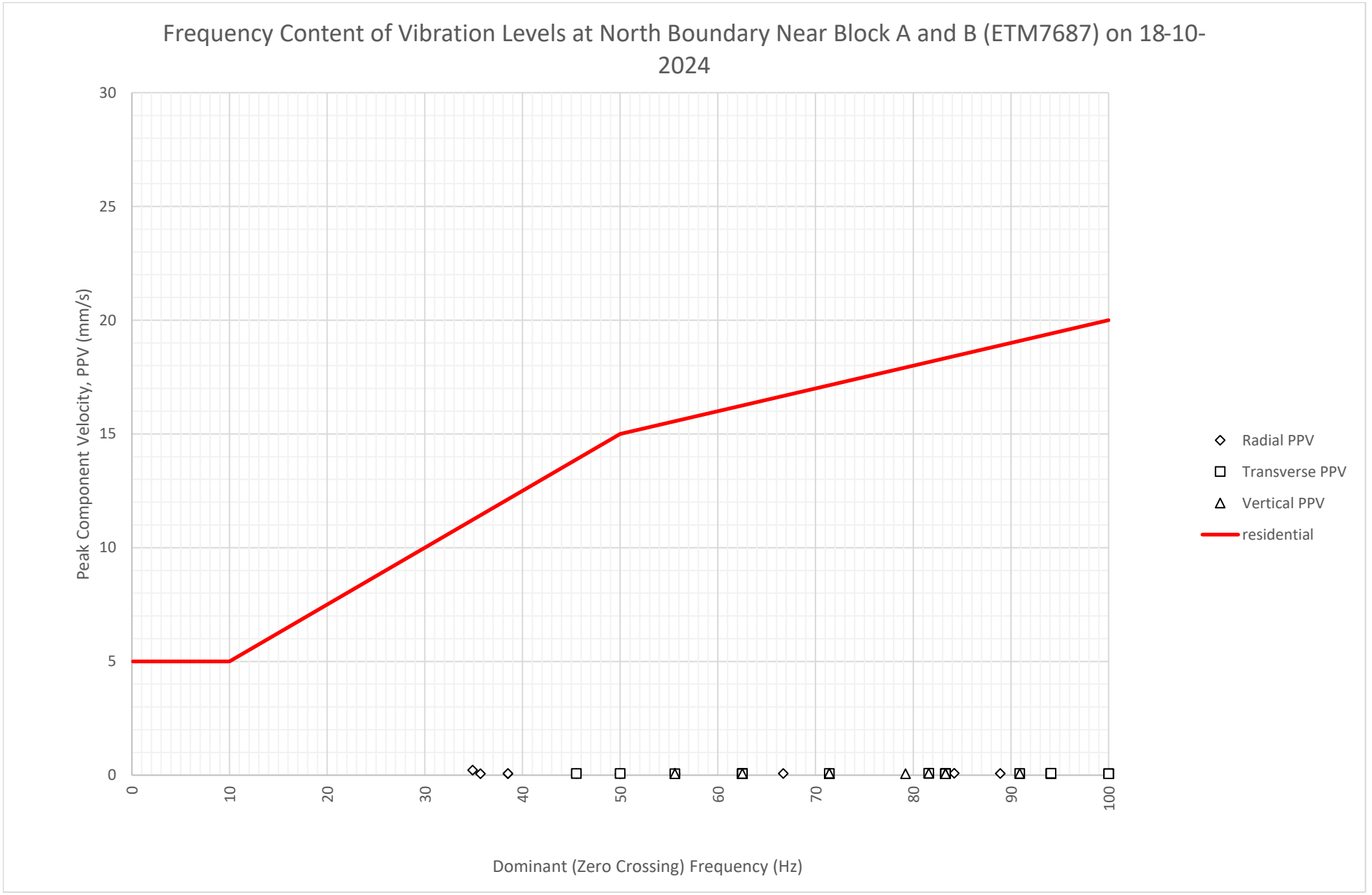
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 18-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
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10
5
0
0
10
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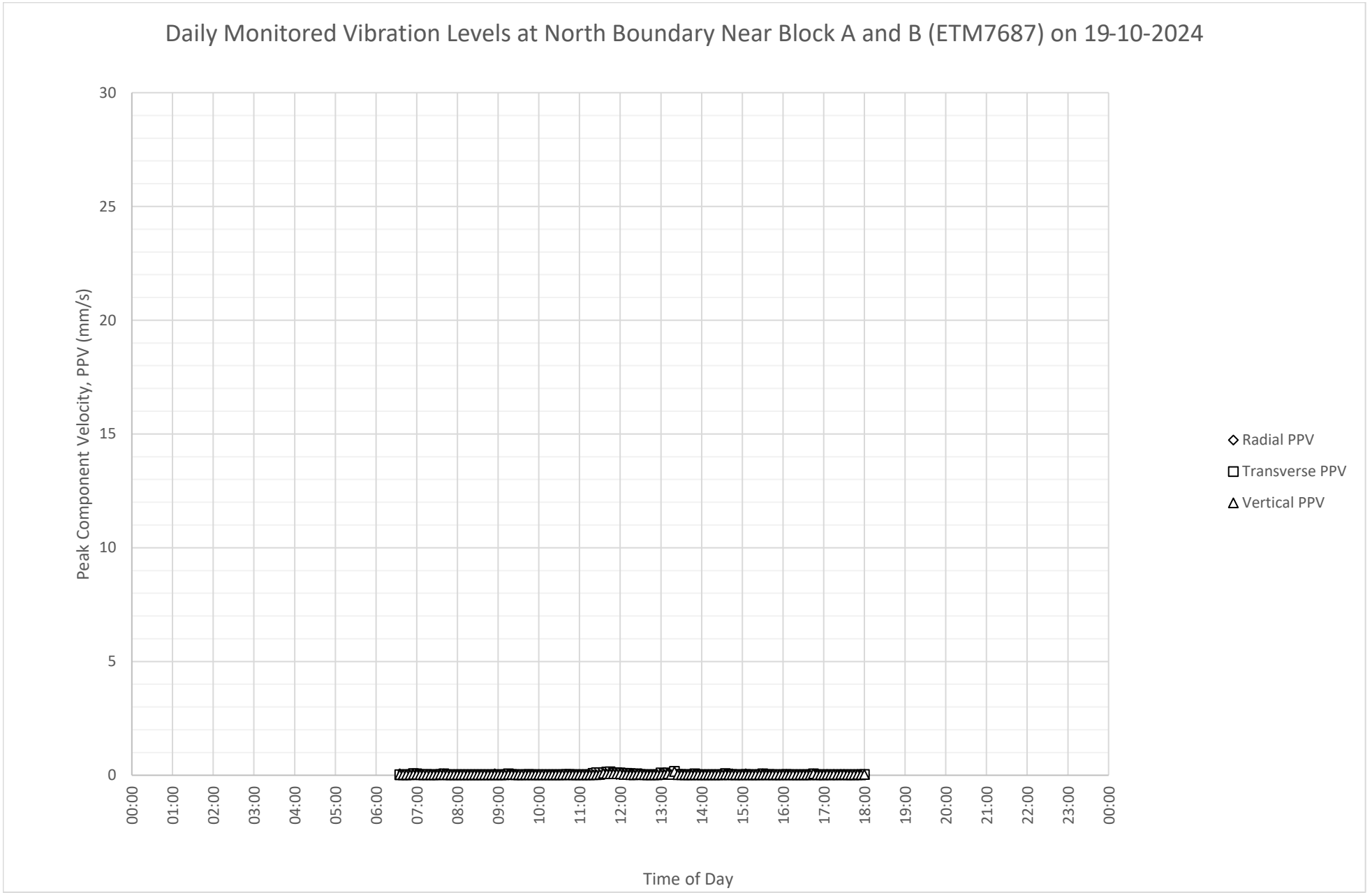
90
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 19-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
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10
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01:00
02:00
03:00
04:00
05:00
06:00
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23:00
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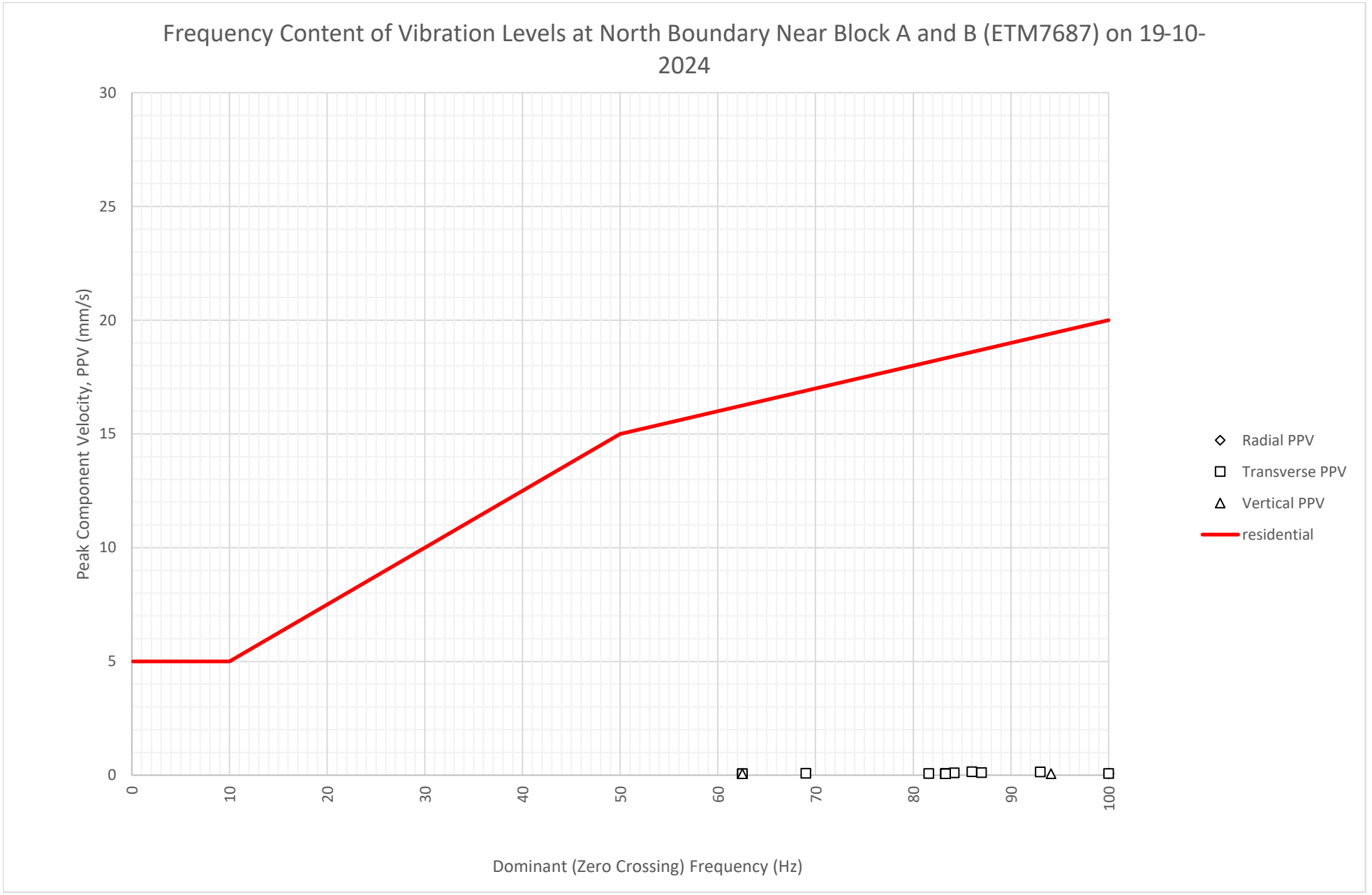
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 19-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
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0
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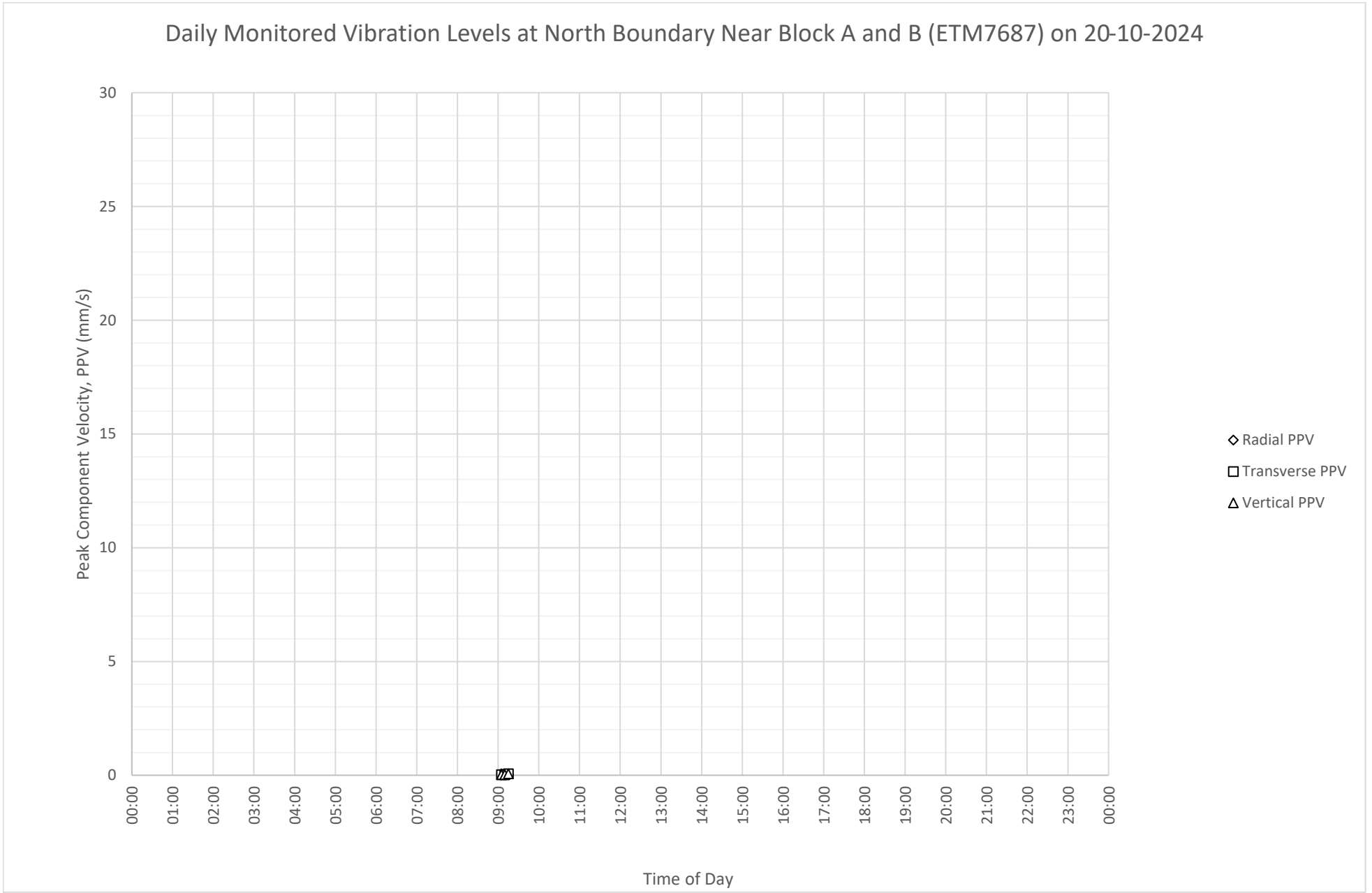
90
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 20-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
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00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
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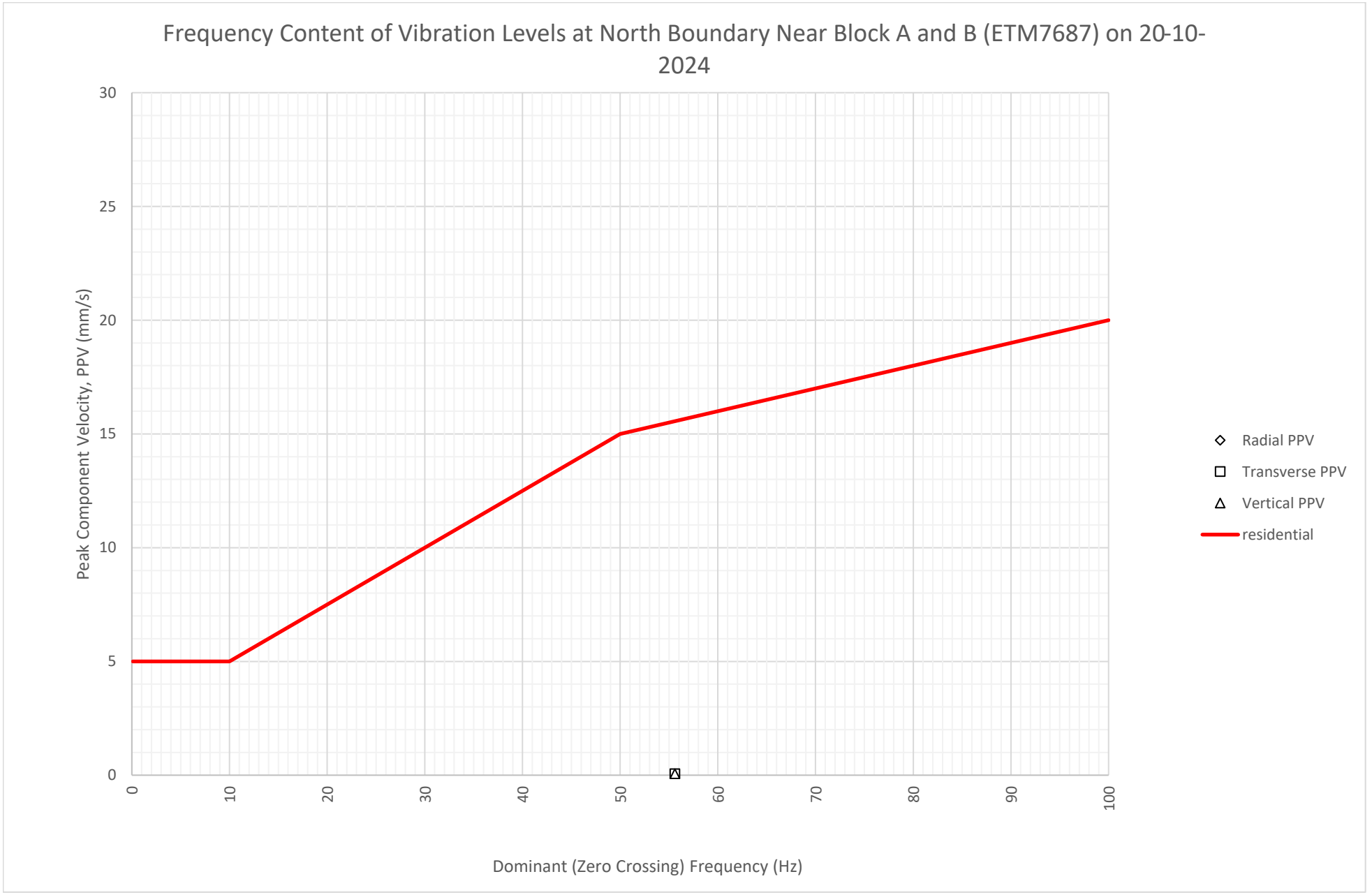
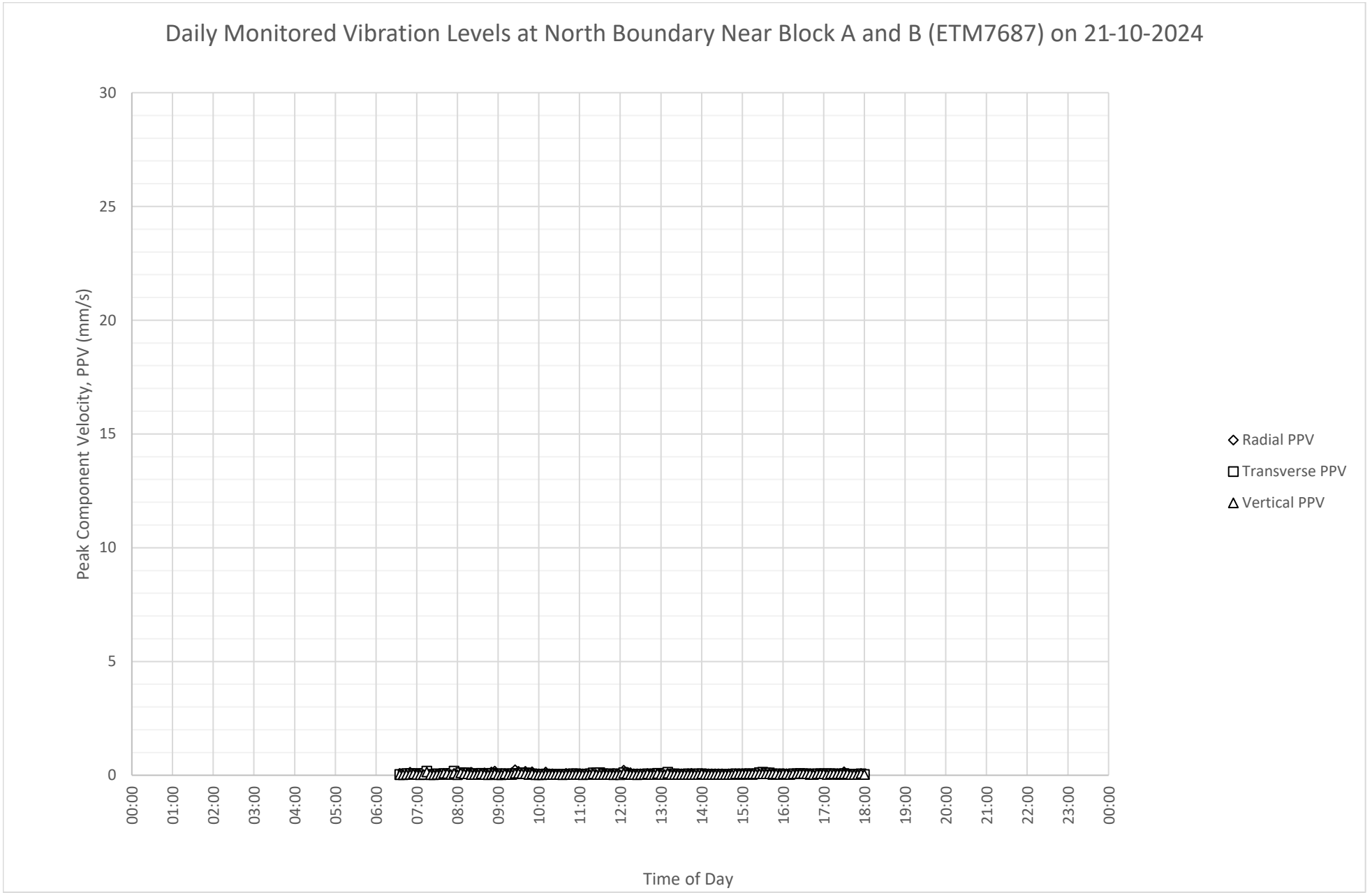
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 20-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 21-10-2024
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
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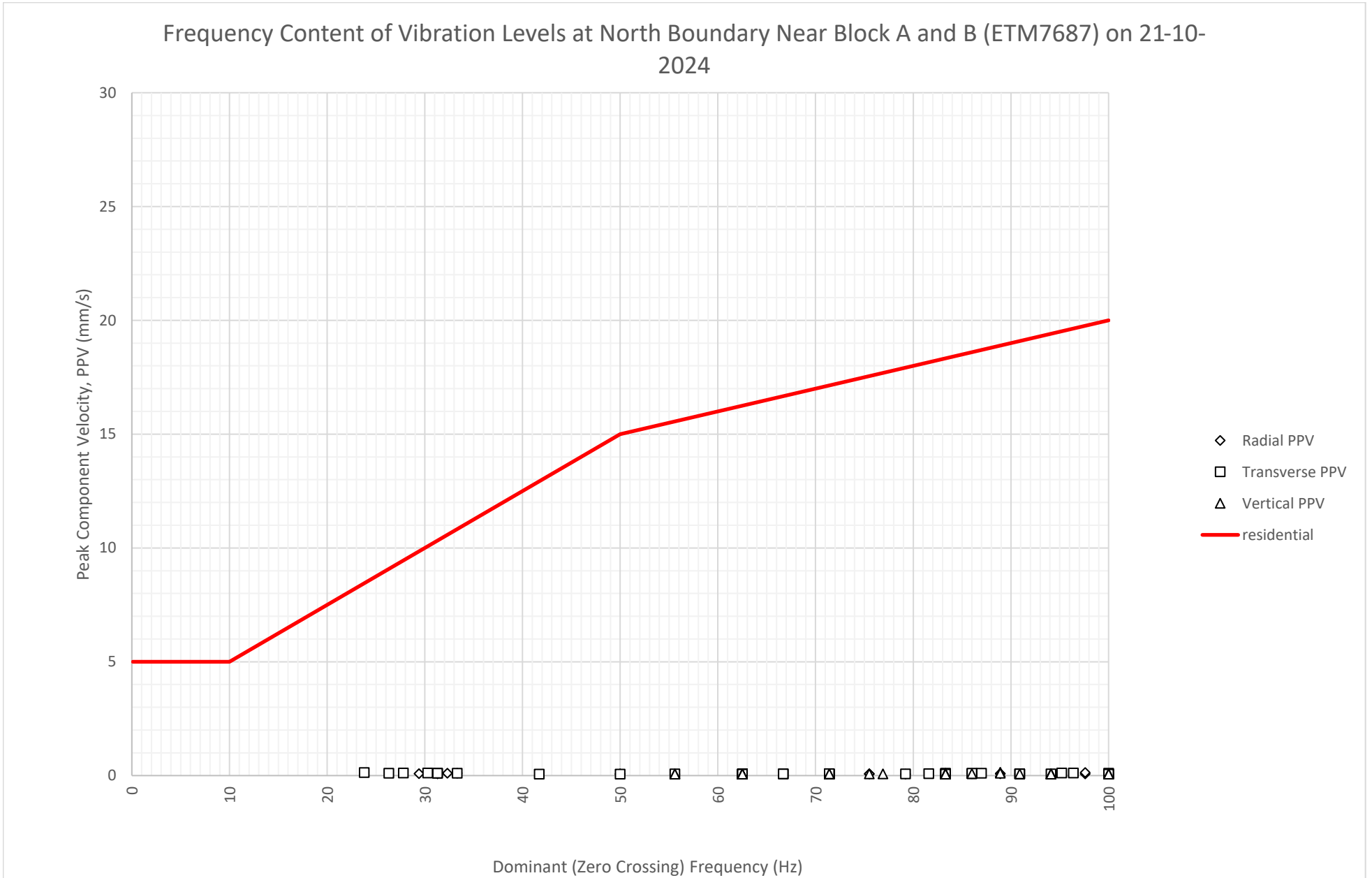
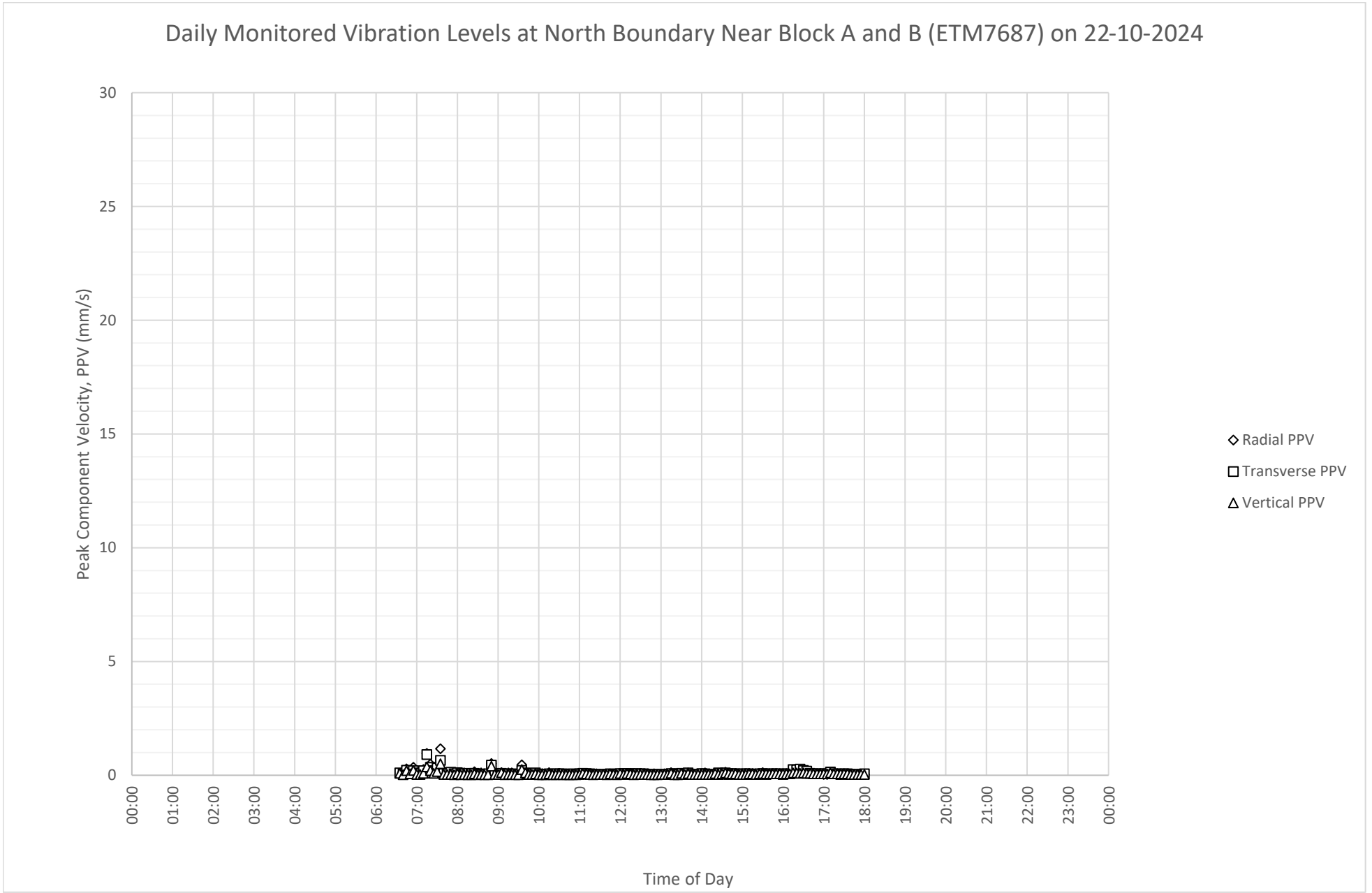
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 21-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 22-10-2024
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
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19:00
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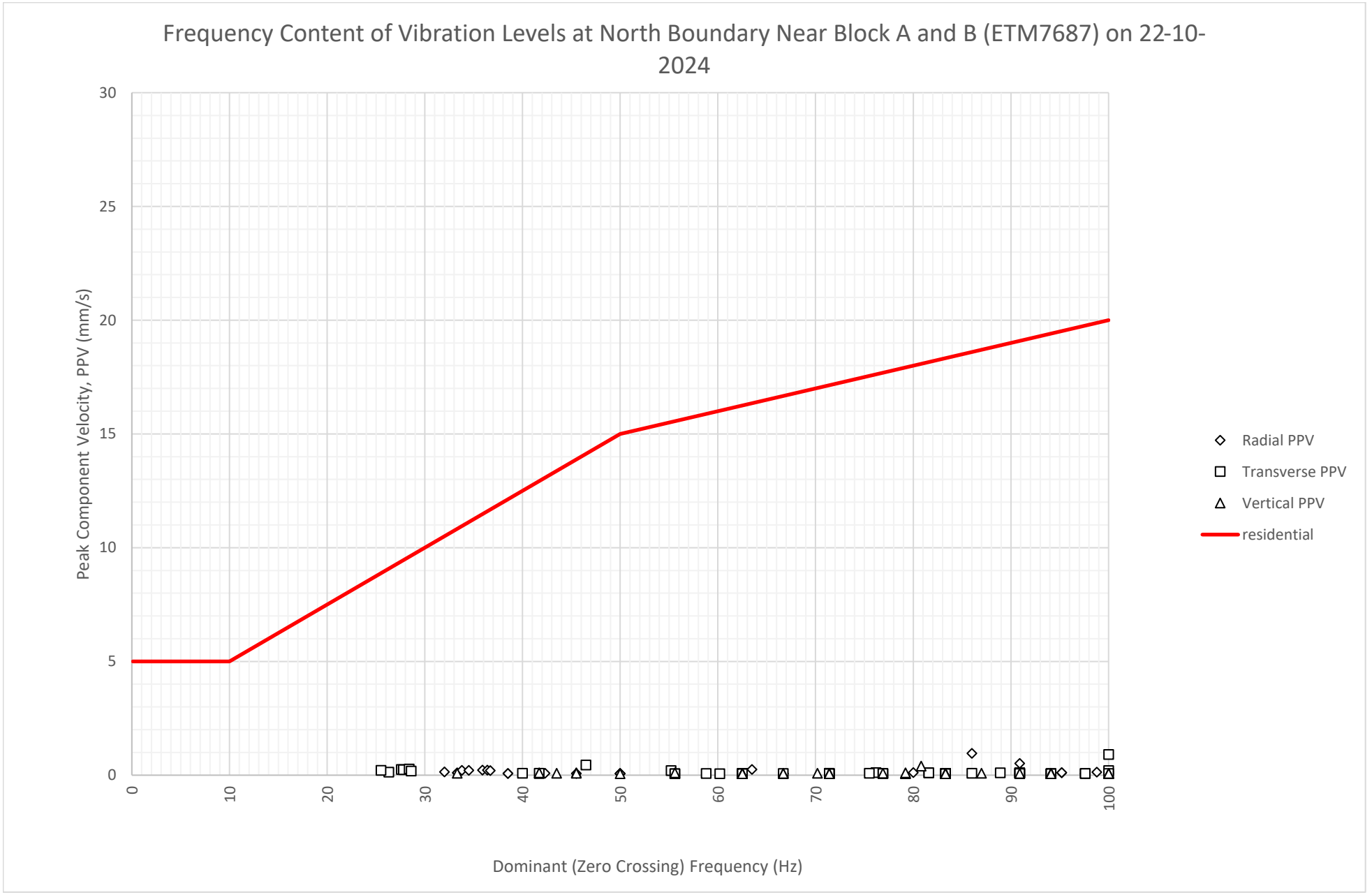
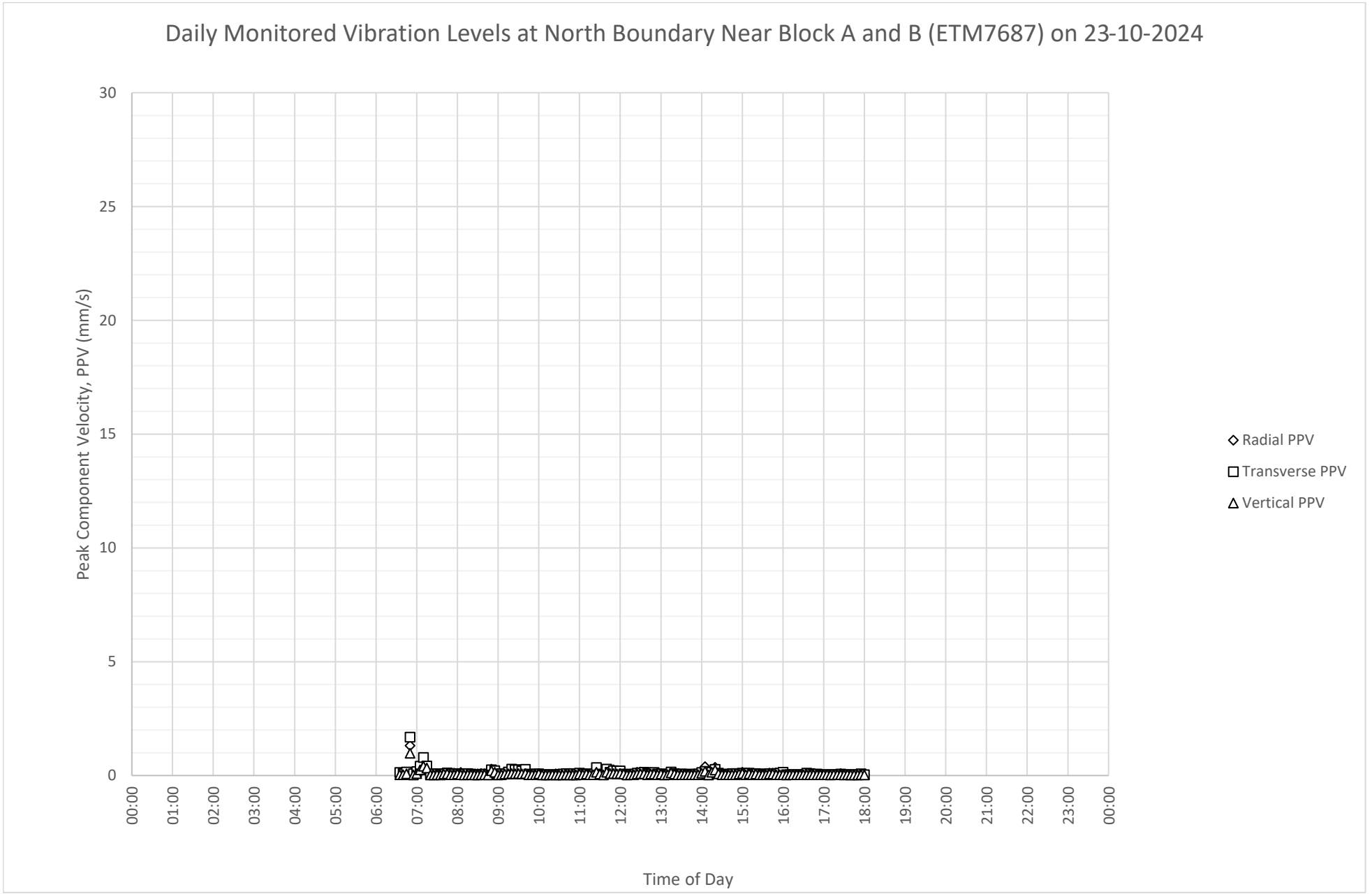
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 22-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 23-10-2024
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
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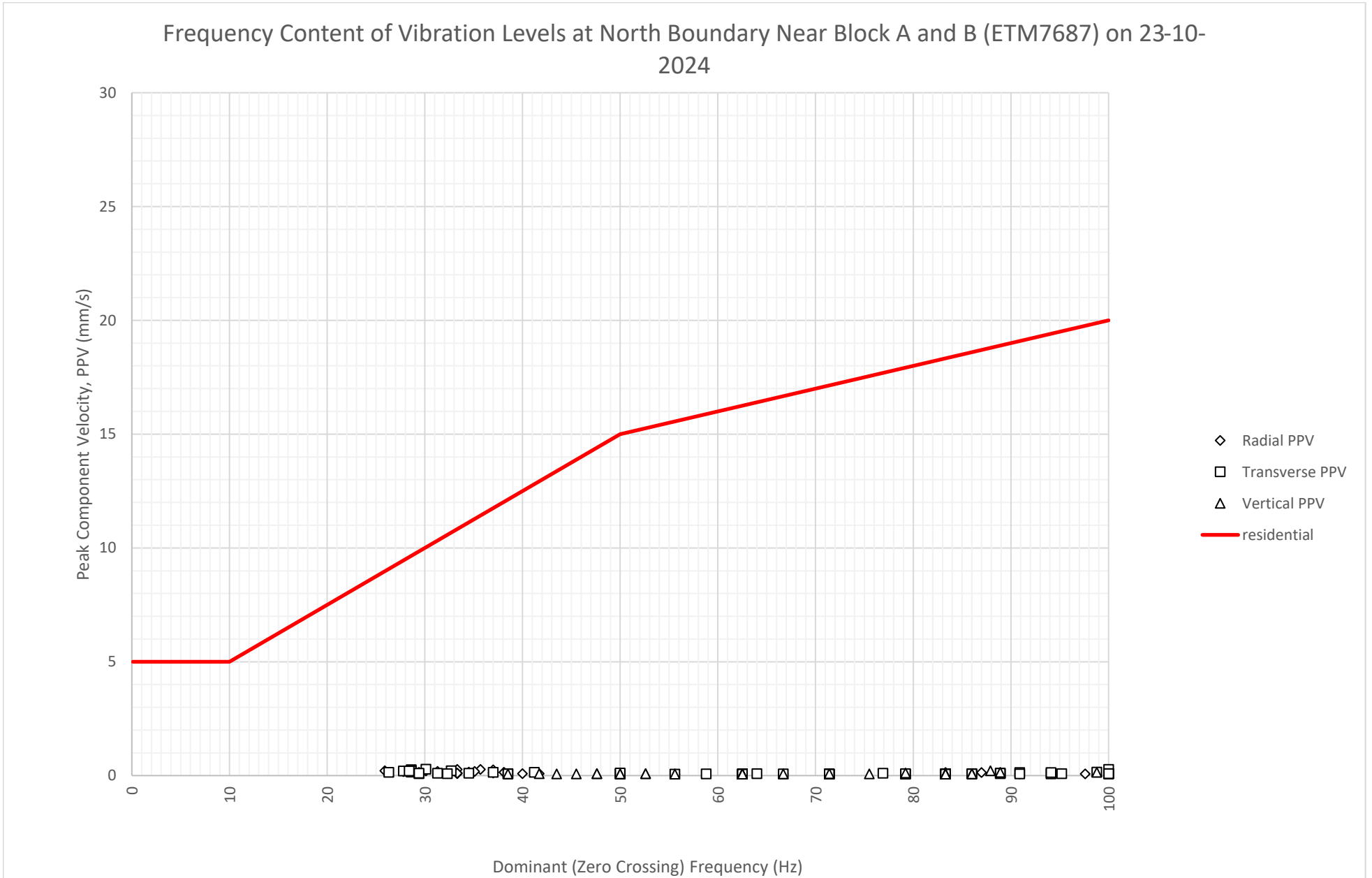
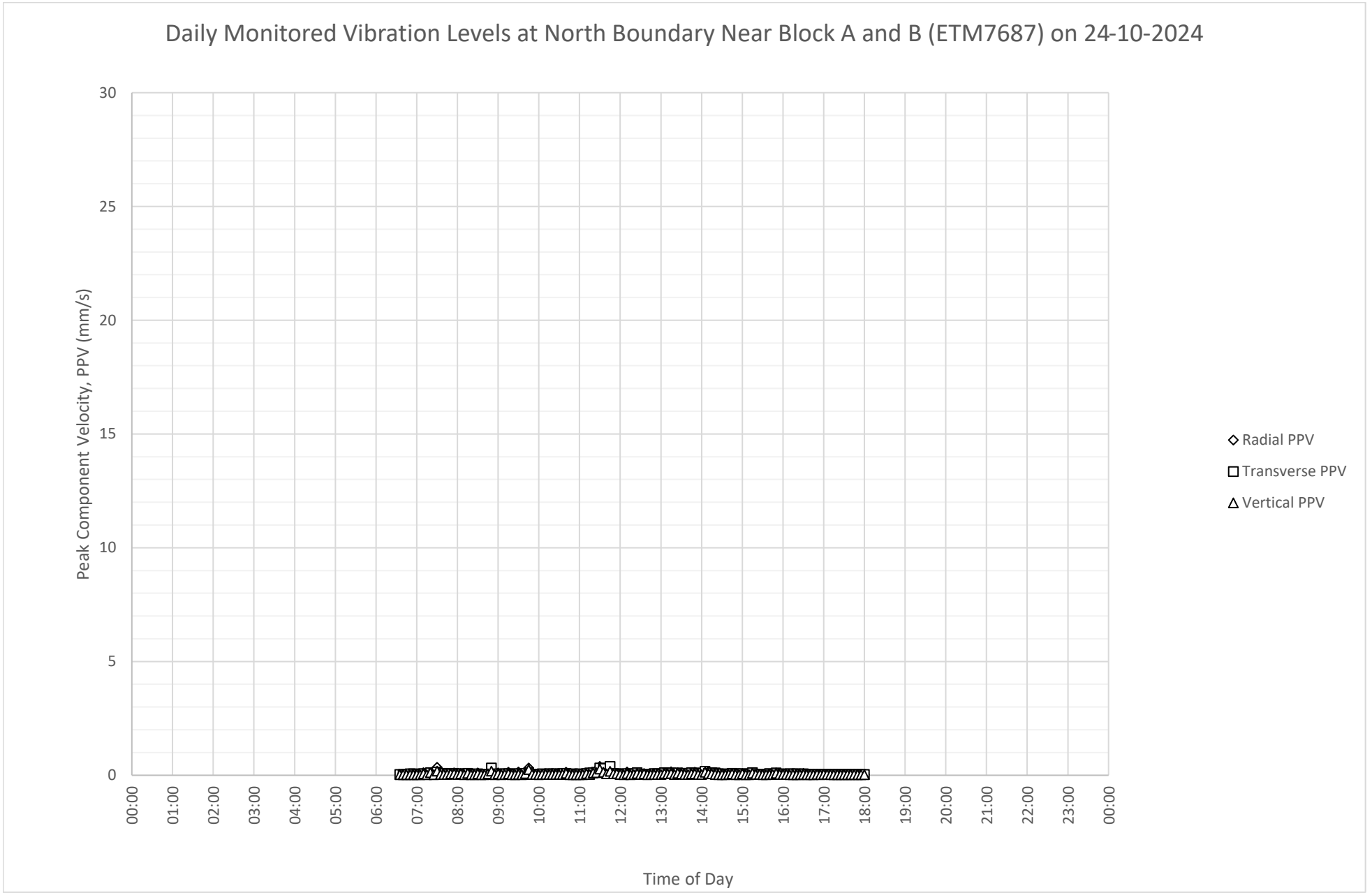
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 23-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 24-10-2024
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
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13:00
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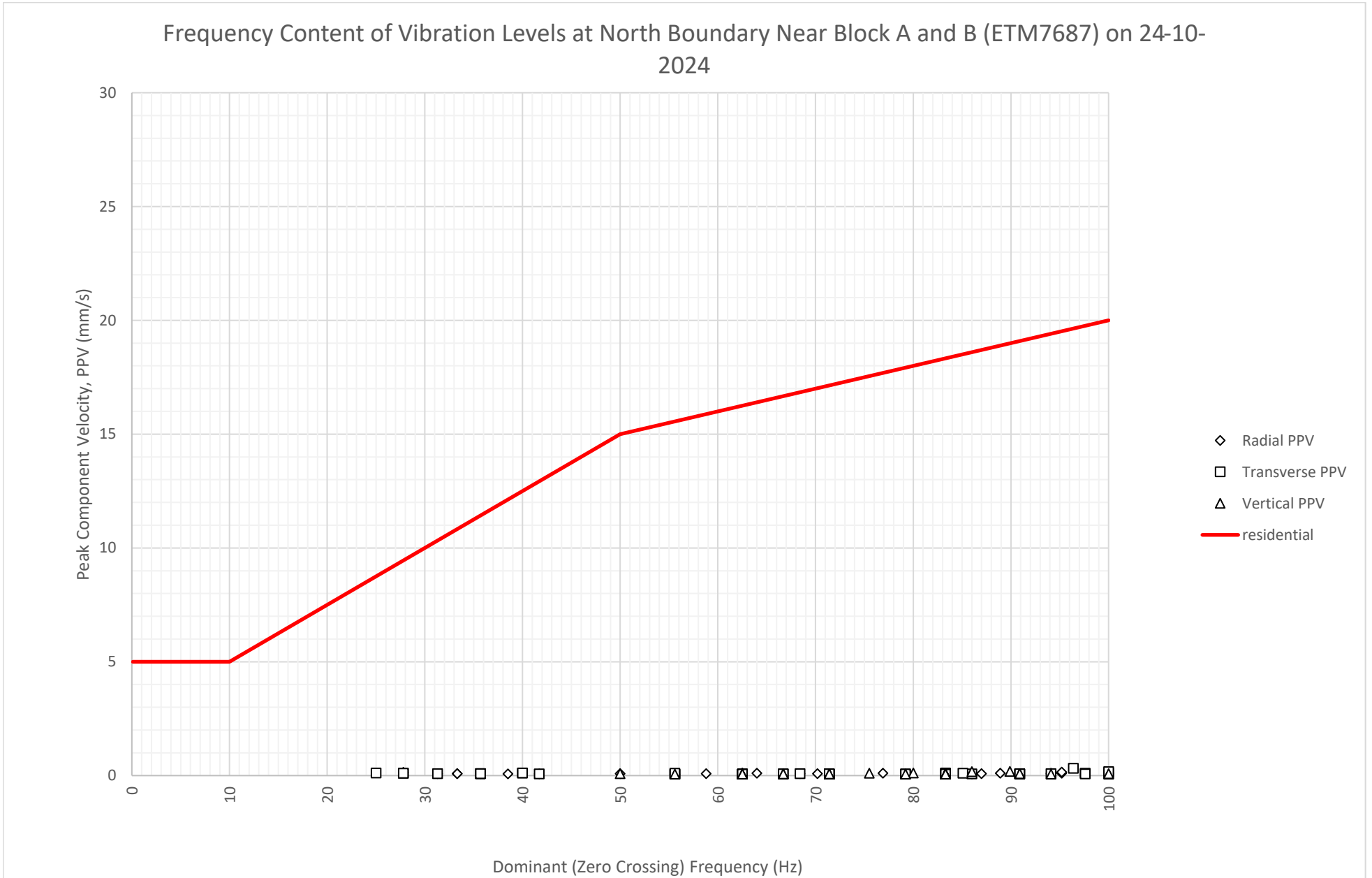
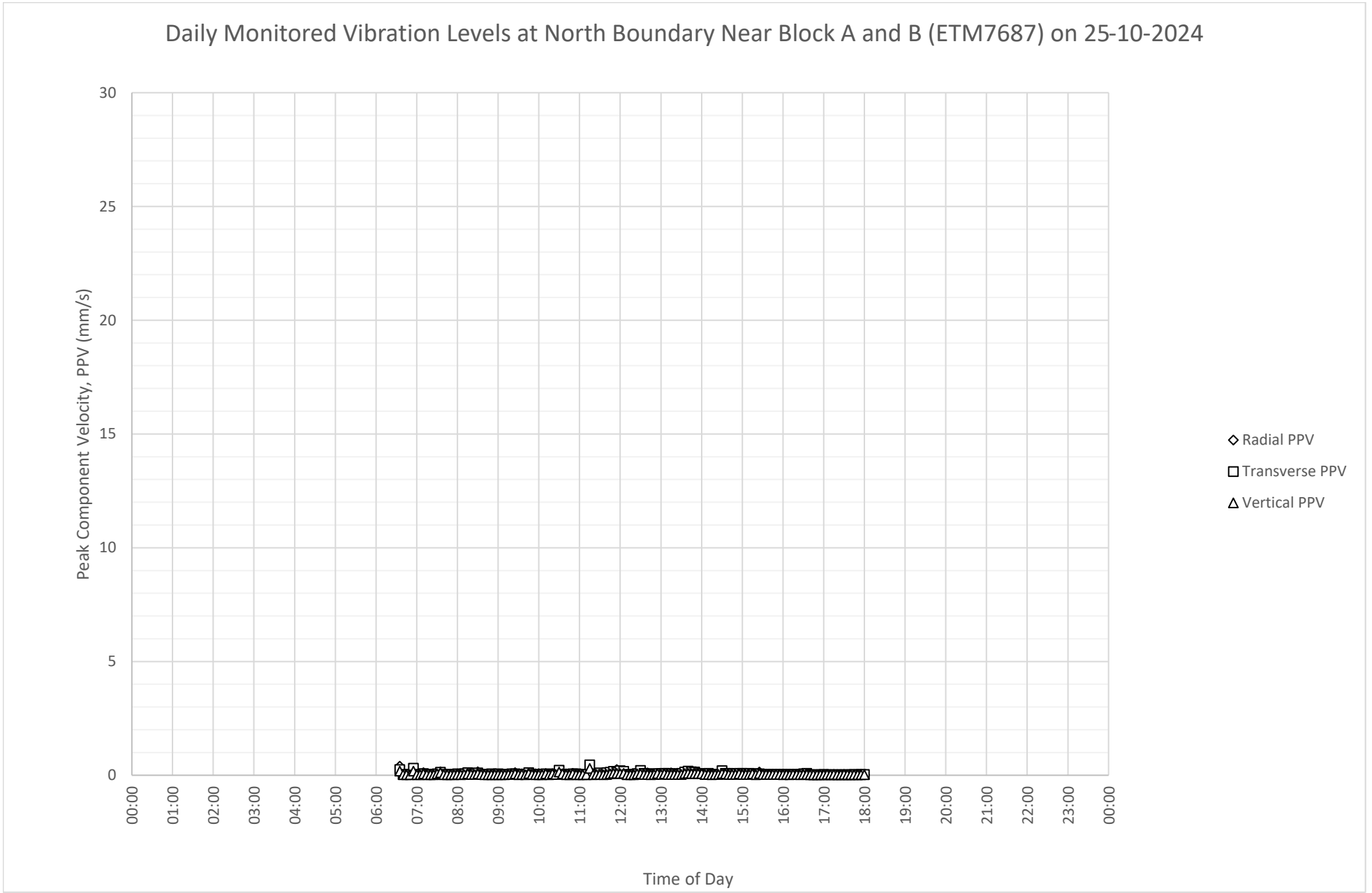
22:00
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 24-10-2024
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)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 25-10-2024
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
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08:00
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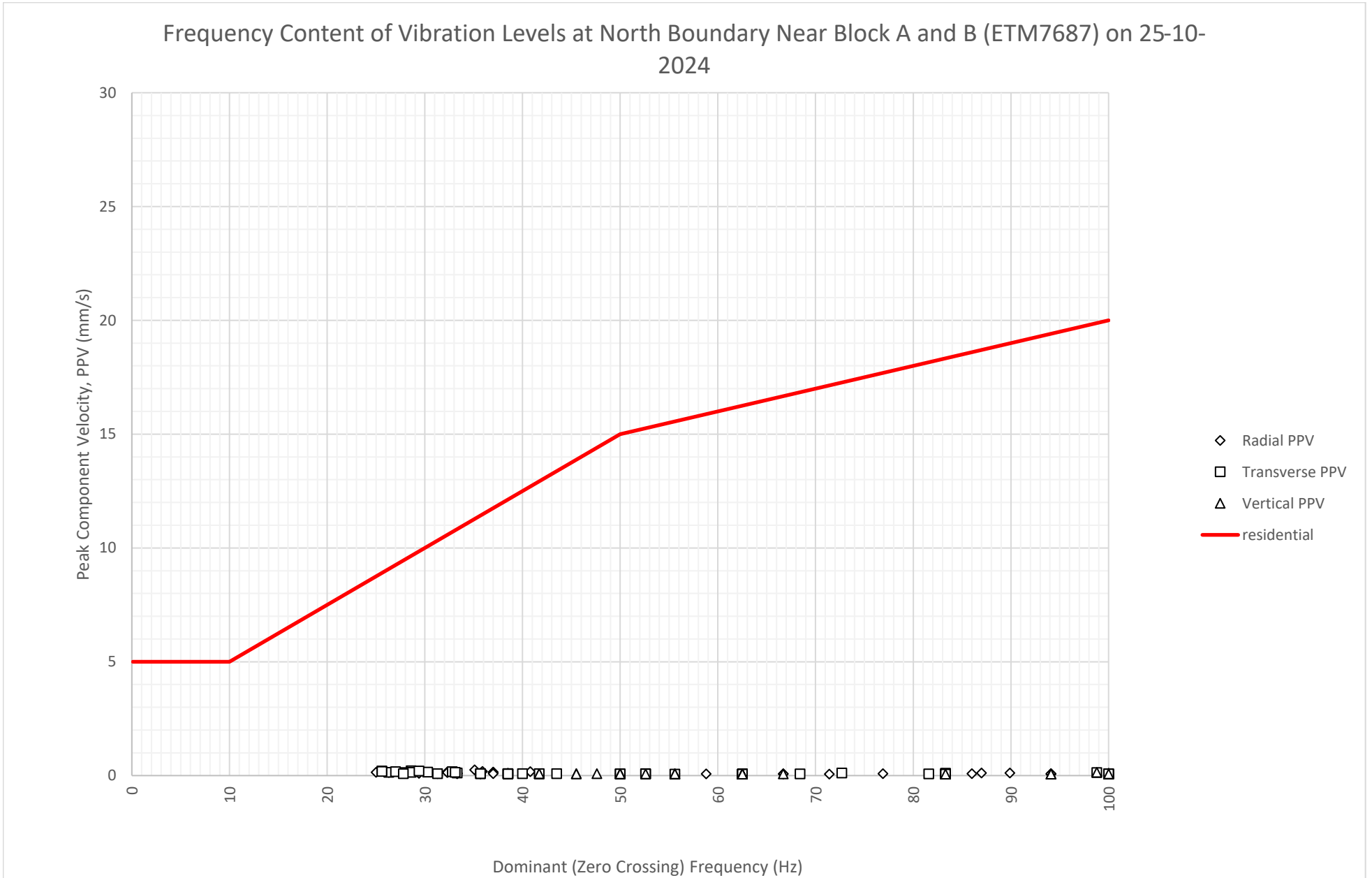
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 25-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
20
30
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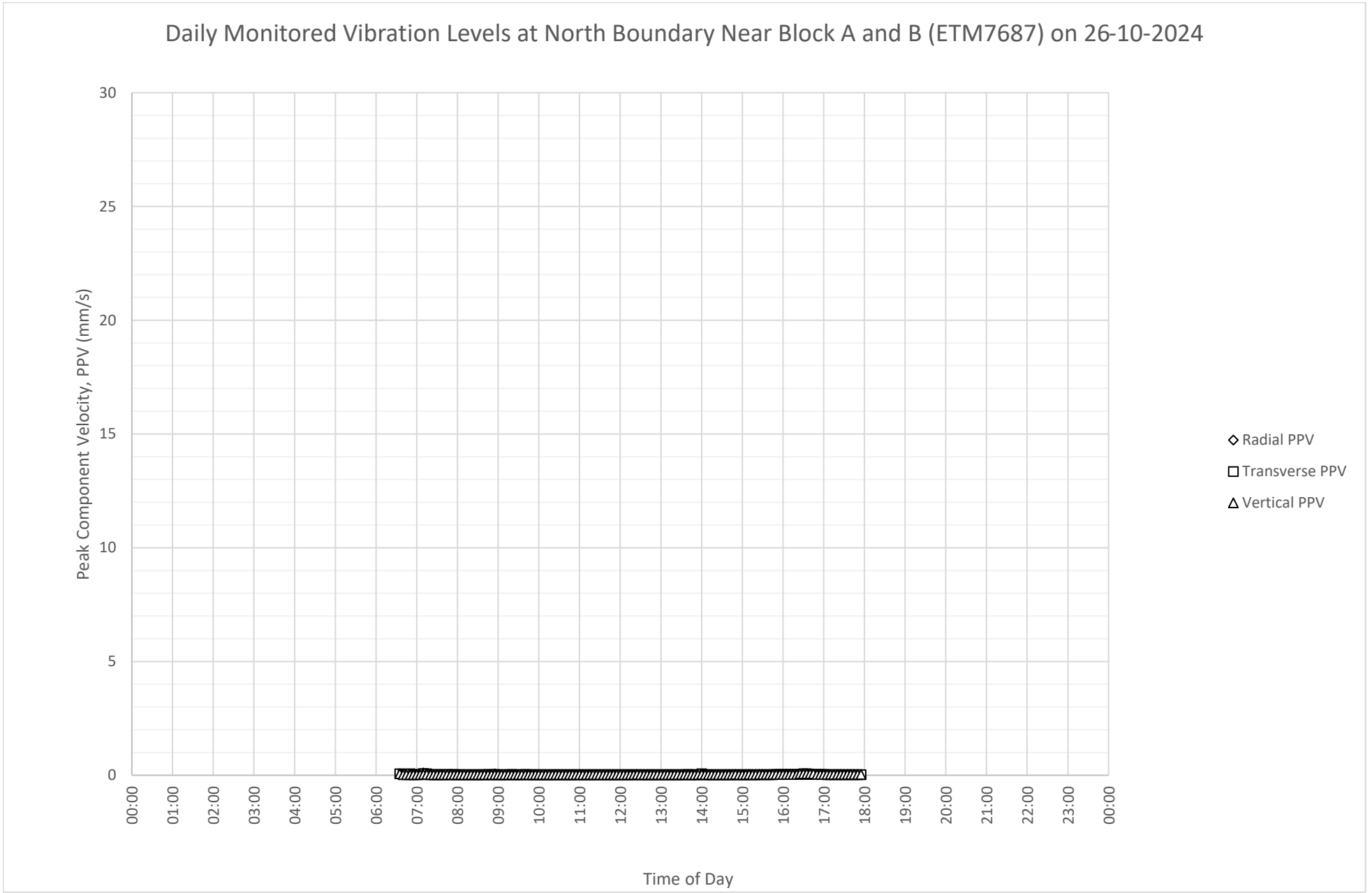
60
70
80
90
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 26-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
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10
5
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00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
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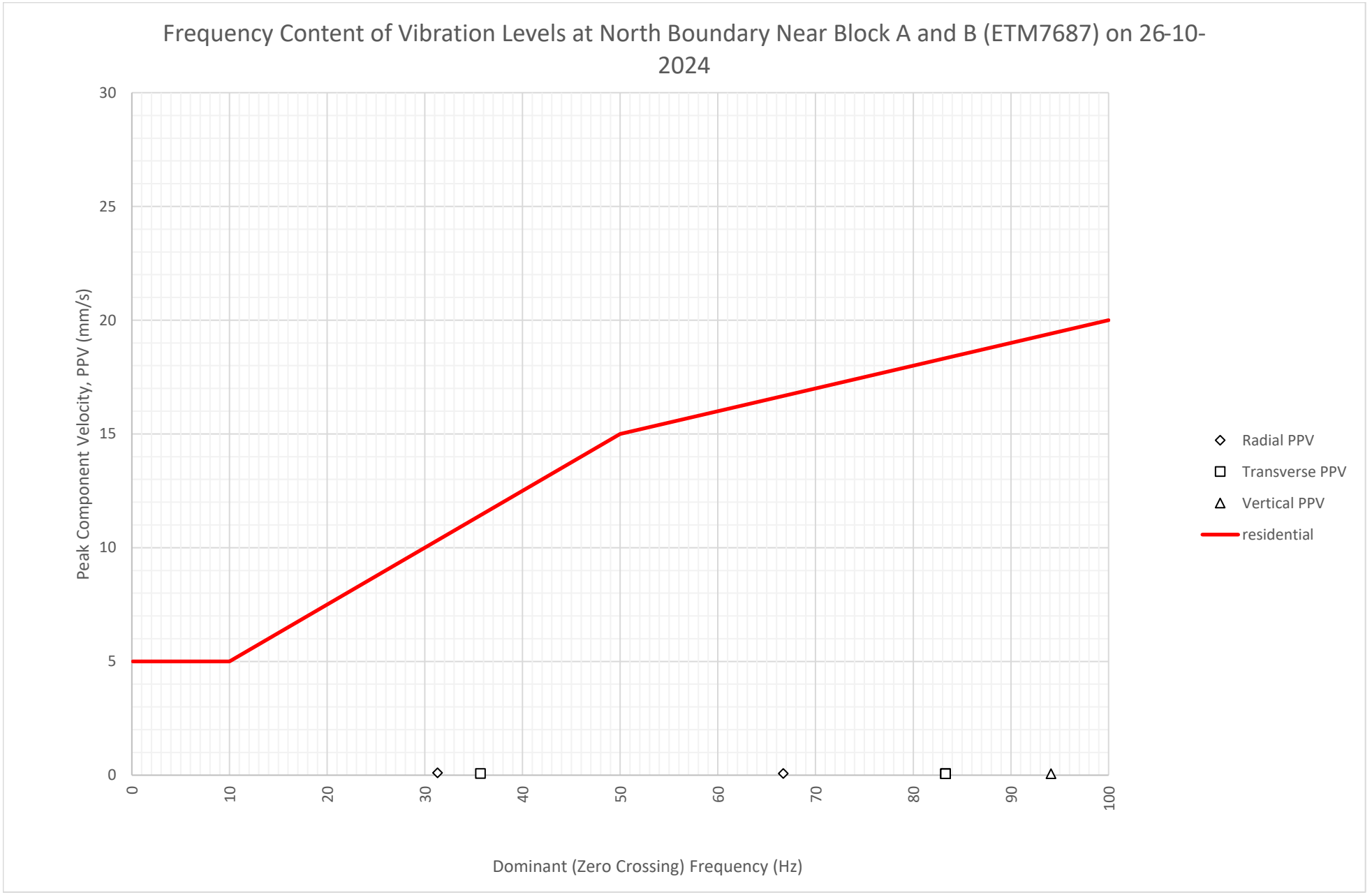
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 26-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
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10
5
0
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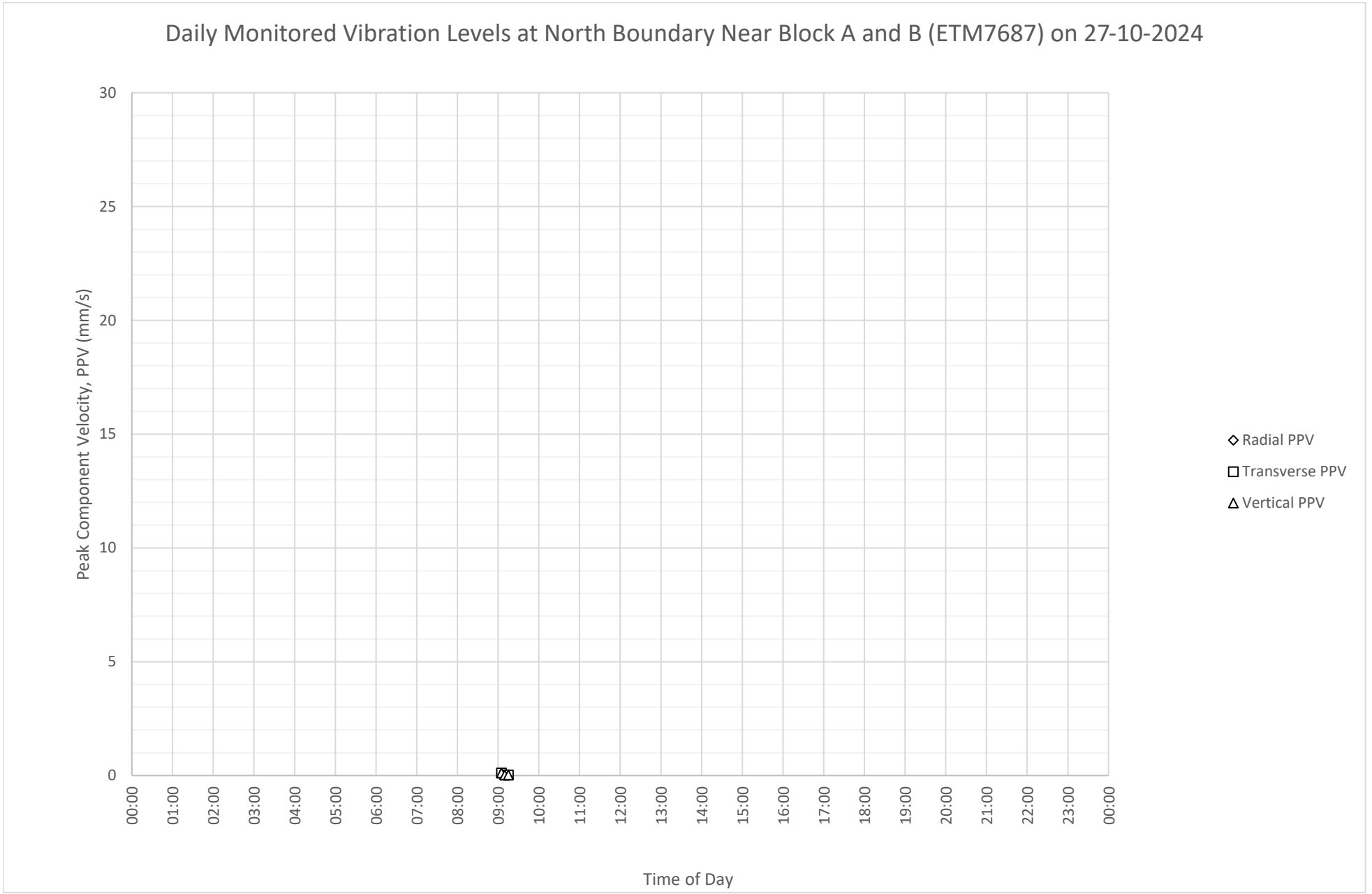
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 27-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
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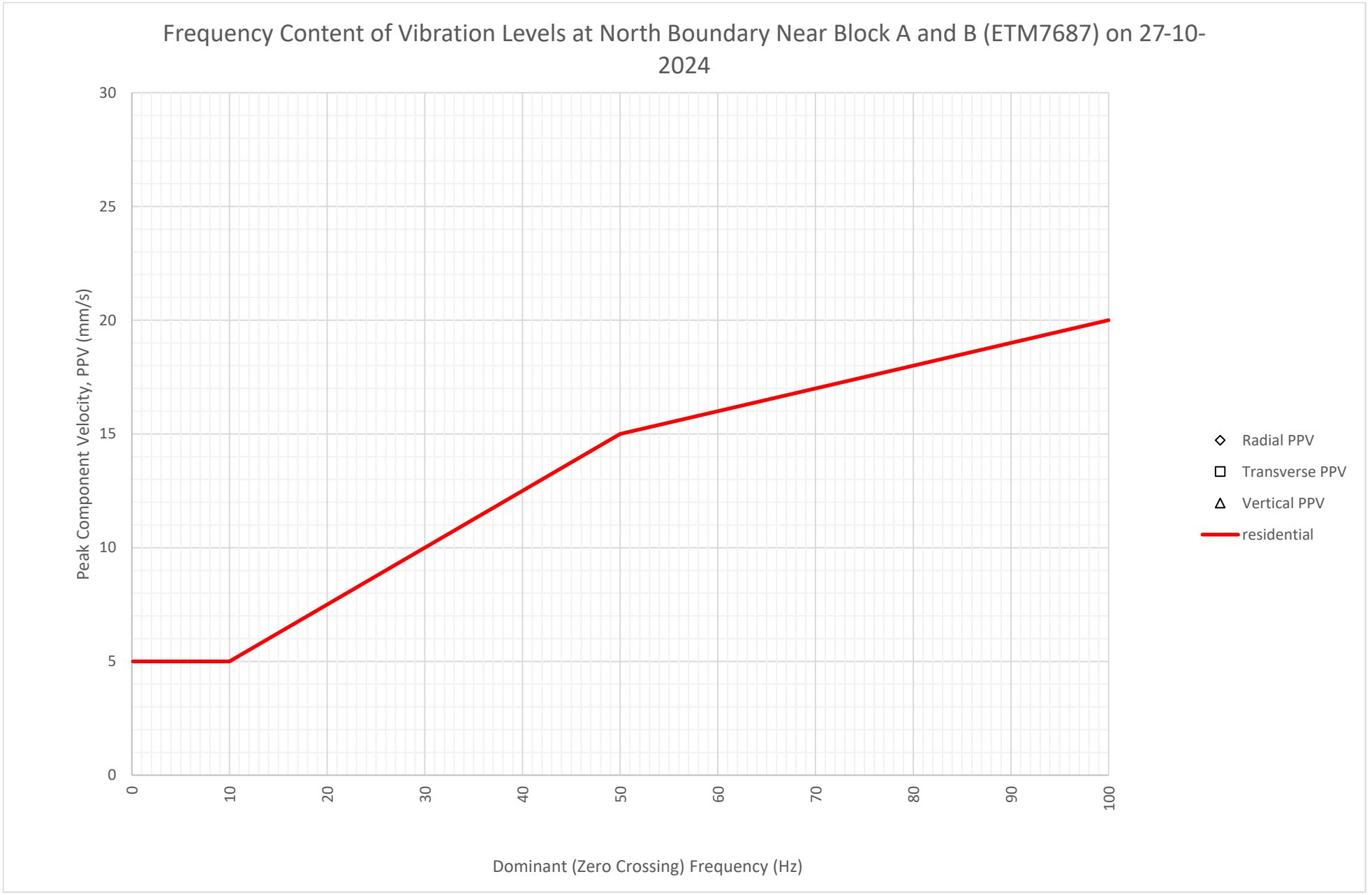
23:00
00:00
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 27-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
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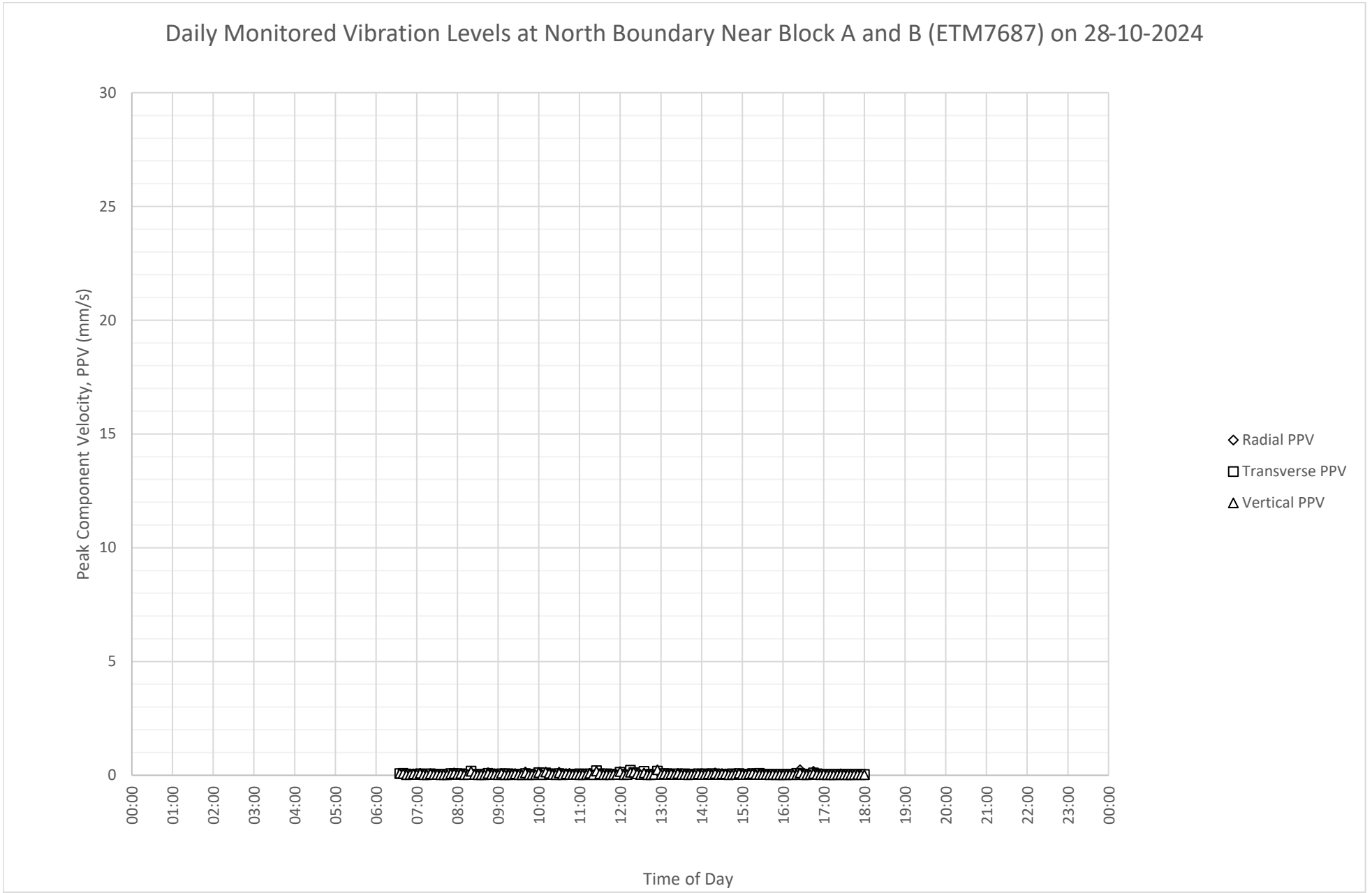
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 28-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
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05:00
06:00
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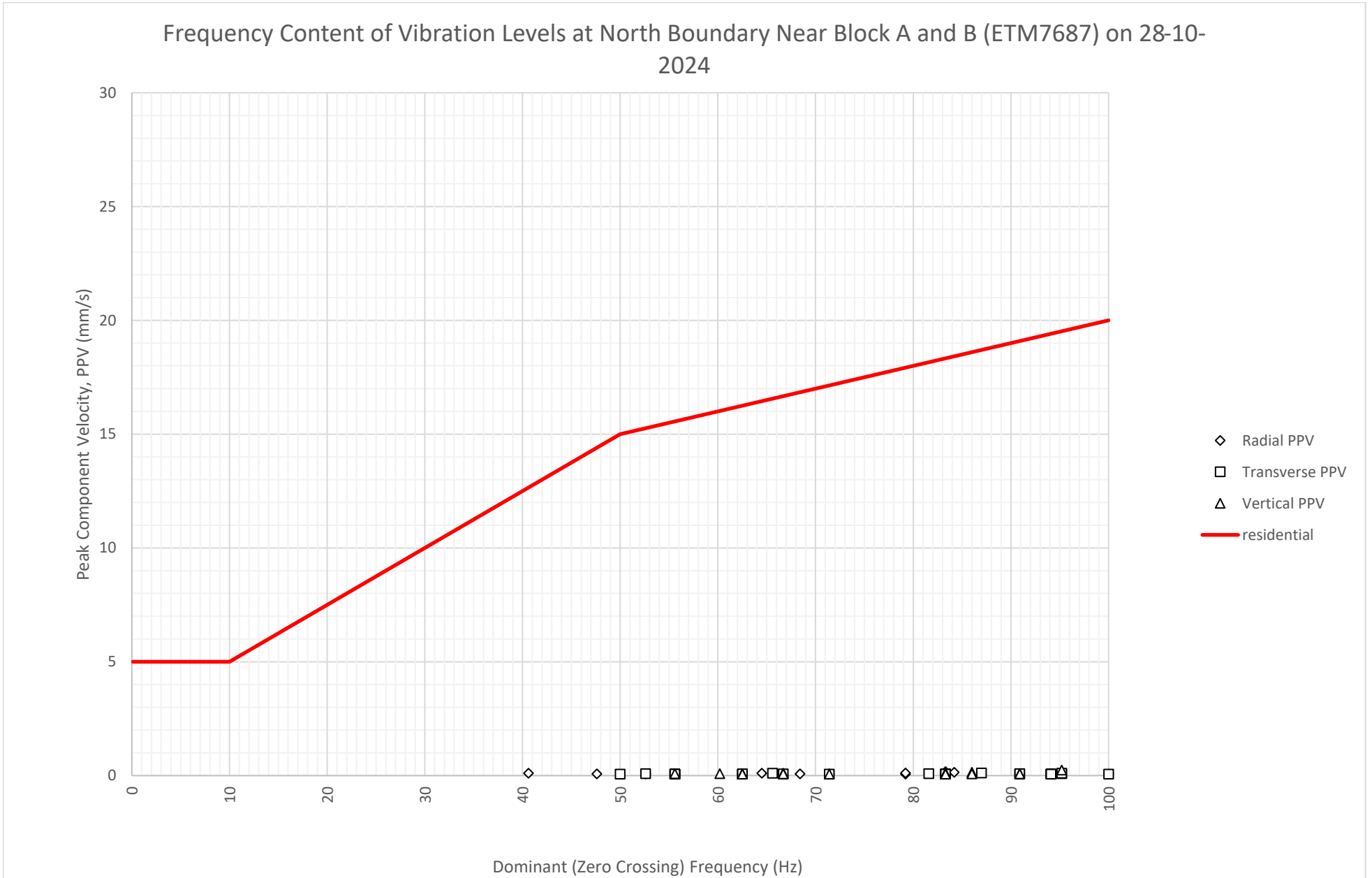
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 28-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
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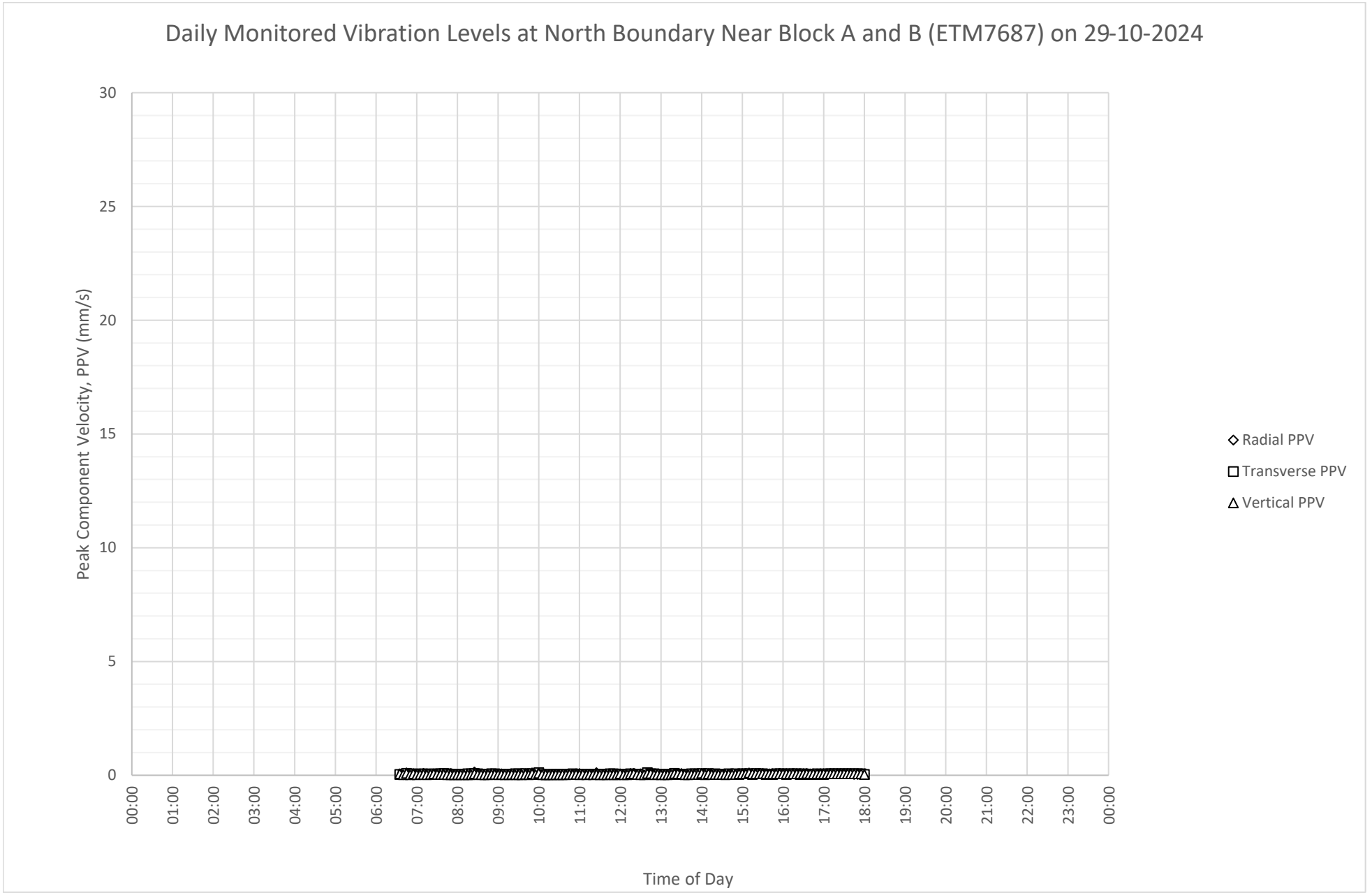
90
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 29-10-2024
Peak Component Velocity, PPV (mm/s)
30
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20
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01:00
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05:00
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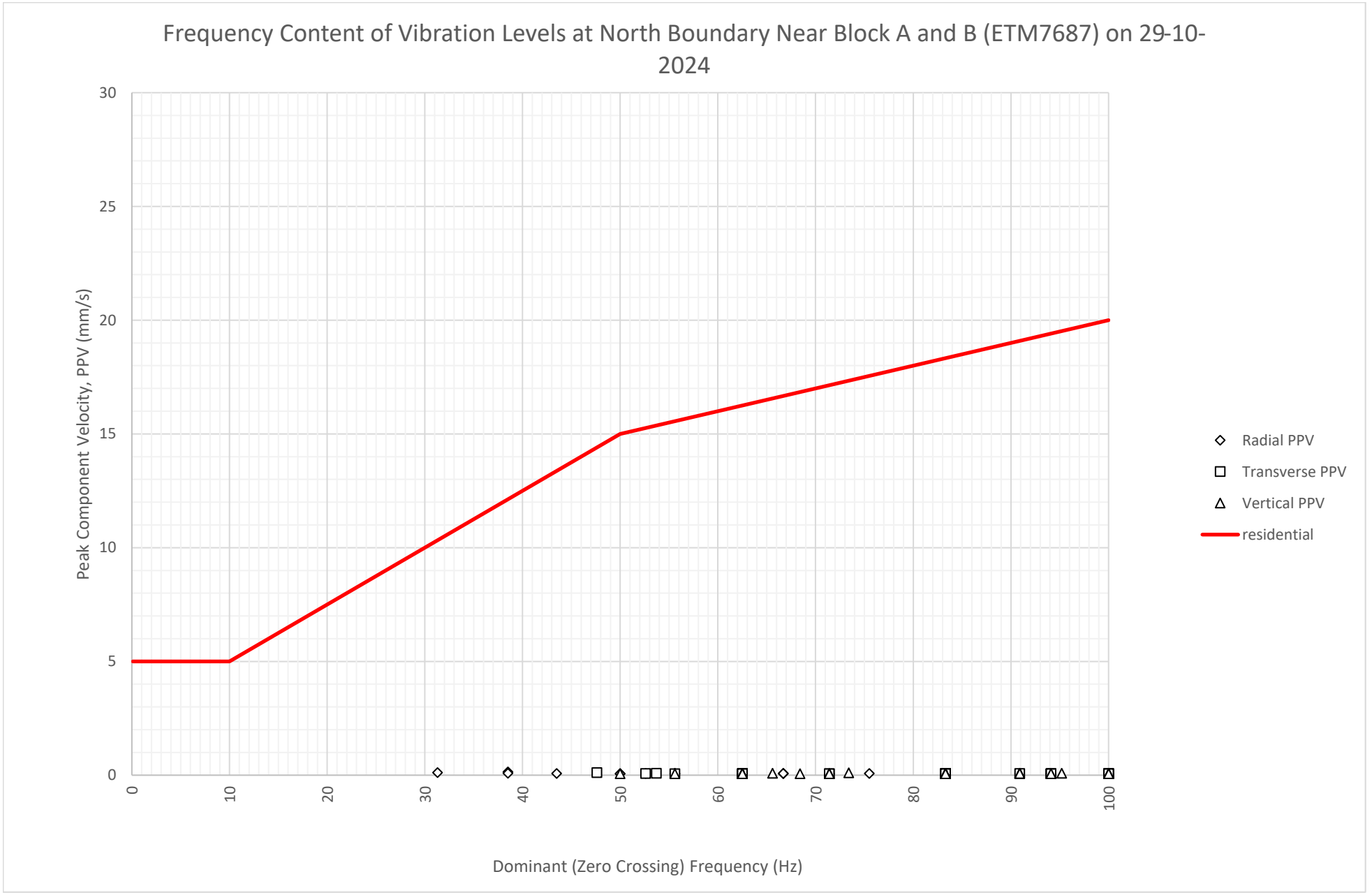
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 29-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
5
0
0
10
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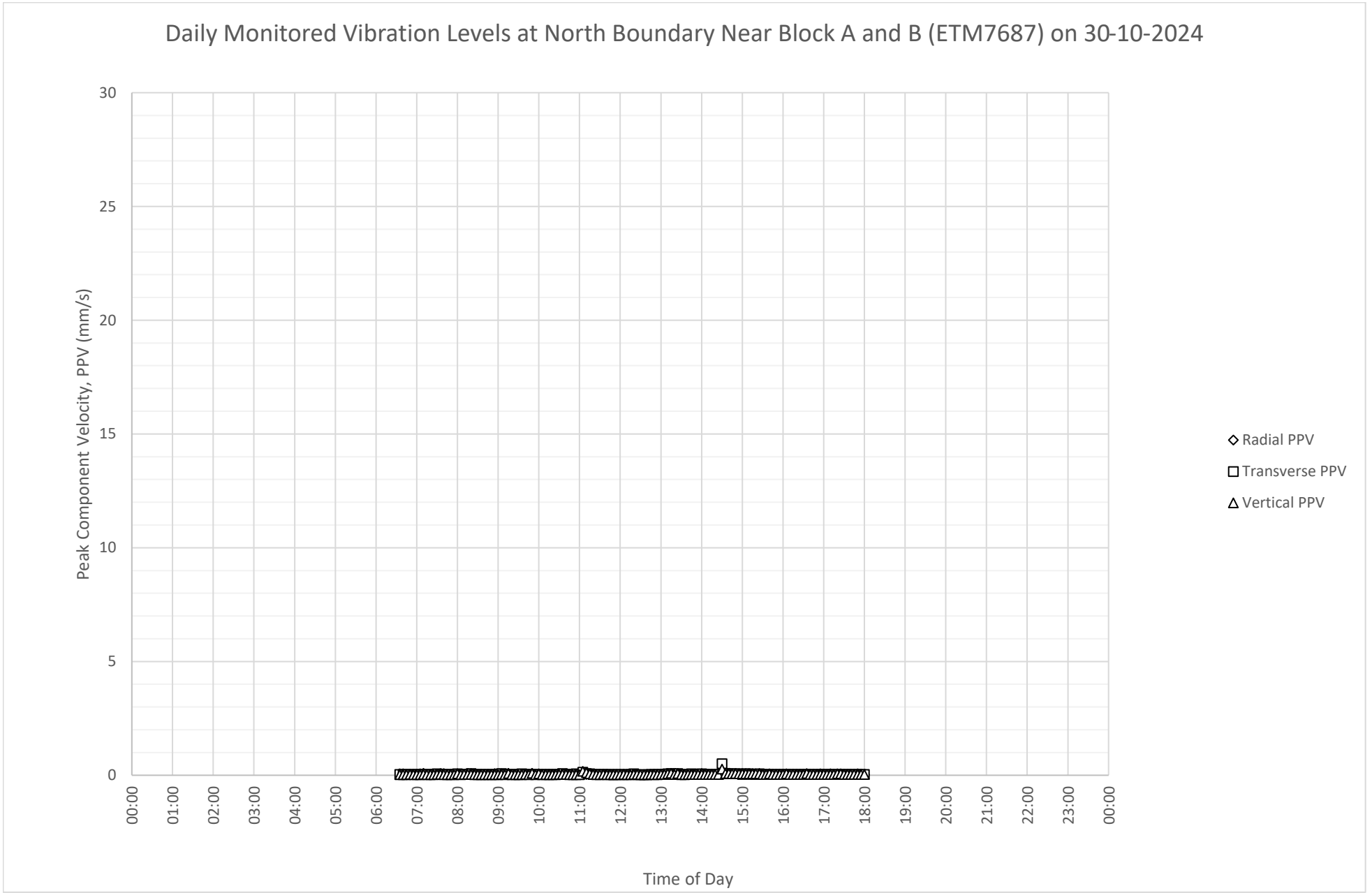
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 30-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
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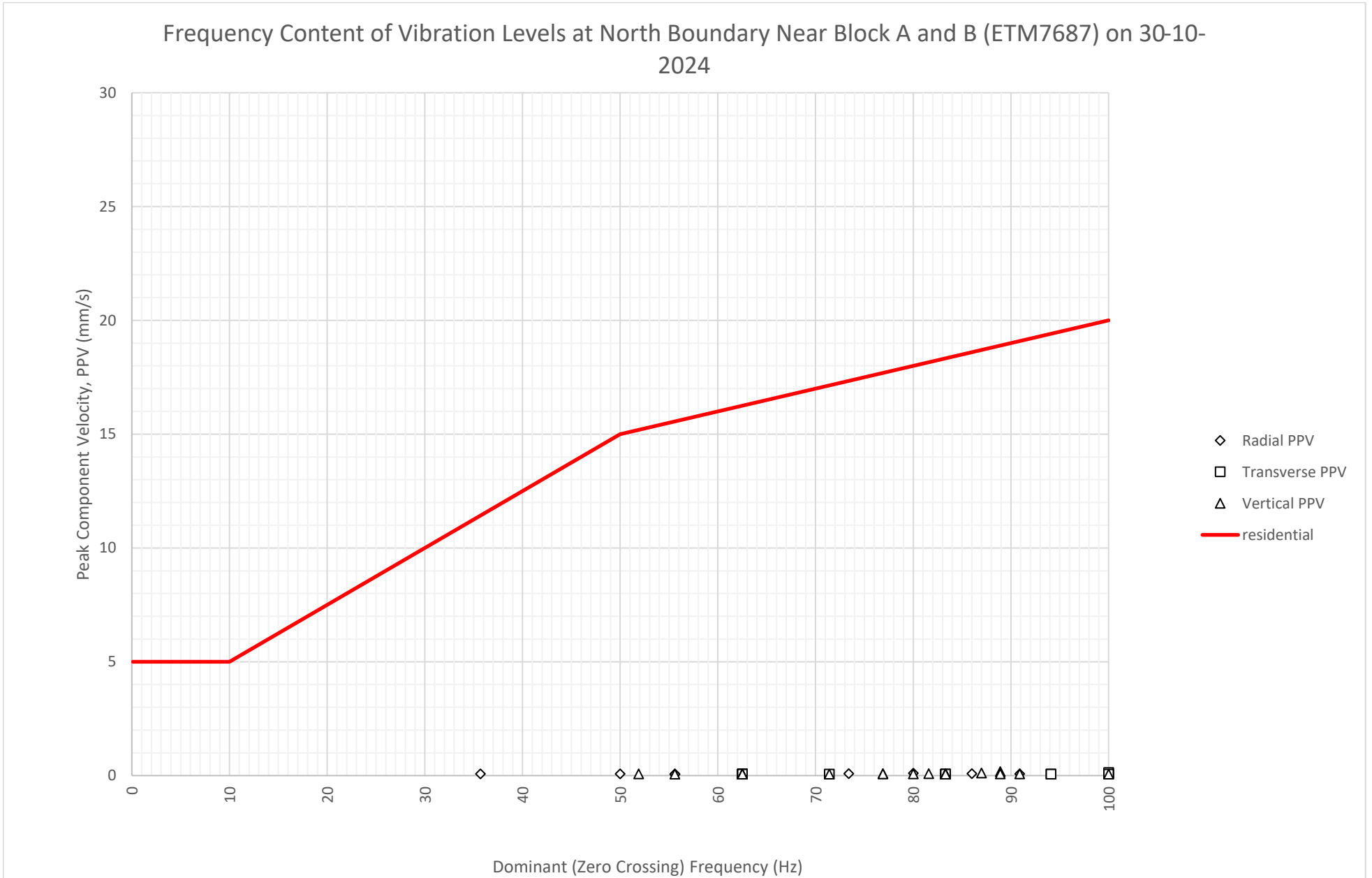
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 30-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
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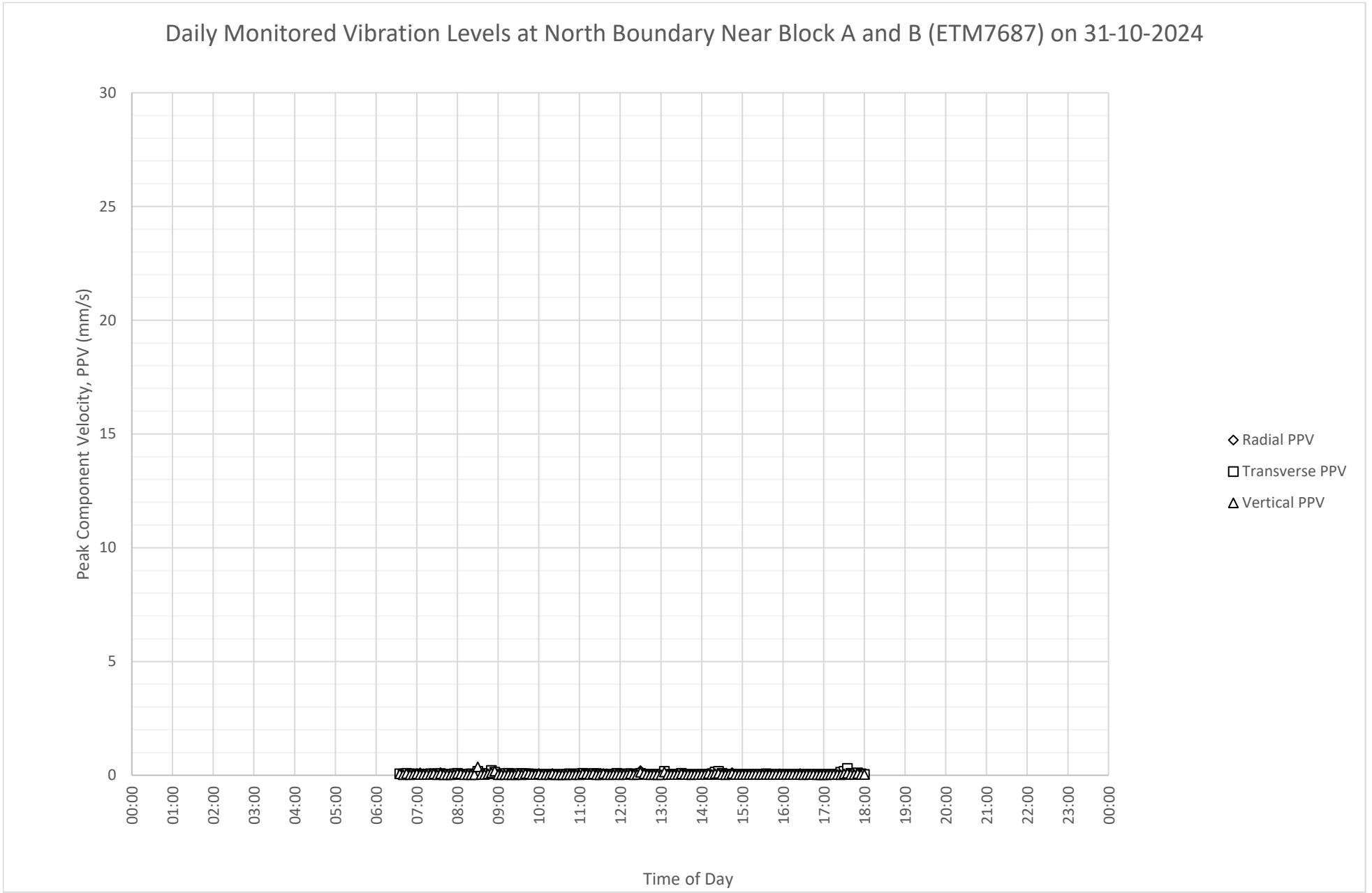
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential


Daily Monitored Vibration Levels at North Boundary Near Block A and B (ETM7687) on 31-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
20
15
10
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0
00:00
01:00
02:00
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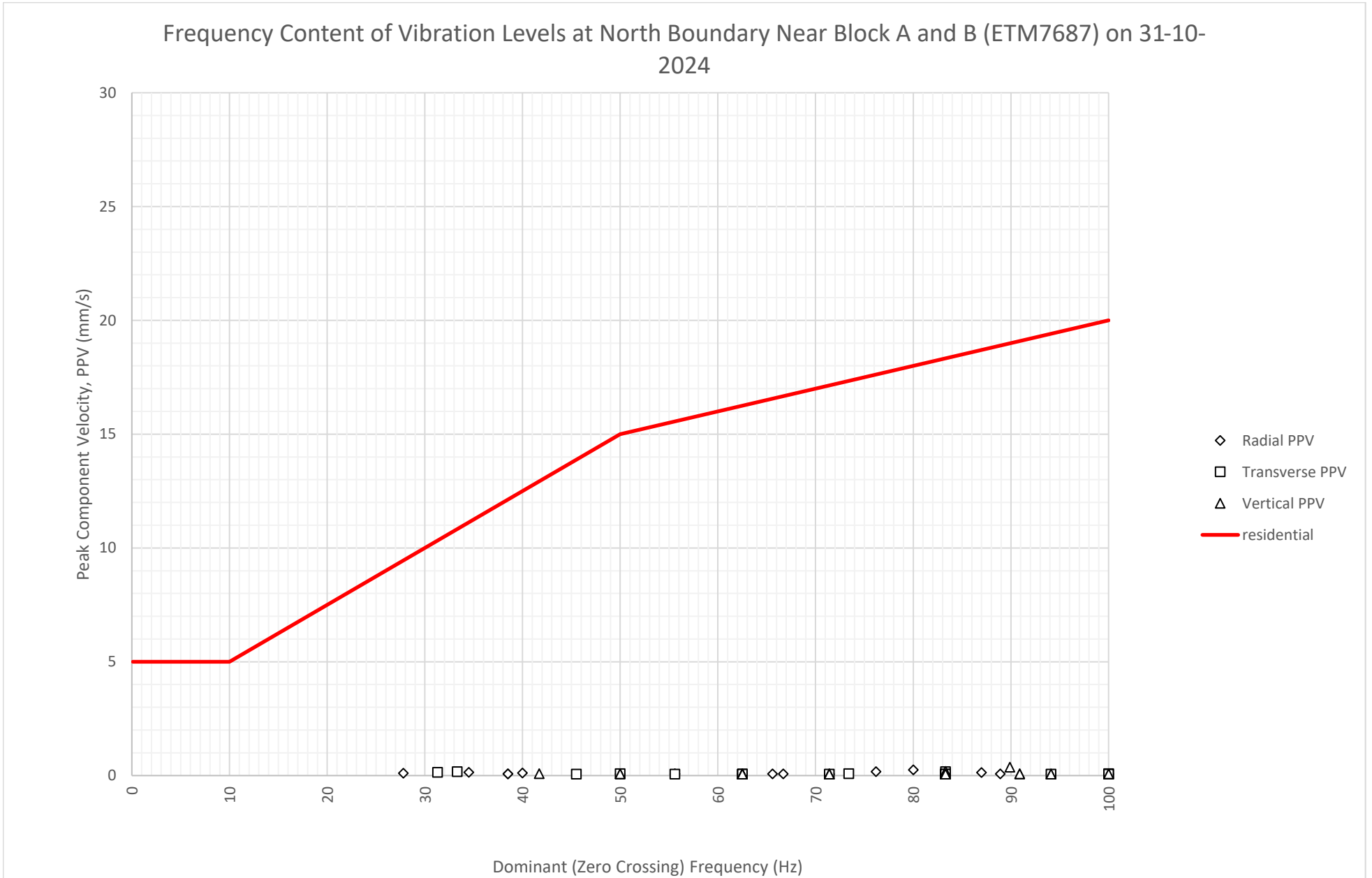
Time of Day
Radial PPV
Transverse PPV
Vertical PPV


Frequency Content of Vibration Levels at North Boundary Near Block A and B (ETM7687) on 31-10-2024
Peak Component Velocity, PPV (mm/s)
30
25
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90
100
Dominant (Zero Crossing) Frequency (Hz)
Radial PPV
Transverse PPV
Vertical PPV
residential