

Northern Bus Garage Noise, Vibration, and Dust Monitoring Report (May 2024)

Noise, Vibration, and Dust levels were monitored as part of the reconstruction of Northern Bus Garage, 4615 14th Street, NW, Washington, DC, for the month of May 2024.

The following memorandum identifies the monitoring points and instruments, presents the data, and provides a brief analysis of the results per monthly monitoring report attached by Geo Instruments for Clark Construction. The report is organized by medium: noise, vibration, and dust. Figures and graphs are attached. The red dashed line on each of the graphs represents the monitoring thresholds, which are summarized below for each instrument.

Noise Monitoring

Five noise monitors are positioned around the perimeter of the project site. (See Figure 1) Under DC regulations, the regulatory standard is 80 dBA, measured 25 ft from the property line (20 DCMR 2802.1). Because the noise monitoring devices are placed on the property line (rather than a 25 ft offset), the monitoring threshold for site activities is adjusted to 85 dBA (assuming the noise level will dissipate). Noise levels and vibration levels were measured automatically with Micromate and Geophone Instrument.

No operating issue with the monitoring instruments was identified.

Numerous noise level exceedances at all hours of the day and all days of the week. Mic2 recorded the highest noise levels of any location after work hours and on weekends. In addition, Mic1, Mic 2, and Mic5 were similar to one another with 51%, 48%, and 47% of the exceedances coming outside of working hours, respectively. Mic3 recorded 55% of its exceedances during nights and weekends. Mic4 had 36% of its exceedances outside of working hours. Please see table 1 (The “Work Hours” category includes all weekend shifts and evening shifts that were worked during the month).

Vibration Monitoring

Five vibration monitors are positioned around the perimeter of the project site. (See Figure 1) Vibration thresholds are based the WMATA Design Criteria. Monitors VM-1 and VM-2 are set at a lower vibration threshold due to their proximity to the historic façade, which is more sensitive to any movement. Noise levels and vibration levels were measured automatically with Micromate and Geophone Instrument.

Table 2

Instrument Type	Monitoring Threshold
Vibration Monitor (VM-1)	0.2 in/sec
Vibration Monitor (VM-2)	0.2 in/sec
Vibration Monitor (VM-3)	2.0 in/sec
Vibration Monitor (VM-4)	2.0 in/sec
Vibration Monitor (VM-5)	2.0 in/sec

No operating issue with the monitoring instruments was identified.

Graphs showing monitoring results are presented in Graphs 1 to 5.

There was one vibration exceedances in the month of May. VM2 exhibited a vibration spike of 0.62 in/sec on May 13 at 10:48 due to a piece of equipment bumping into the monitor.

Dust Monitoring Threshold Values and Exceedances:

Three dust monitors are positioned at the project site. (See Figure 2) EPA regulatory thresholds are based on a 24-hour monitoring period; the project has adopted thresholds to monitor site levels and provide an indication of when EPA standards might be exceeded. (See Table 3) Dust measurements were monitored using Aeroqual Dust Sentry Pro.

Table 3

Dust Monitoring Measurement	Monitoring Threshold
Particulates (PM2.5)	40 µg/m ³
Particulates (PM10)	50 µg/m ³

No operating issue with the monitoring instruments was identified.

Graphs showing monitoring results are presented in Graphs 6-11.

There were no dust monitor exceedances in the month of May 2024.

Figure 1: Vibration and Noise Monitor Location Plan

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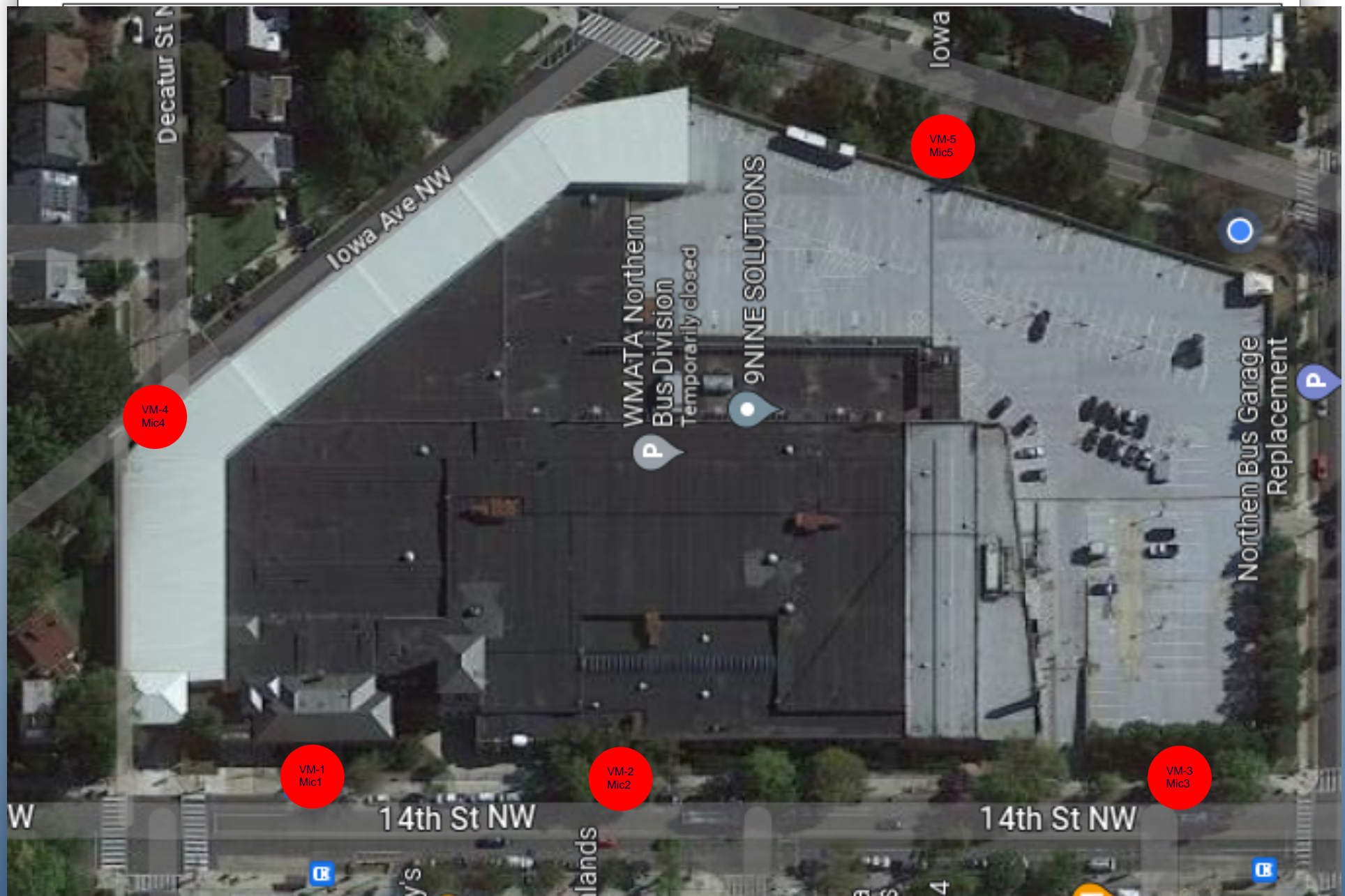


Figure 2: Dust Monitor Location Plan

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Table 1: Noise Summaries

VM1-MIC		
	Exceedance	Percentage
Work hours	797	49.20%
After hours	422	26.05%
Weekends	401	24.75%
Total	1620	100%

VM1-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	119.4	117.7	120.9
Lmin (dBA)	71.3	53.1	63.6
L10 (dBA)	81	74	78
L90 (dBA)	78	61	65
Leq (dBA)	86.5	84.5	88.5

VM2-MIC		
	Exceedance	Percentage
Work hours	354	52.76%
After hours	159	23.70%
Weekends	158	23.55%
Total	671	100%

VM2-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	117.1	110.8	110.8
Lmin (dBA)	74.7	54.5	61.3
L10 (dBA)	97	77	78
L90 (dBA)	79	60	63
Leq (dBA)	92.8	83.1	77.3

VM3-MIC		
	Exceedance	Percentage
Work hours	645	45.91%
After hours	389	27.69%
Weekends	371	26.41%
Total	1405	100%

VM3-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	109.3	109.7	111.5
Lmin (dBA)	72.7	56.5	68.9
L10 (dBA)	80	73	75
L90 (dBA)	74	63	71
Leq (dBA)	80.7	81.1	79.2

VM4-MIC		
	Exceedance	Percentage
Work hours	104	64.20%
After hours	26	16.05%
Weekends	32	19.75%
Total	162	100%

VM4-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	104.6	100.3	110.4
Lmin (dBA)	61.3	48.1	55.1
L10 (dBA)	72	70	75
L90 (dBA)	63	51	61
Leq (dBA)	78.1	71.4	84.7

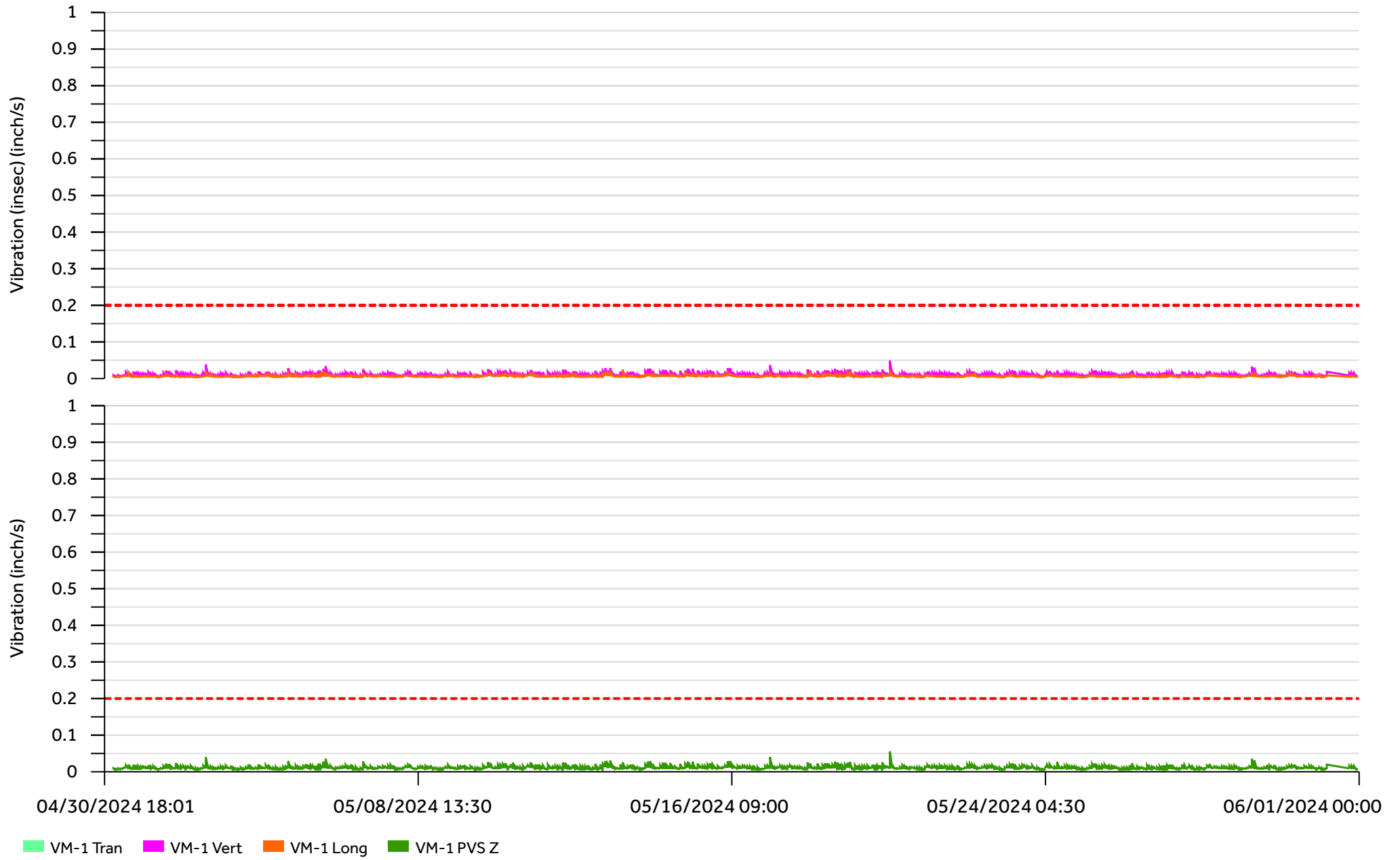
VM5-MIC		
	Exceedance	Percentage
Work hours	147	53.26%
After hours	60	21.74%
Weekends	69	25.00%
Total	276	100%

VM5-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	106.3	113.4	110.1
Lmin (dBA)	56.5	55.6	55.2
L10 (dBA)	73	68	72
L90 (dBA)	59	58	57
Leq (dBA)	77.7	80.1	81.2

Summary tables contain values for working hours, after hours, and weekend time periods:

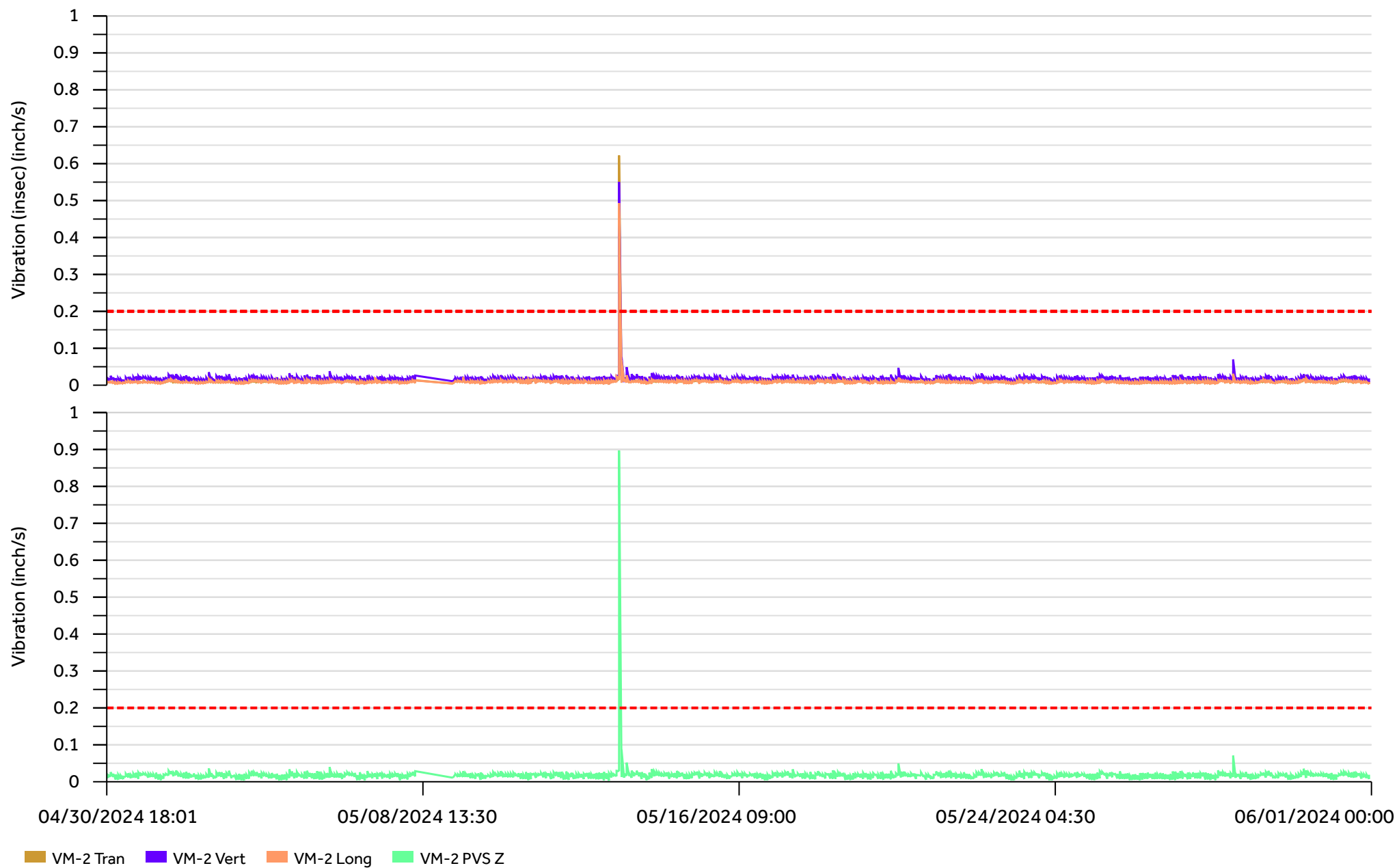
- Lmax: Highest Maximum Noise Level recorded for the month, in dBA.
- Lmin: Highest Minimum Noise Level recorded for the month, in dBA.
- L10: Highest noise level that was exceeded 10% of the time of all recording periods this month, in dBA.
- L90: Highest noise level that was exceeded 90% of the time of all recording periods this month, in dBA.
- Leq: Highest Equivalent Continuous Sound Level, or 'average' of all recording periods this month, in dBA.

Graph 1:
VM-1- Vibration Monitor

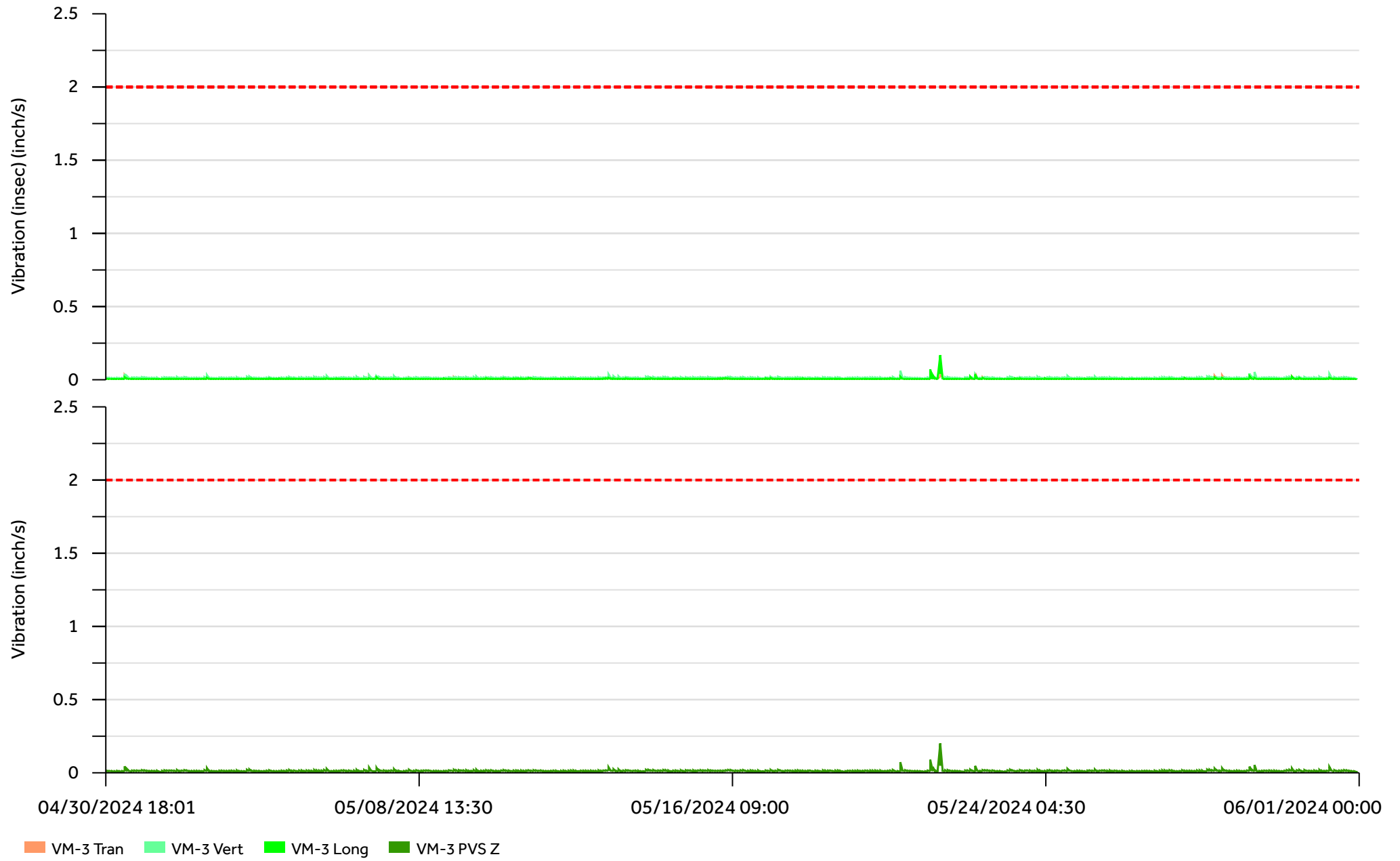


Graph 2:

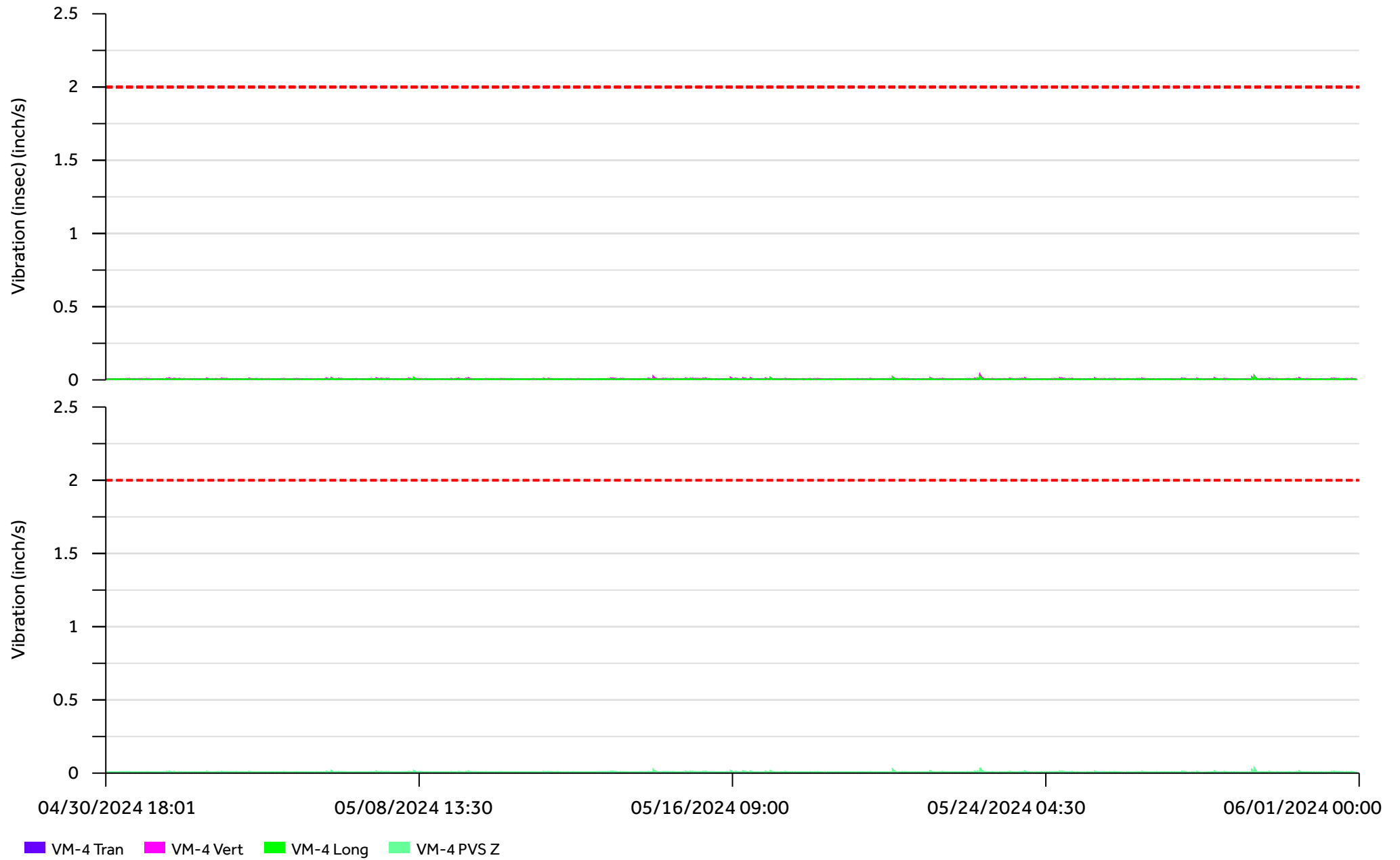
VM-2- Vibration Monitor



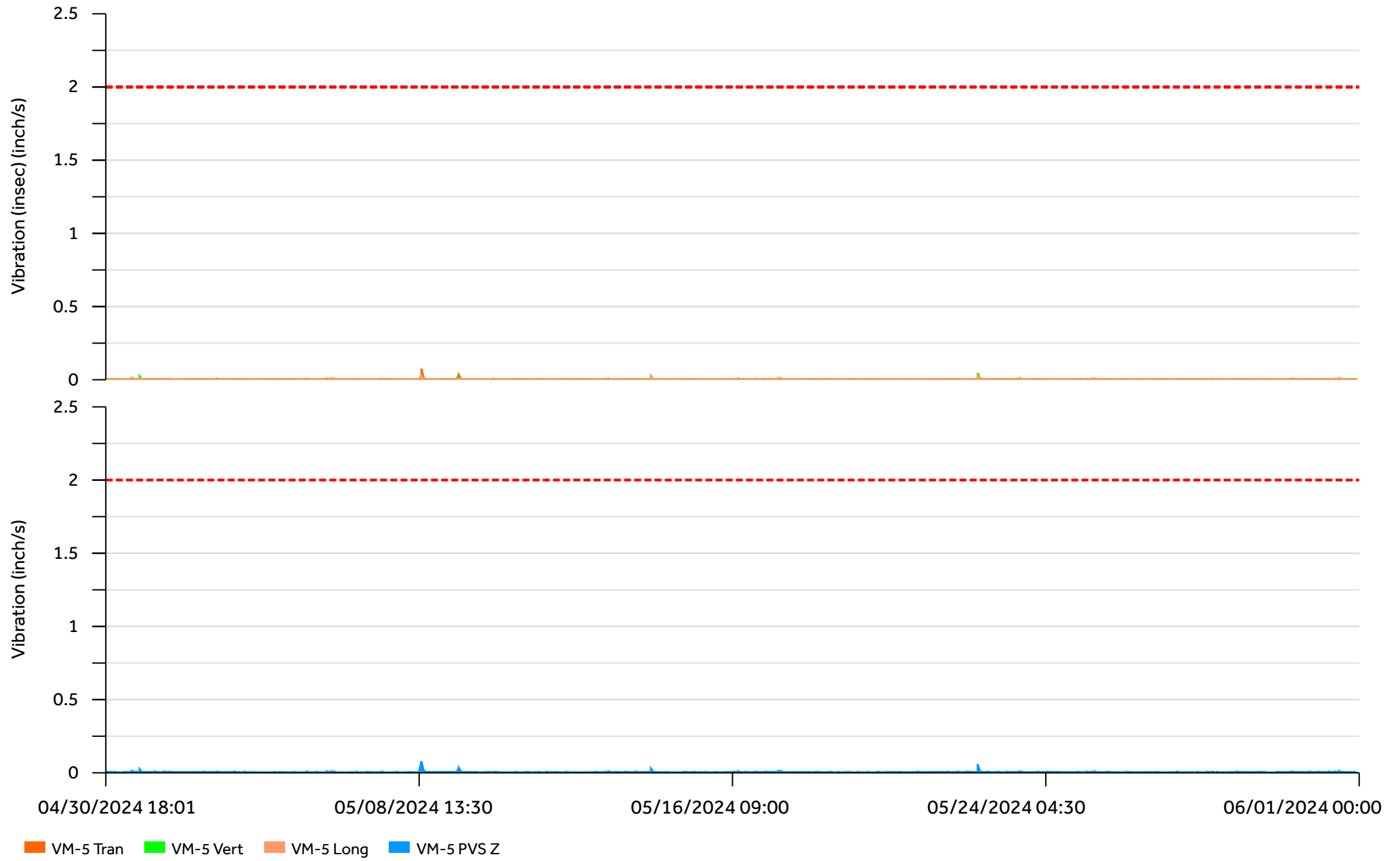
Graph 3:
VM-3- Vibration Monitor



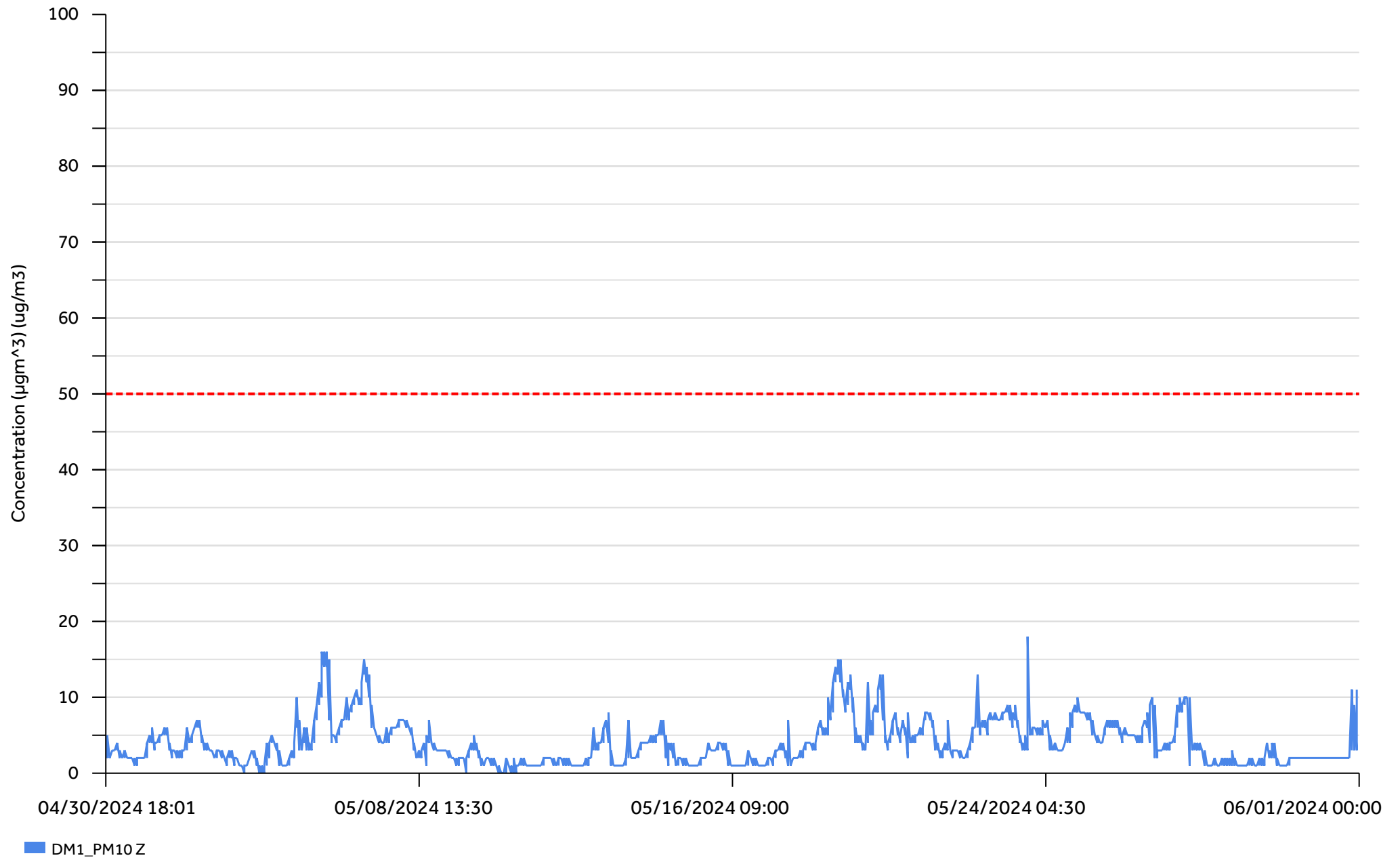
Graph 4:
VM-4- Vibration Monitor



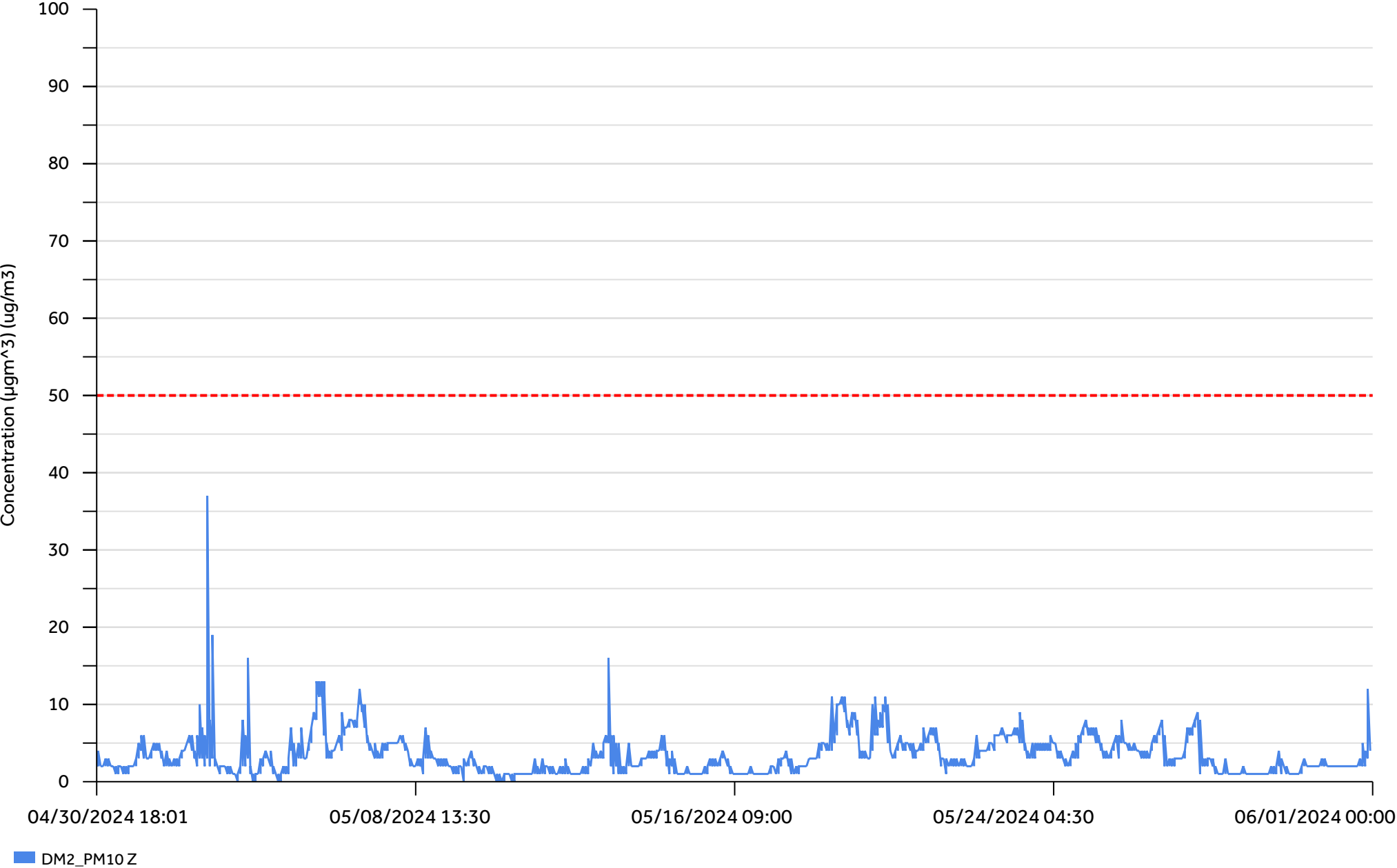
Graph 5:
VM-5- Vibration Monitor



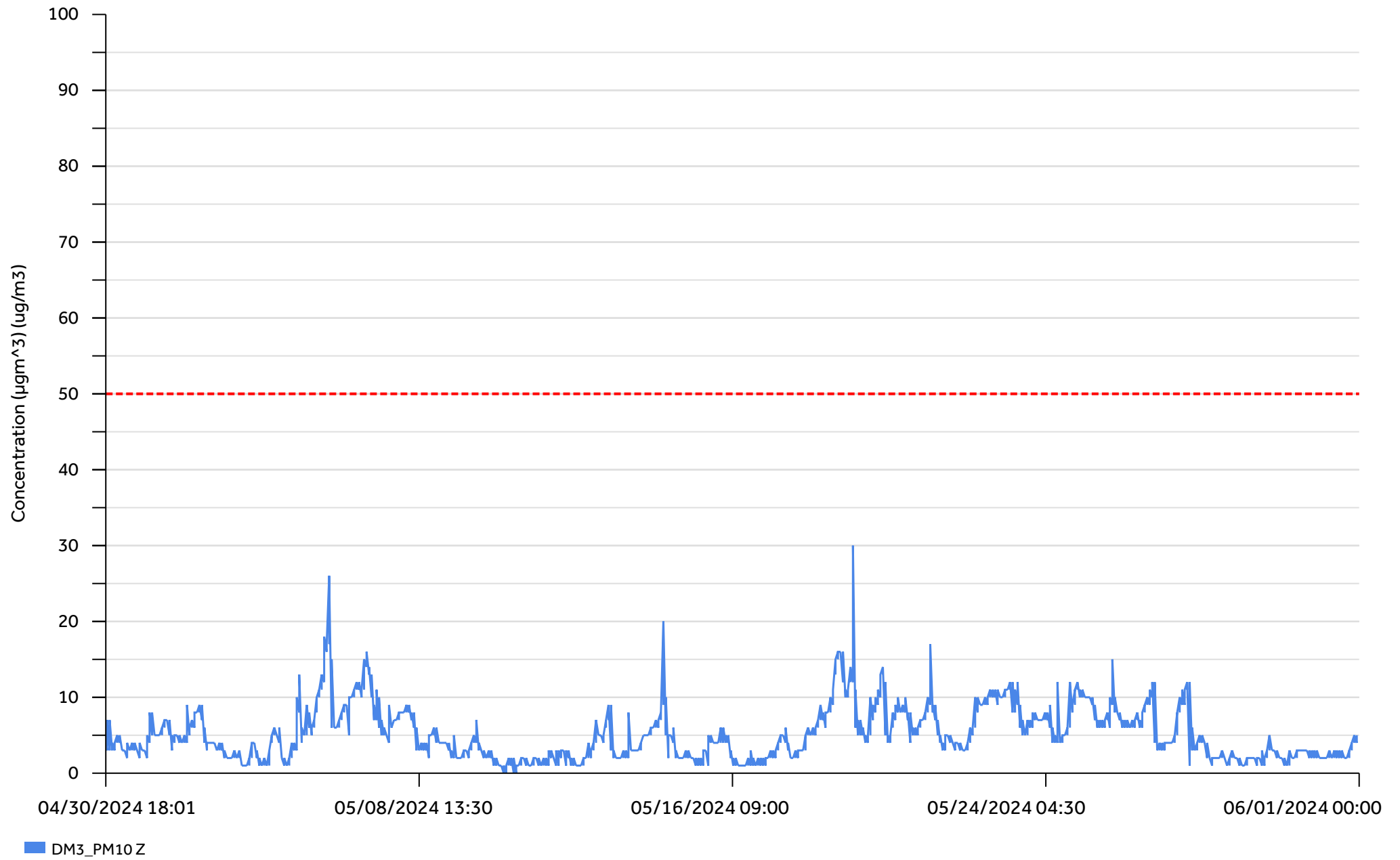
Graph 6:
DM1 - PM10



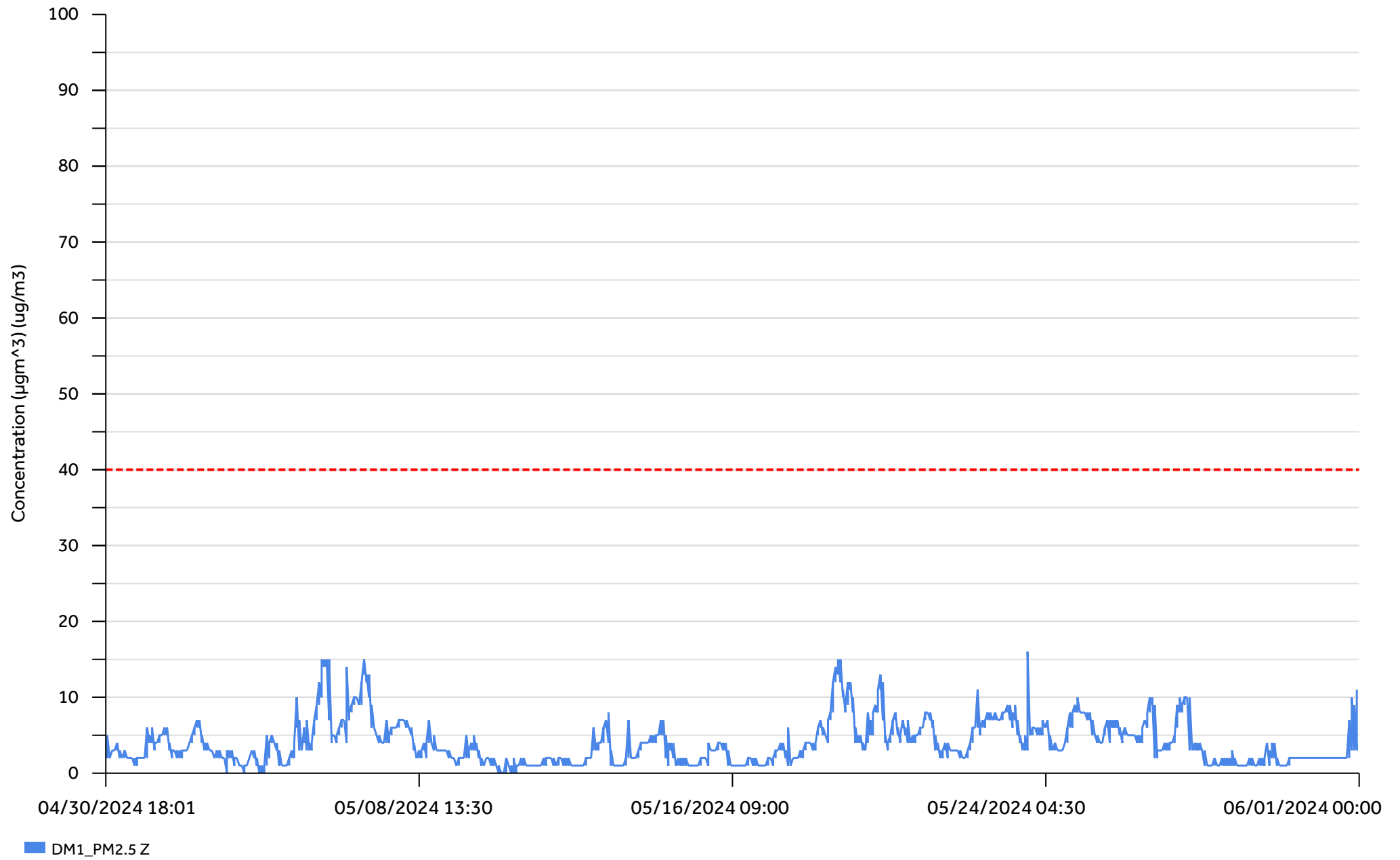
Graph 7:
DM2-PM10



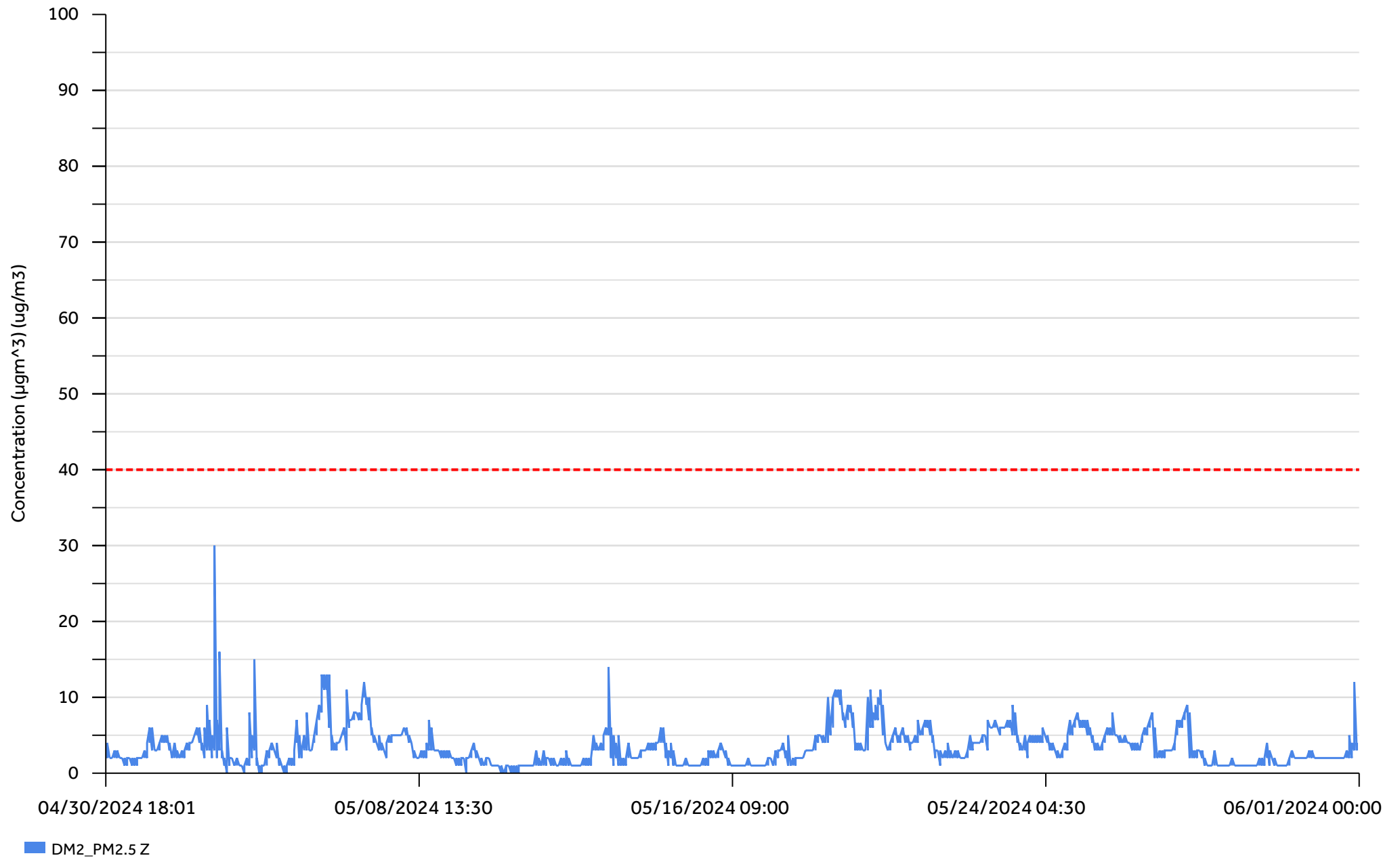
Graph 8:
DM3-PM10



Graph 9:
DM1-PM2.5



Graph 10:
DM2-PM2.5



Graph 11:

DM3-PM2.5

