

Northern Bus Garage

Noise, Vibration, and Dust Monitoring Report (April 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 April 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 53%, 52%, and 51% of the exceedances coming outside of working hours, respectively. Mic3 recorded 54% of its exceedances during nights and weekends. Mic4 had 21% 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 were no vibration exceedances in the month of April.

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 April 2024.

Figure 1: Vibration and Noise Monitor Location Plan

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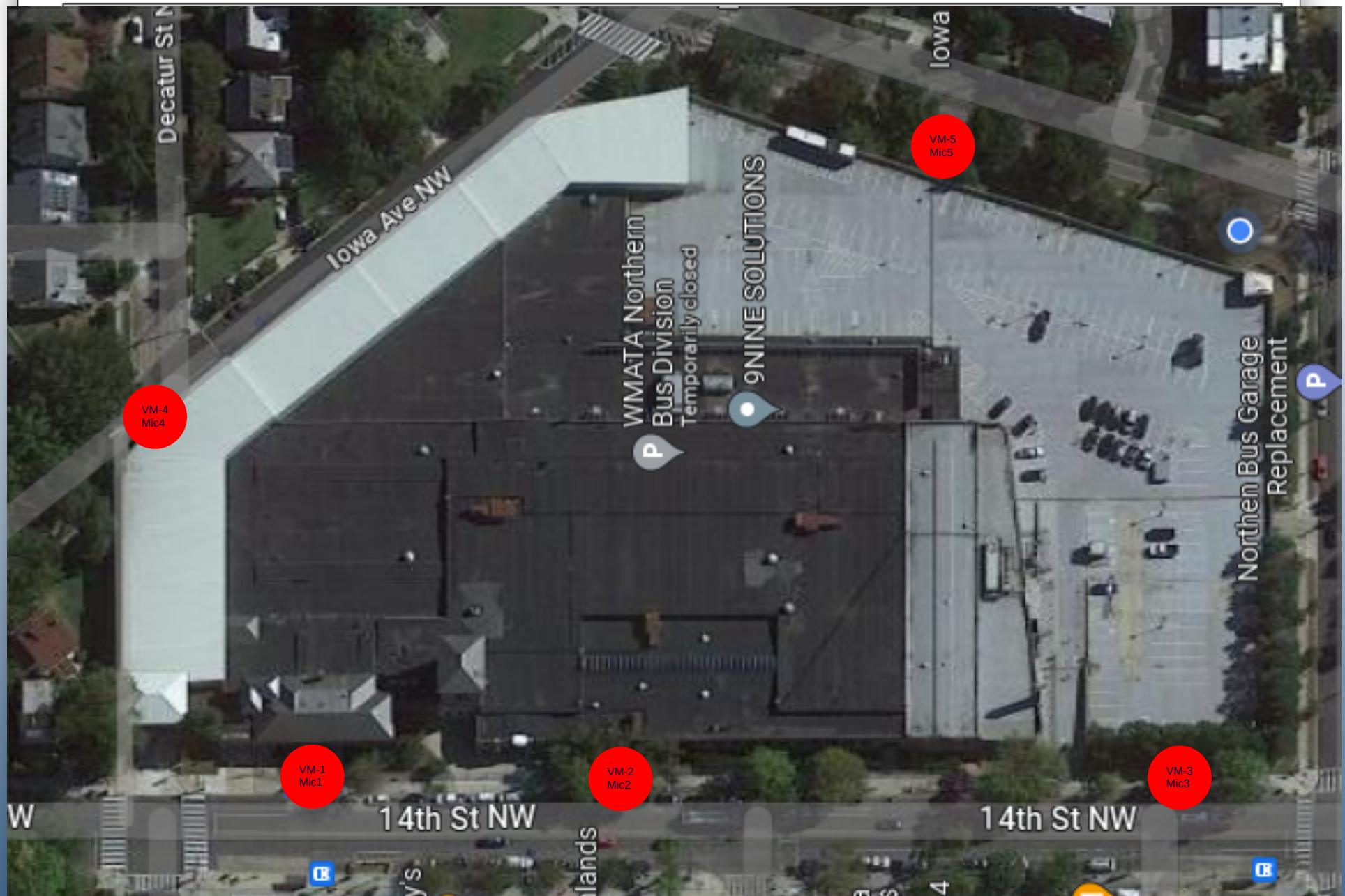


Figure 2: Dust Monitor Location Plan

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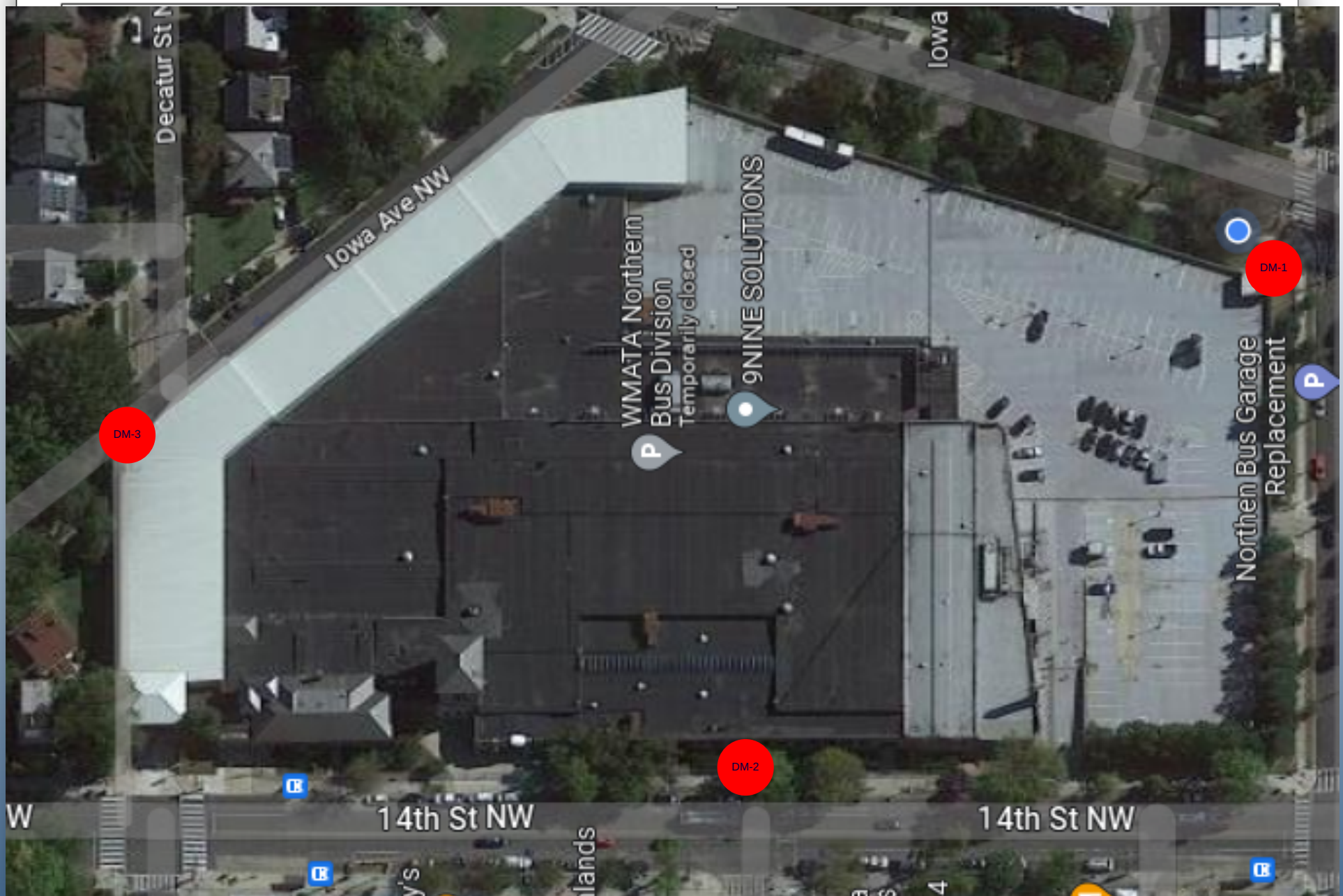


Table 1: Noise Summaries

VM1-MIC		
	Exceedance	Percentage
Work hours	601	47.51%
After hours	415	32.81%
Weekends	249	19.68%
Total	1265	100%

VM1-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	110.3	113	111.4
Lmin (dBA)	76.3	55.1	60.5
L10 (dBA)	84	79	77
L90 (dBA)	80	64	69
Leq (dBA)	81.8	85.2	82.4

VM2-MIC		
	Exceedance	Percentage
Work hours	214	48.64%
After hours	142	32.27%
Weekends	84	19.09%
Total	440	100%

VM2-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	113.5	114.2	111.4
Lmin (dBA)	68.3	62.9	49.5
L10 (dBA)	81	72	71
L90 (dBA)	70	66	54
Leq (dBA)	79.2	82.7	80.4

VM3-MIC		
	Exceedance	Percentage
Work hours	510	45.99%
After hours	365	32.91%
Weekends	234	21.10%
Total	1109	100%

VM3-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	114.1	108	111.7
Lmin (dBA)	68.7	67.4	61
L10 (dBA)	82	75	70
L90 (dBA)	71	69	64
Leq (dBA)	79.8	77.3	81

VM4-MIC		
	Exceedance	Percentage
Work hours	97	79.51%
After hours	18	14.75%
Weekends	7	5.74%
Total	122	100%

VM4-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	107.7	107.7	113
Lmin (dBA)	63	47.2	42.7
L10 (dBA)	90	59	61
L90 (dBA)	66	49	46
Leq (dBA)	85.5	80.7	80.8

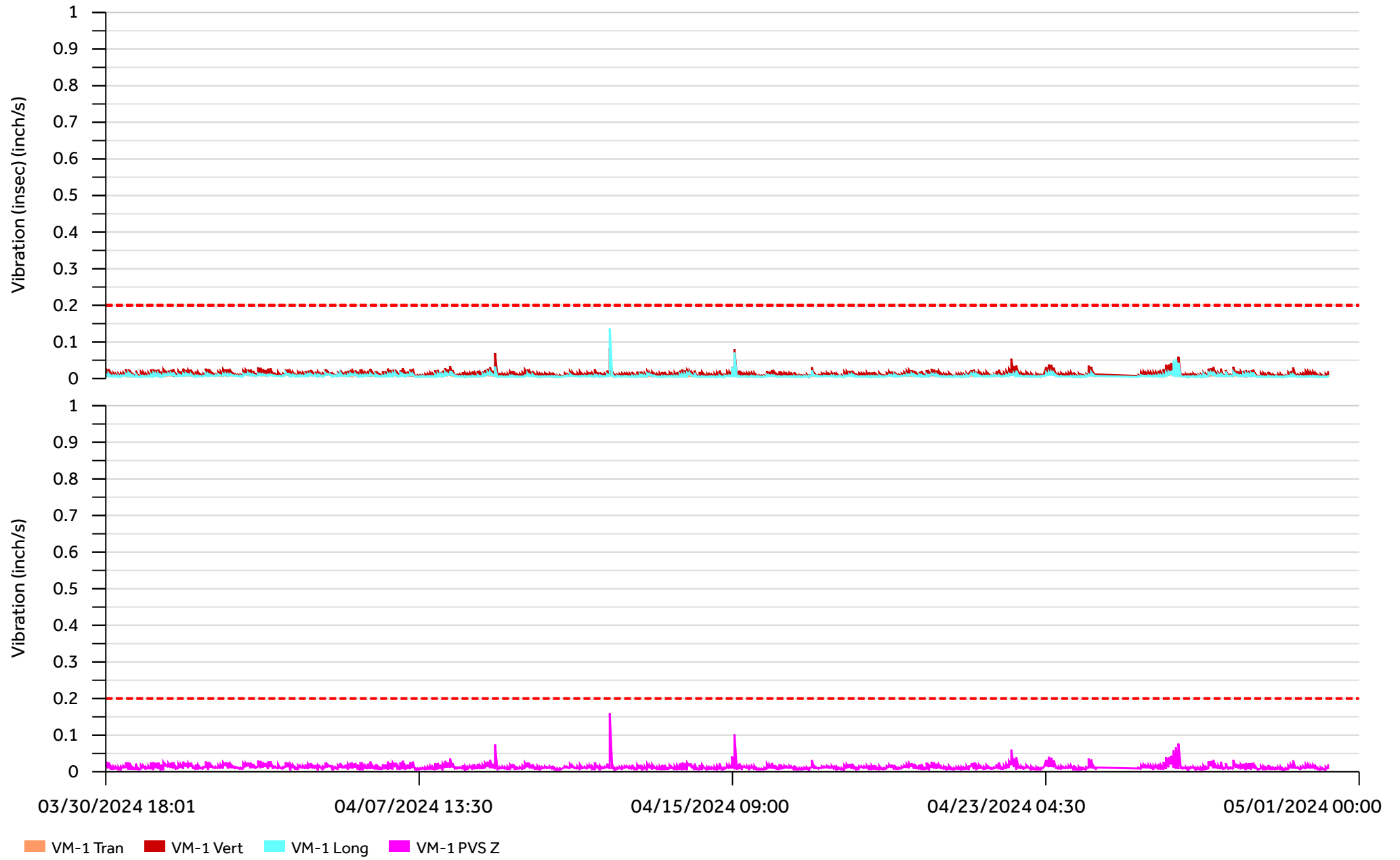
VM5-MIC		
	Exceedance	Percentage
Work hours	141	49.82%
After hours	79	27.92%
Weekends	63	22.26%
Total	283	100%

VM5-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	107.6	109.3	106.3
Lmin (dBA)	60.6	56.2	56.6
L10 (dBA)	87	73	67
L90 (dBA)	64	59	59
Leq (dBA)	83.3	78.5	76.4

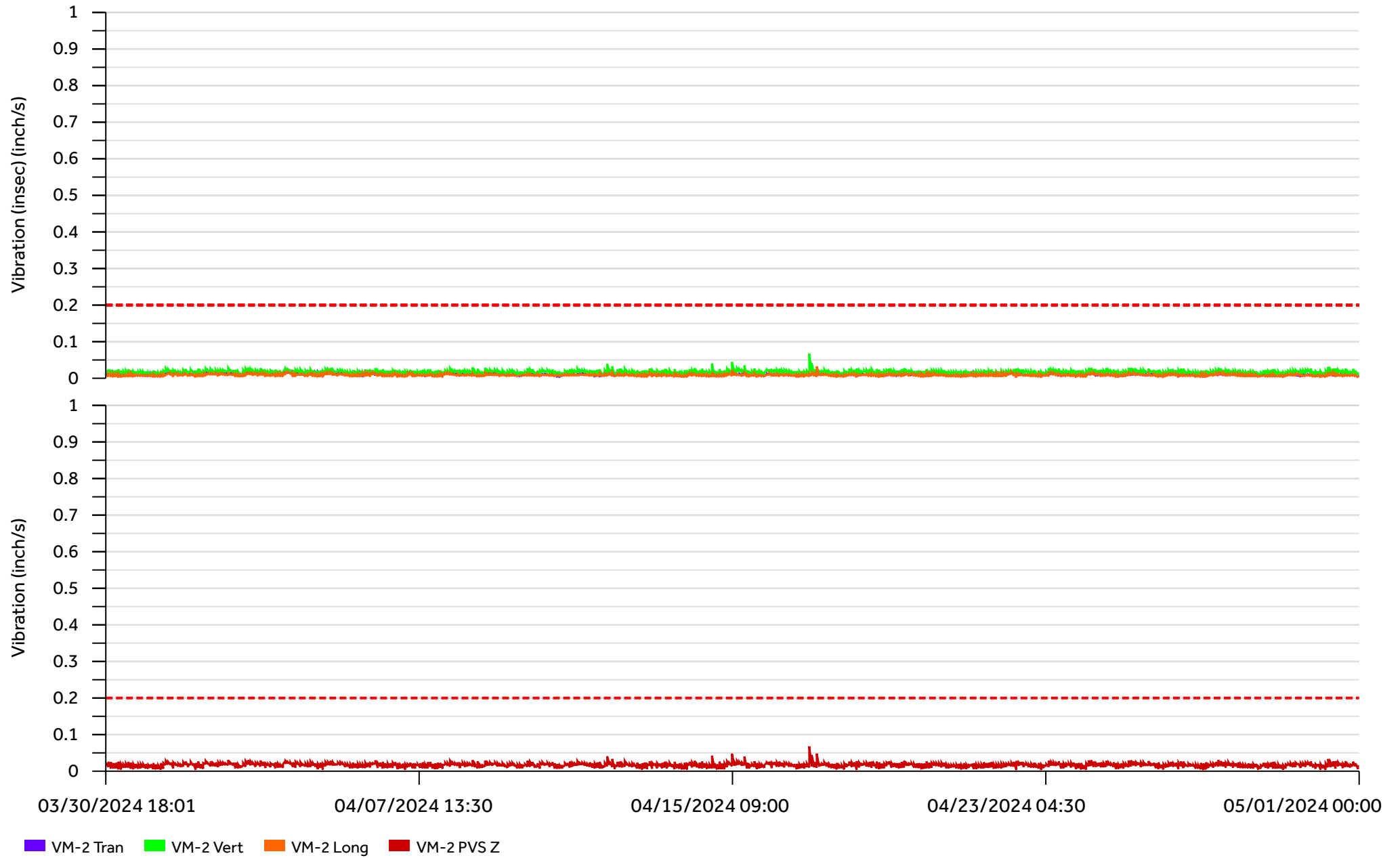
Summary tables contain values for working hours, after hours, and weekend time periods:

- 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.

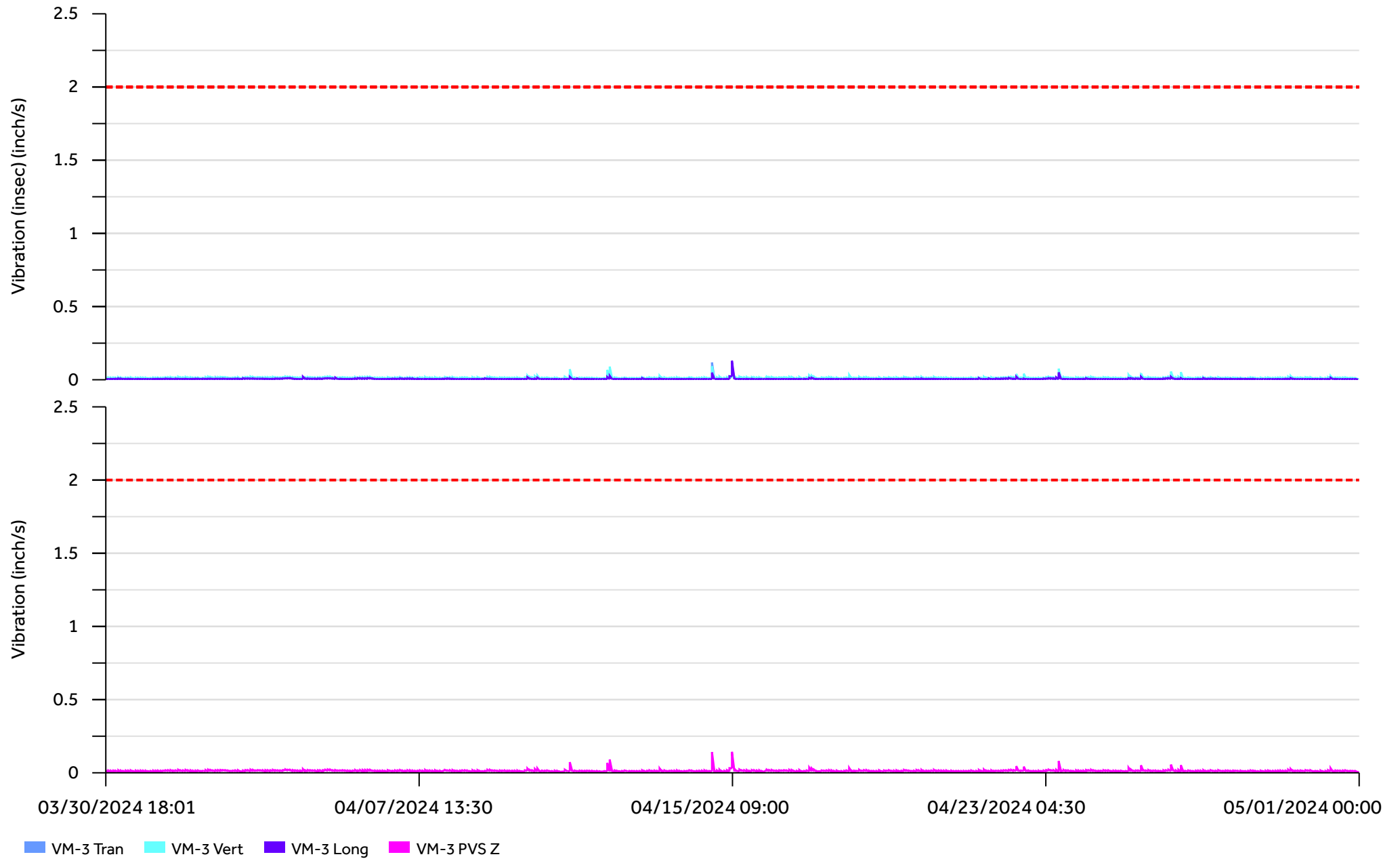
Graph 1:
VM-1- Vibration Monitor



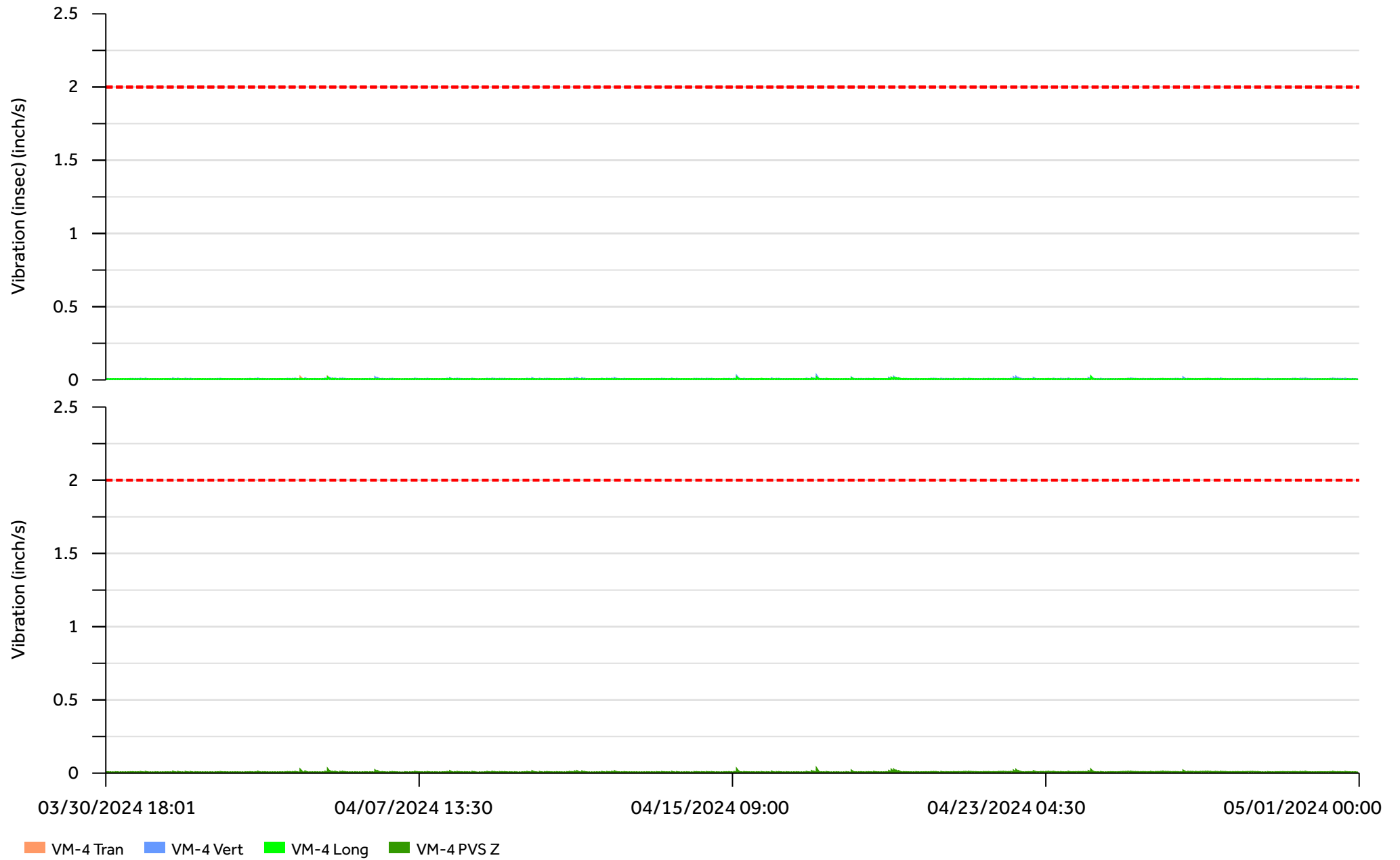
Graph 2:
VM-2- Vibration Monitor



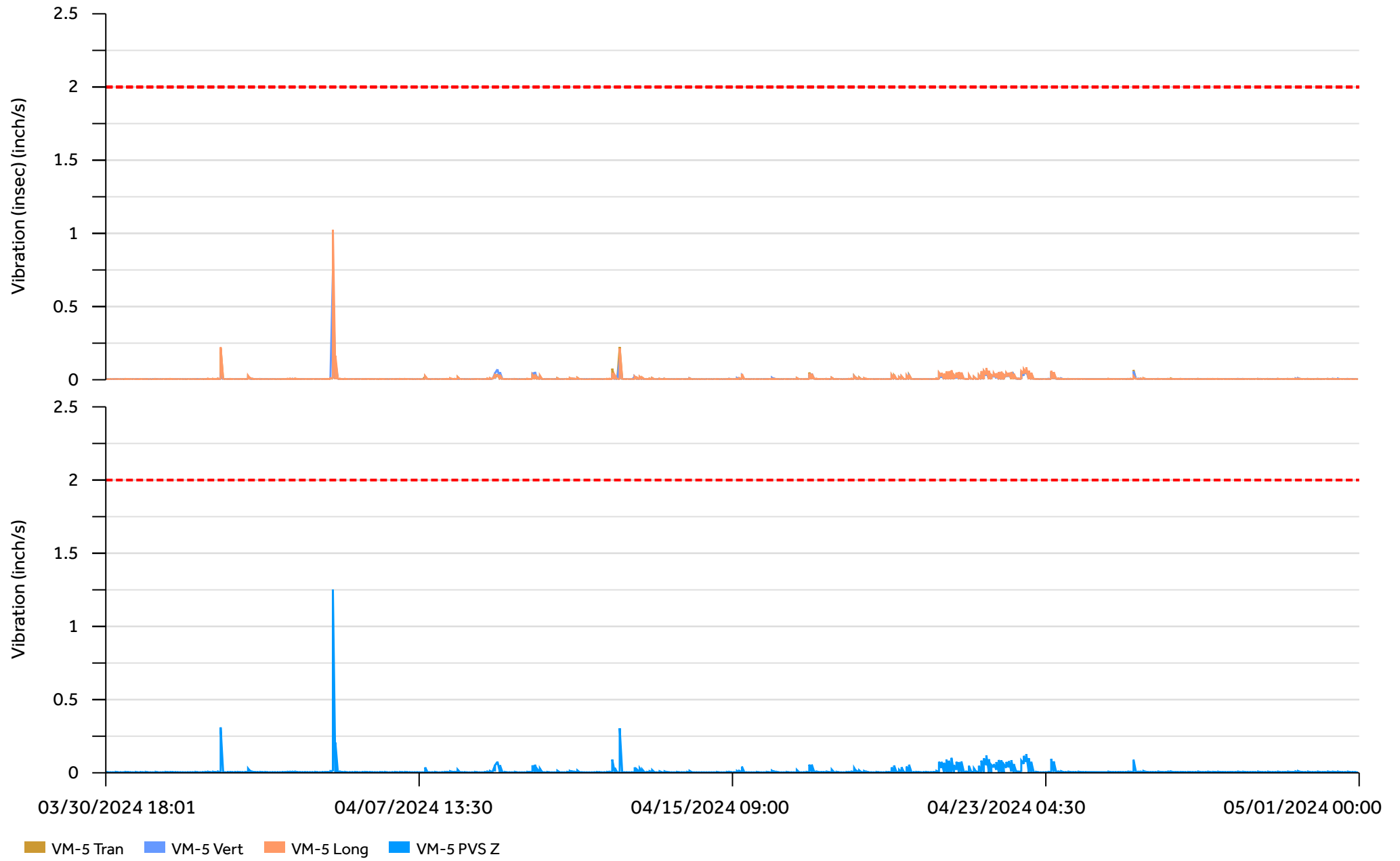
Graph 3:
VM-3- Vibration Monitor



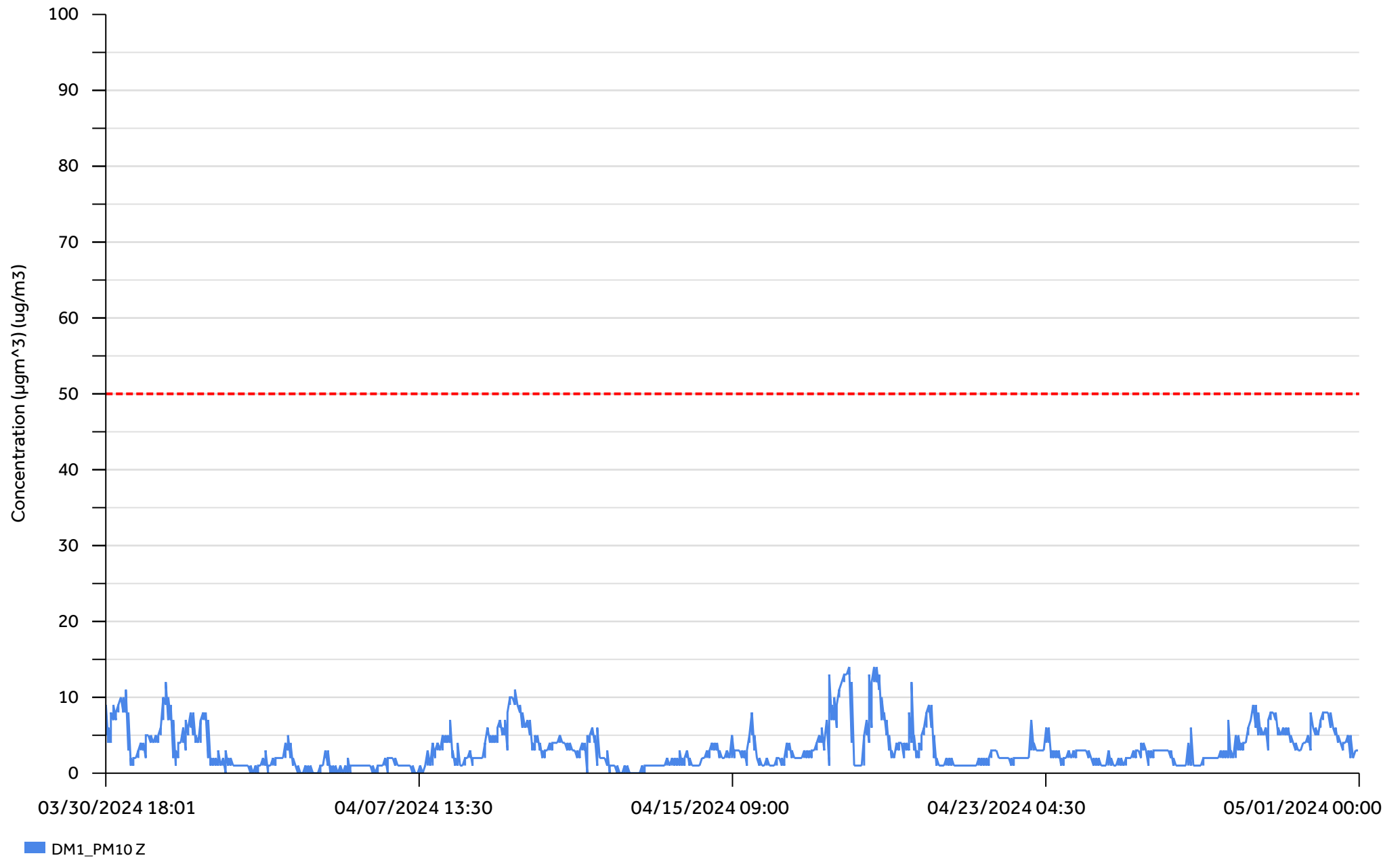
Graph 4:
VM-4- Vibration Monitor



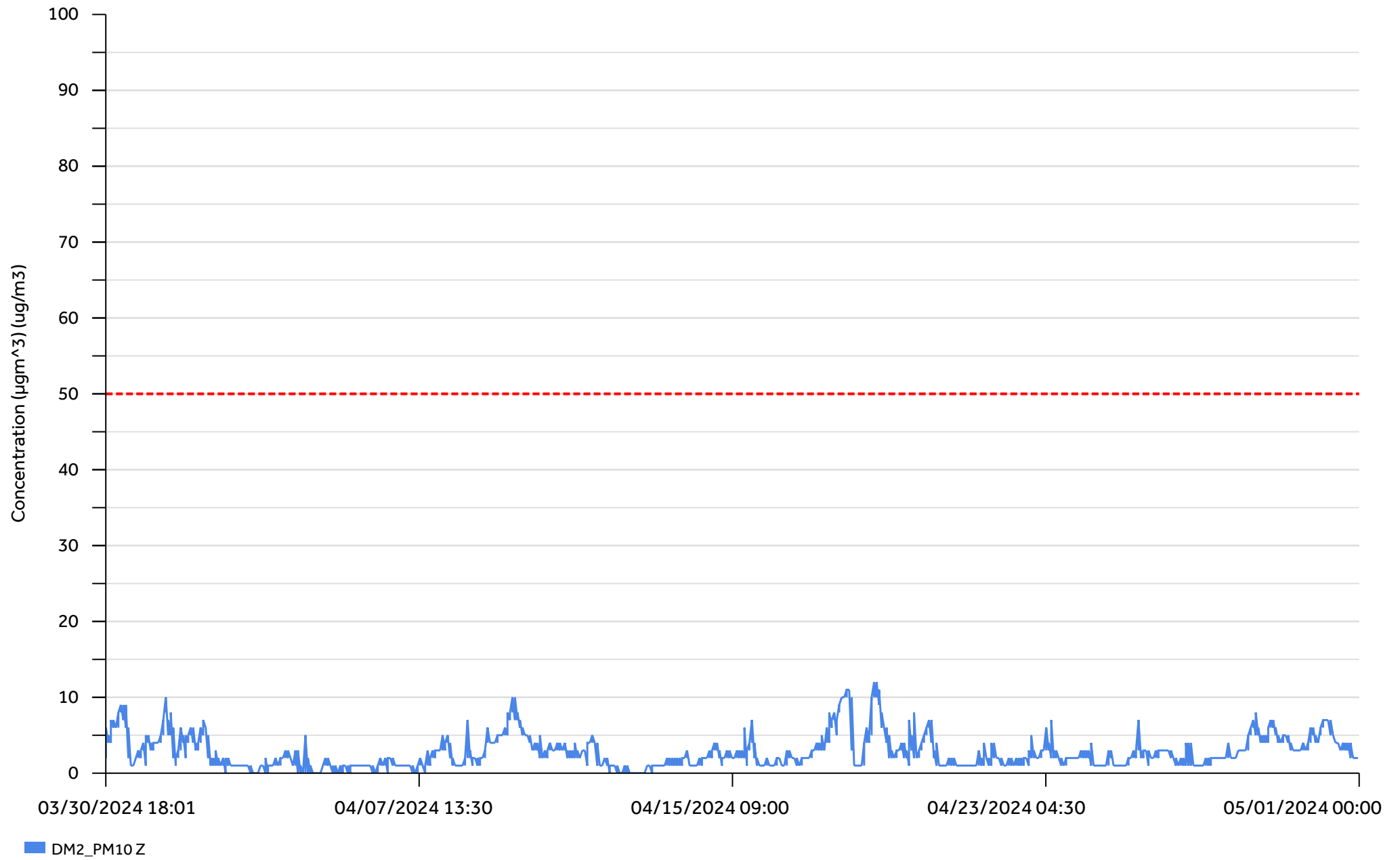
Graph 5:
VM-5- Vibration Monitor



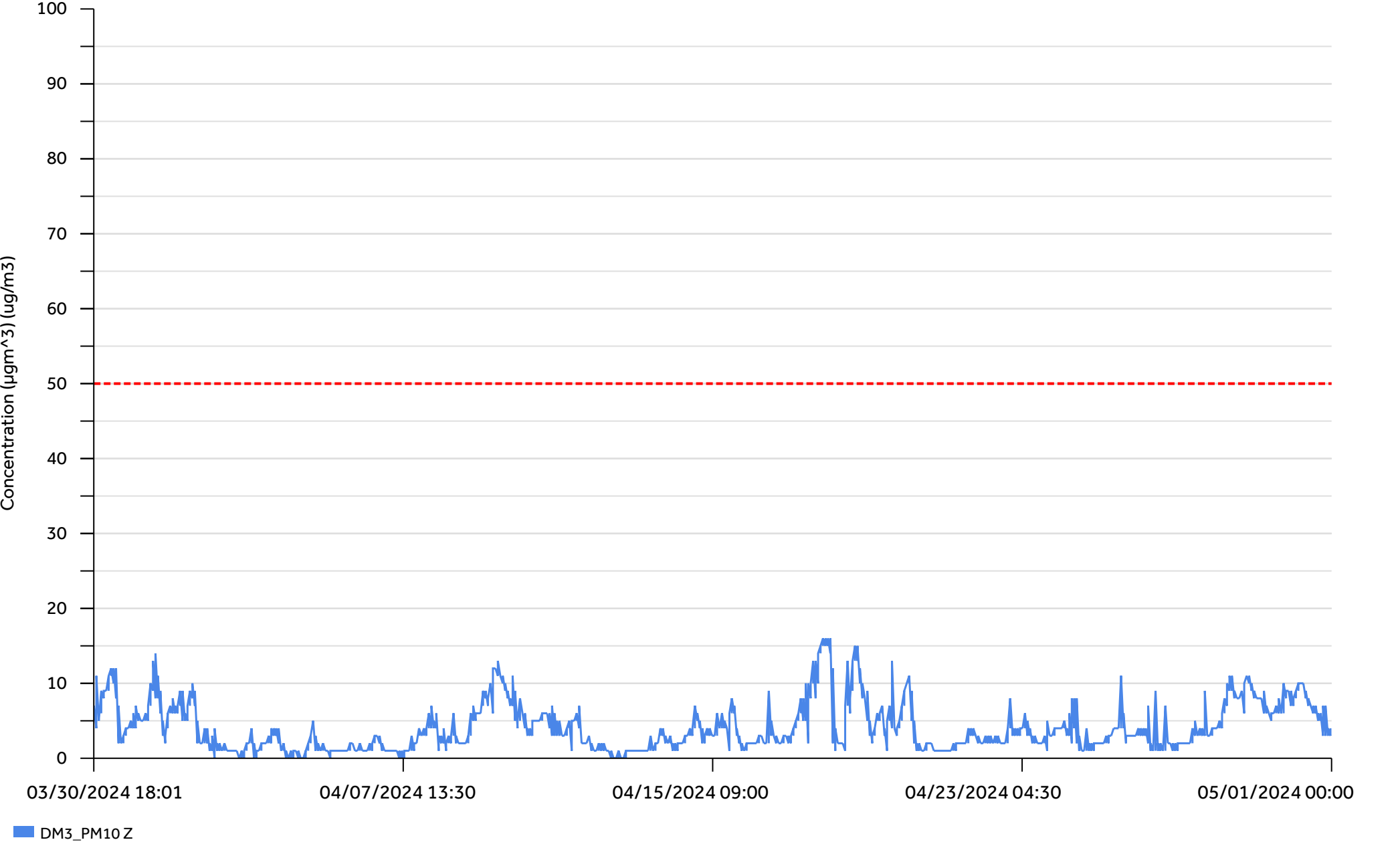
Graph 6:
DM1 - PM10



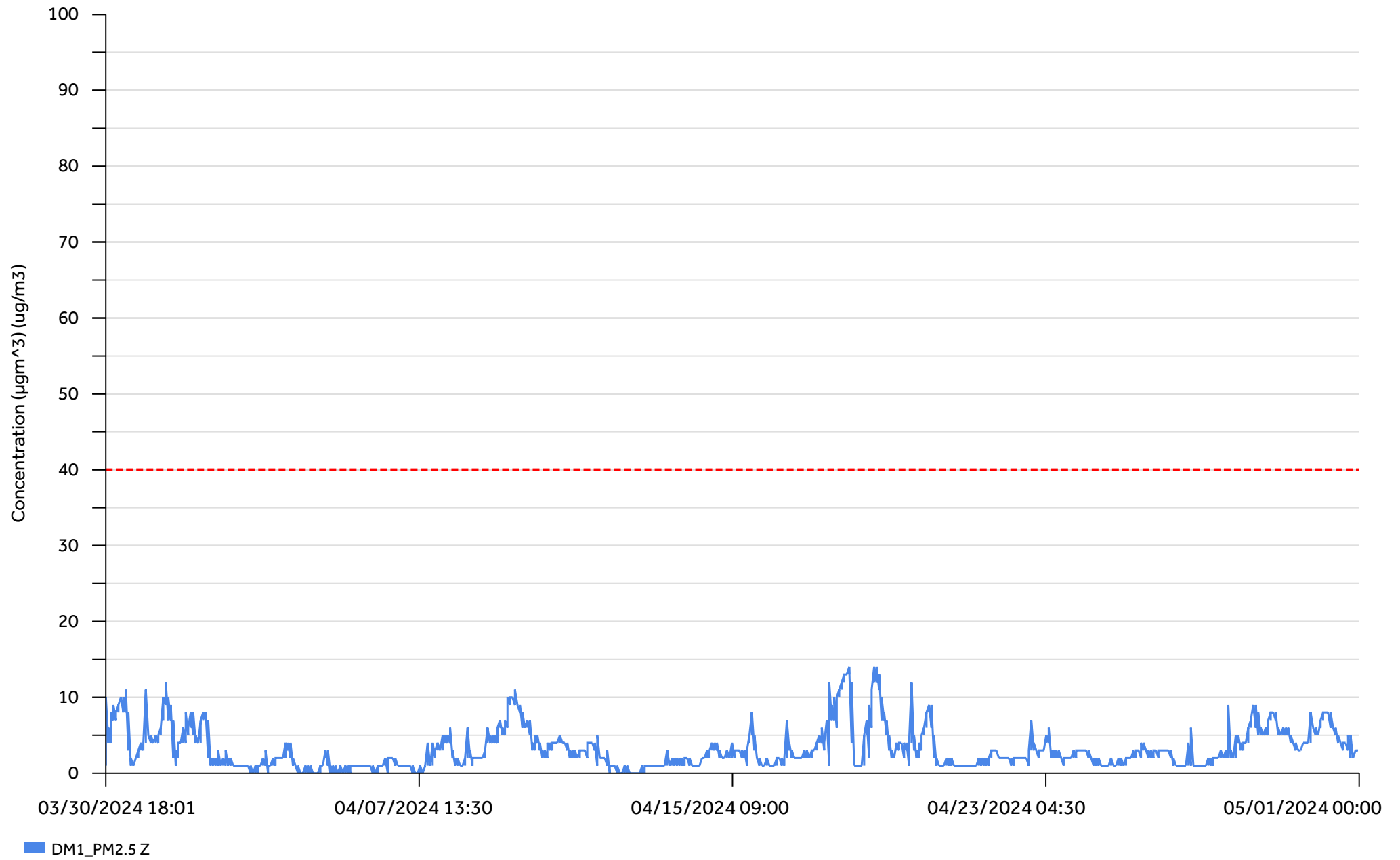
Graph 7:
DM2-PM10



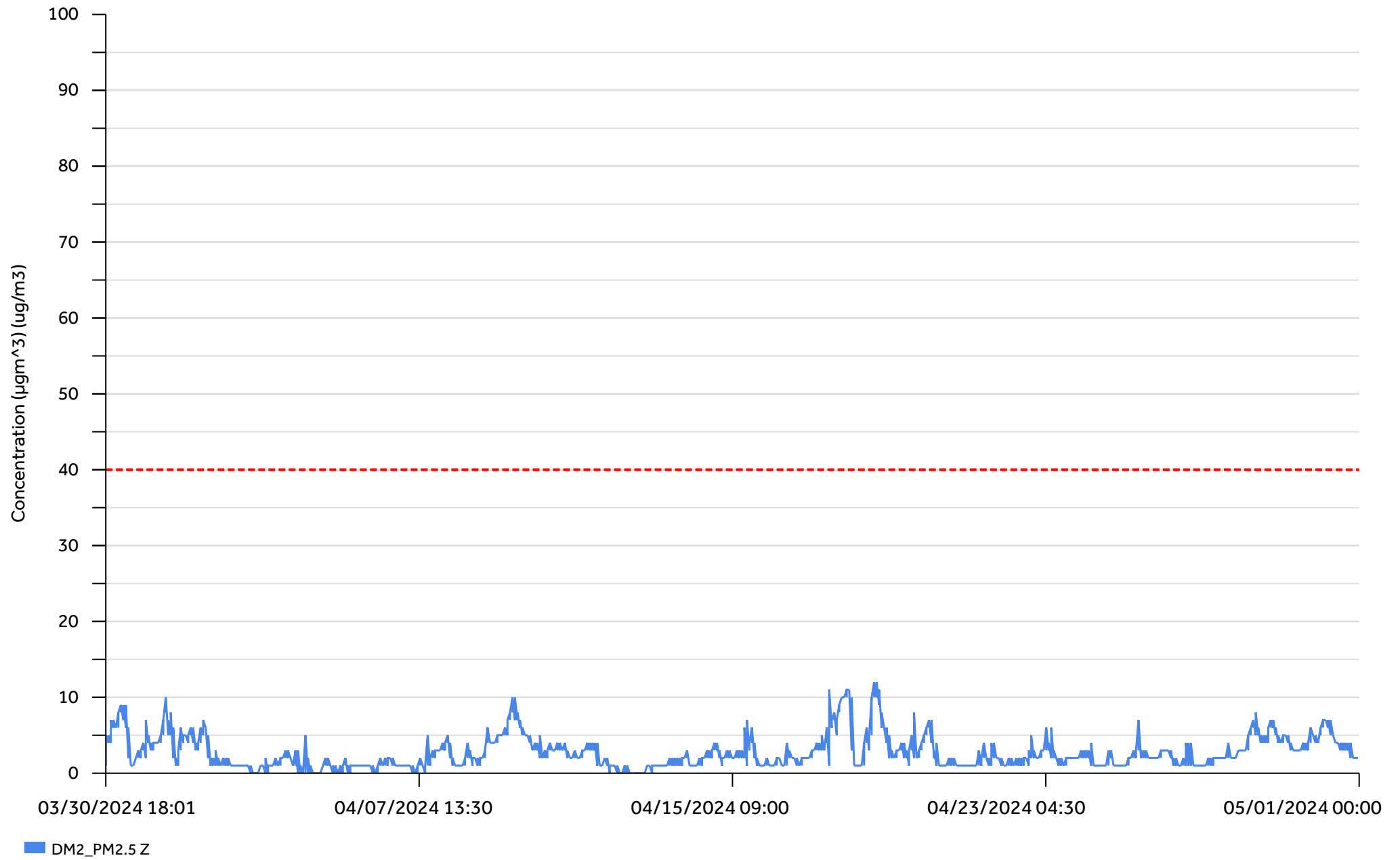
Graph 8:
DM3-PM10



Graph 9:
DM1-PM2.5



Graph 10:
DM2-PM2.5



Graph 11:

DM3-PM2.5

