Northern Bus Garage
Noise, Vibration, and Dust Monitoring Report (September 2025)

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 September 2025.

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.

Numerous noise level exceedances at all hours of the day and all days of the week. Mic1, Mic2, and Mic5 recorded over 40% of their exceedances out of working hours. Mic1 and Mic2 had their loudest 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

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

Vibration exceedances for the month of September are listed below. There were four vibration exceedances at VM2, that all closely align with the beginning or end of a workday. Given this, and that there is no other significant vibration activity on these days, it is Clark's assumption that these are due to foot traffic of workers entering or exiting the site. The vibration exceedance at VM4 is considered a false reading because there is no other notable vibration on that day, and no work was occurring in the vicinity of the sensor at that time. The Waveform report may be found in Attachment B.

- VM2 – Exceedance with a reading of 0.267 in/sec on September 15 at 06:50.
- VM2 – Exceedance with a reading of 0.991 in/sec on September 22 at 06:31.
- VM2 – Exceedance with a reading of 0.224 in/sec on September 23 at 17:02.
- VM2 – Exceedance with a reading of 0.279 in/sec on September 24 at 06:18.
- VM4 – Exceedance with a reading of 8.84 in/sec on September 4 at 14:48. – False Reading

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 to 11.

Twelve air quality exceedances occurred during the month of September 2025. Details of these air quality exceedances can be found below.

- DM1 – Exceedance of the PM2.5 limit with a reading of 51 µg/m^3 on September 4 at 07:29.
- DM1 – Exceedance of the PM10 limit with a reading of 54 µg/m^3 on September 4 at 07:29.
- DM1 – Exceedance of the PM2.5 limit on September 4 from 12:19 to 12:59. The peak reading was 136 µg/m^3.
- DM1 – Exceedance of the PM10 limit on September 4 from 12:29 to 12:59. The peak reading was 13 µg/m^3.
- DM1 – Exceedance of the PM2.5 limit with a reading of 60 µg/m^3 on September 11 at 08:44.
- DM1 – Exceedance of the PM10 limit with a reading of 62 µg/m^3 on September 11 at 08:44.
- DM1 – Exceedance of the PM2.5 limit with a reading of 59 µg/m^3 on September 11 at 09:59.
- DM1 – Exceedance of the PM10 limit with a reading of 60 µg/m^3 on September 11 at 09:59.
- DM1 – Exceedance of the PM2.5 limit on September 15 from 07:29 to 08:14. The peak reading was 307 µg/m^3.
- DM1 – Exceedance of the PM10 limit on September 15 from 07:29 to 08:14. The peak reading was 326 µg/m^3.
- DM1 – Exceedance of the PM2.5 limit with a reading of 46 µg/m^3 on September 26 at 13:01.
- DM1 – Exceedance of the PM10 limit with a reading of 72 µg/m^3 on September 26 at 13:01.

Figure 1: Vibration and Noise Monitor Location Plan

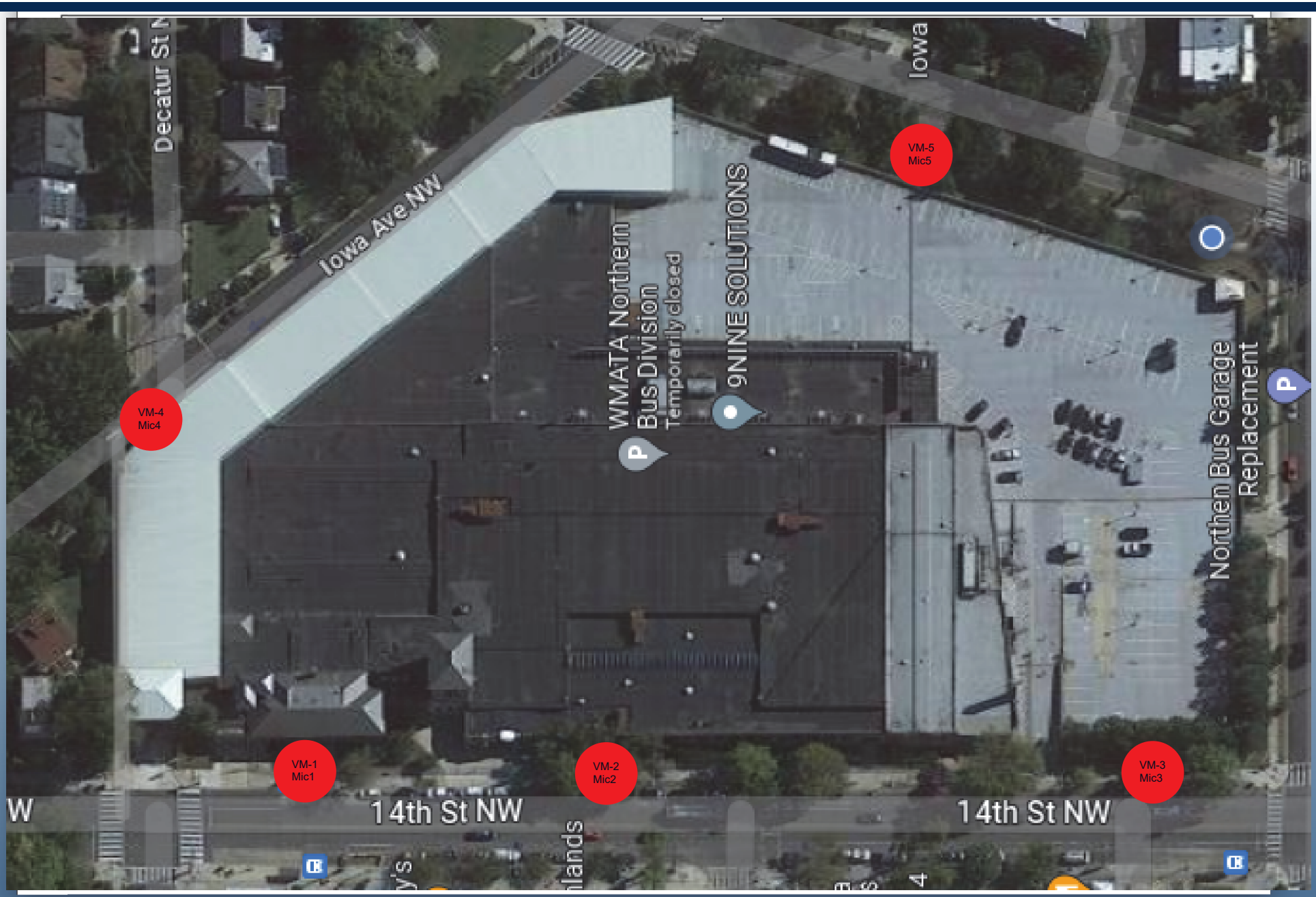


Figure 2: Dust Monitor Location Plan

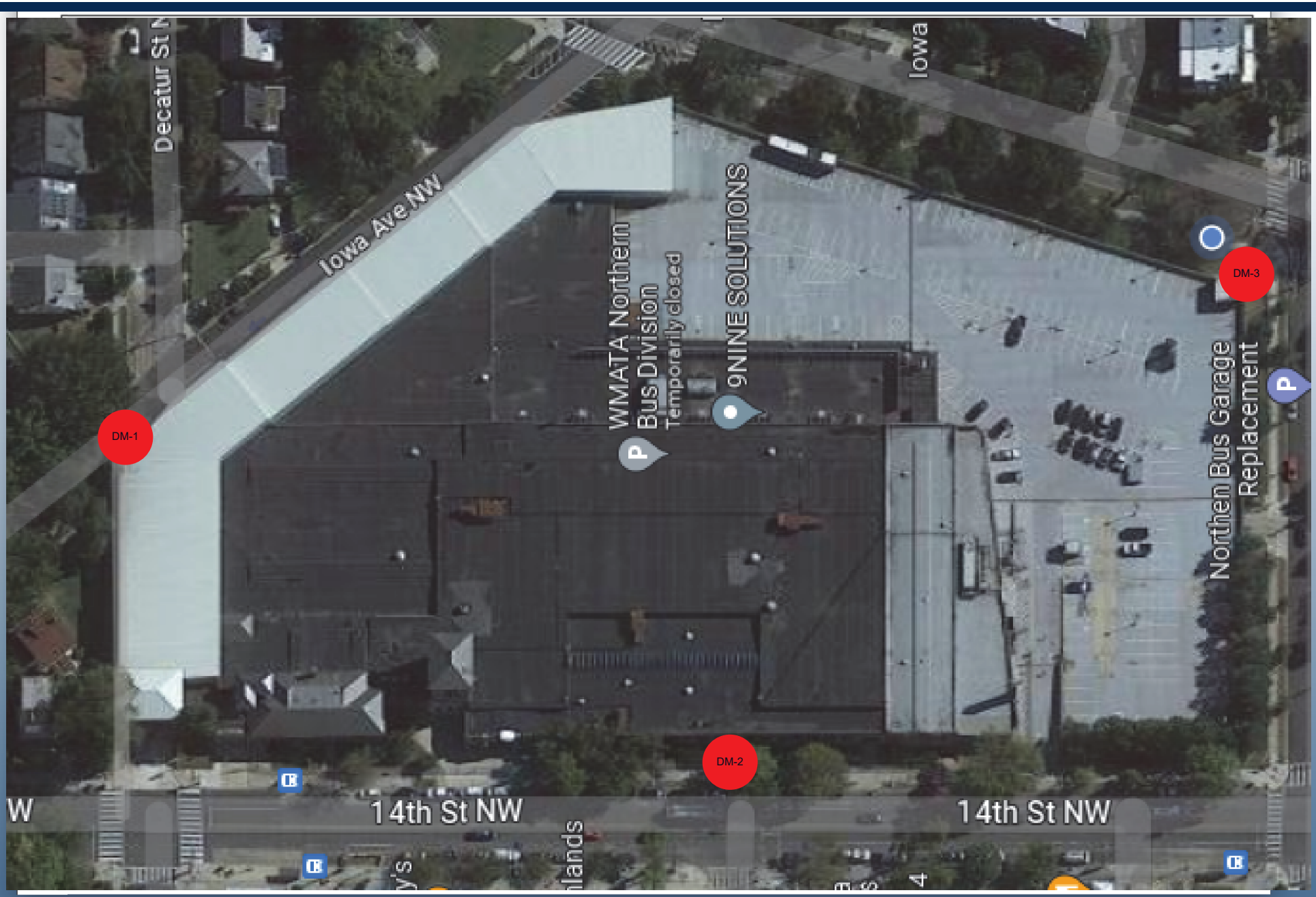


Table 1: Noise Summaries

These observations were made from the maximum values given in the following summary tables.

VM1-MIC		
	Exceedance	Percentage
Work hours	533	55.23%
After hours	252	26.11%
Weekends	180	18.65%
Total	965	100%

VM1-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	109.7	110.3	109.6
Lmin (dBA)	71.6	62.9	53.9
L10 (dBA)	86	88	72
L90 (dBA)	75	72	57
Leq (dBA)	83.1	84.2	76.5

VM2-MIC		
	Exceedance	Percentage
Work hours	323	58.94%
After hours	141	25.73%
Weekends	84	15.33%
Total	548	100%

VM2-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	109.8	112.4	108.4
Lmin (dBA)	70	63.9	54.5
L10 (dBA)	86	84	71
L90 (dBA)	73	67	58
Leq (dBA)	81.4	79.7	76.8

VM3-MIC		
	Exceedance	Percentage
Work hours	797	60.98%
After hours	302	23.11%
Weekends	208	15.91%
Total	1307	100%

VM3-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	110.3	107.6	109
Lmin (dBA)	76.3	61.2	74
L10 (dBA)	96	77	78
L90 (dBA)	81	64	75
Leq (dBA)	92.2	77	77.5

VM4-MIC		
	Exceedance	Percentage
Work hours	697	94.70%
After hours	24	3.26%
Weekends	15	2.04%
Total	736	100%

VM4-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	111.3	97.9	97.2
Lmin (dBA)	77.8	52.2	51.9
L10 (dBA)	101	62	68
L90 (dBA)	80	55	56
Leq (dBA)	96.3	71	69.1

VM5-MIC		
	Exceedance	Percentage
Work hours	125	50.81%
After hours	63	25.61%
Weekends	58	23.58%
Total	246	100%

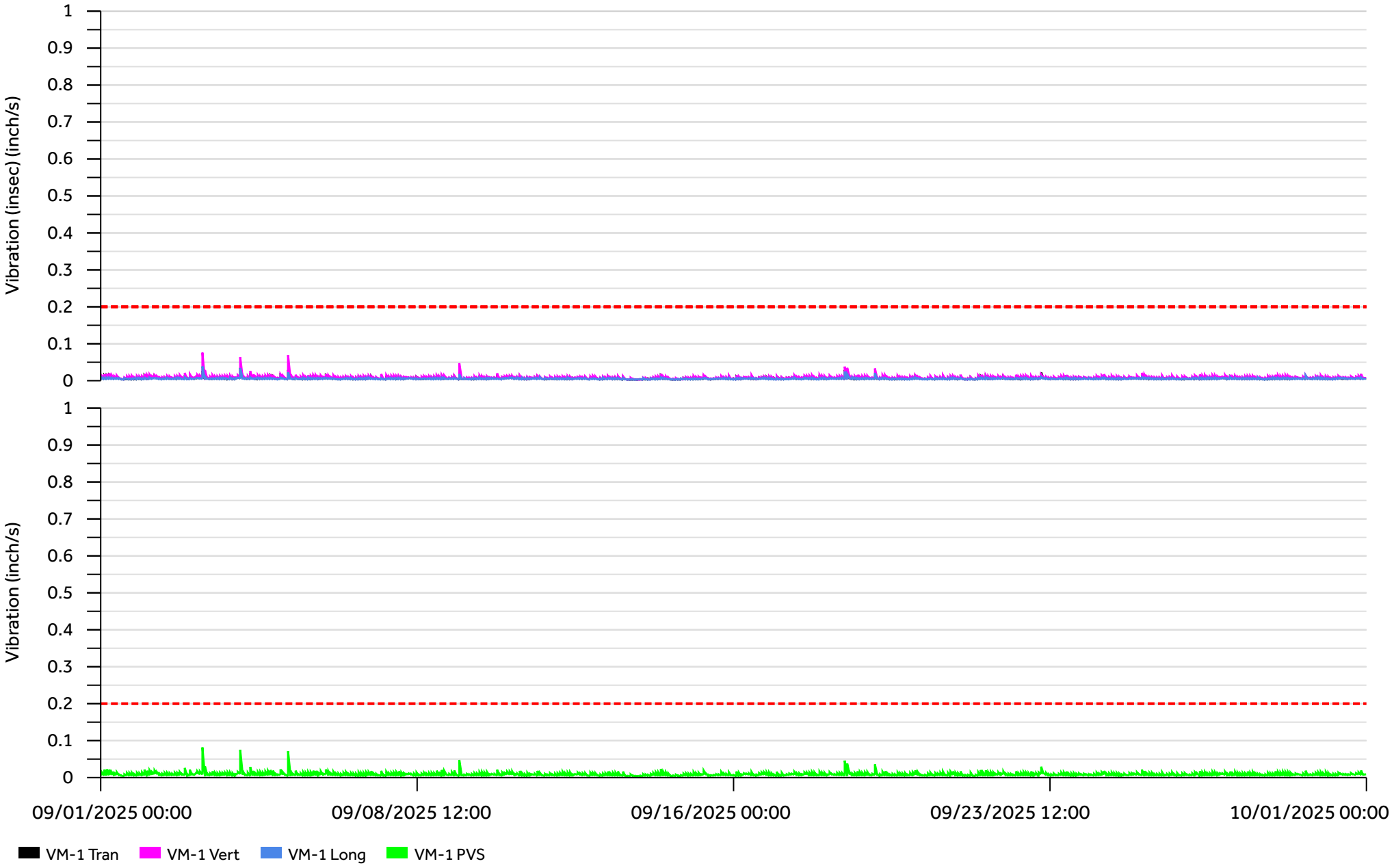
VM5-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	108	106.3	106.6
Lmin (dBA)	55.6	46.4	47.1
L10 (dBA)	71	65	68
L90 (dBA)	59	53	53
Leq (dBA)	77.8	74.3	77.5

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.

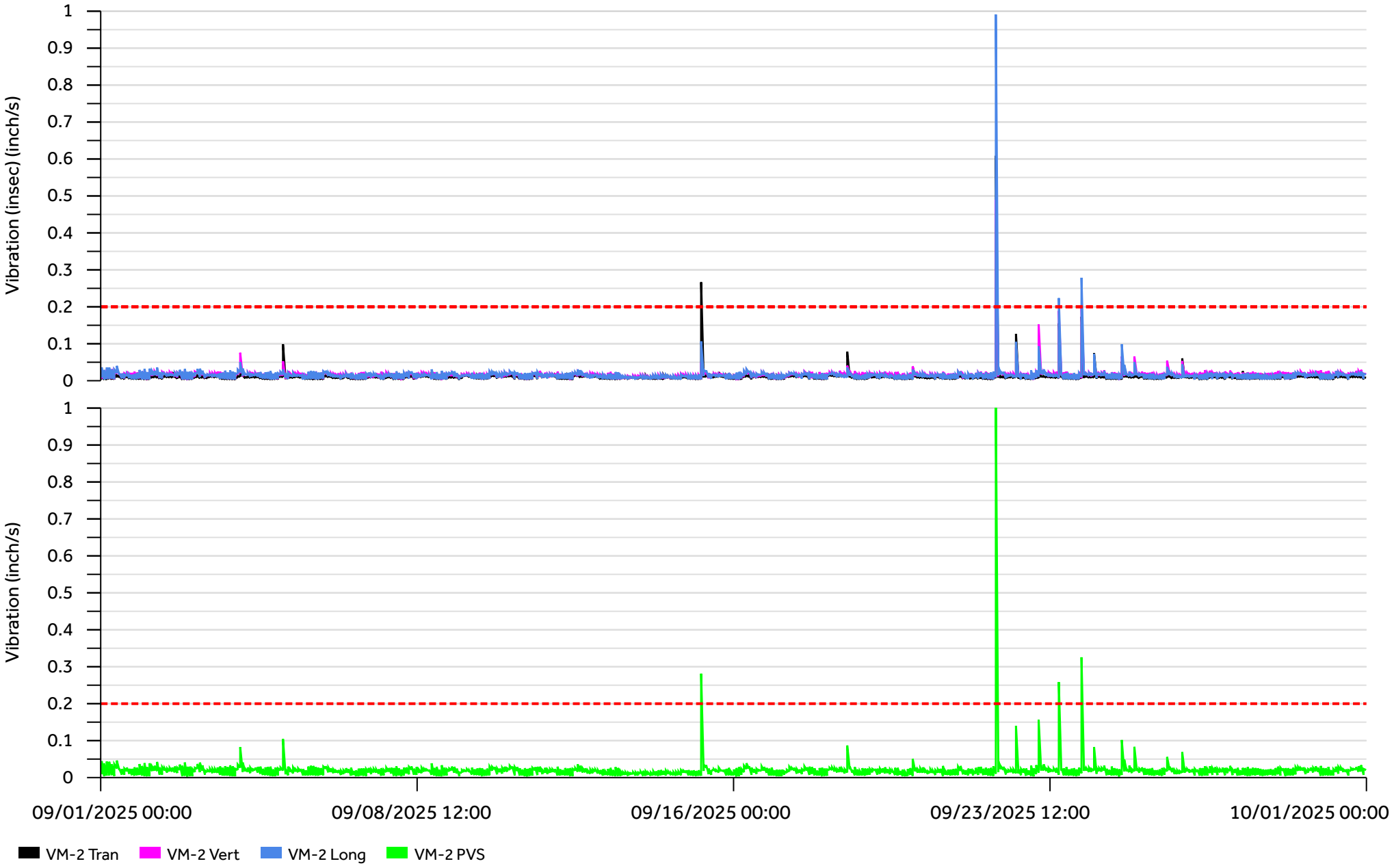
Graph 1

VM-1- Vibration Monitor



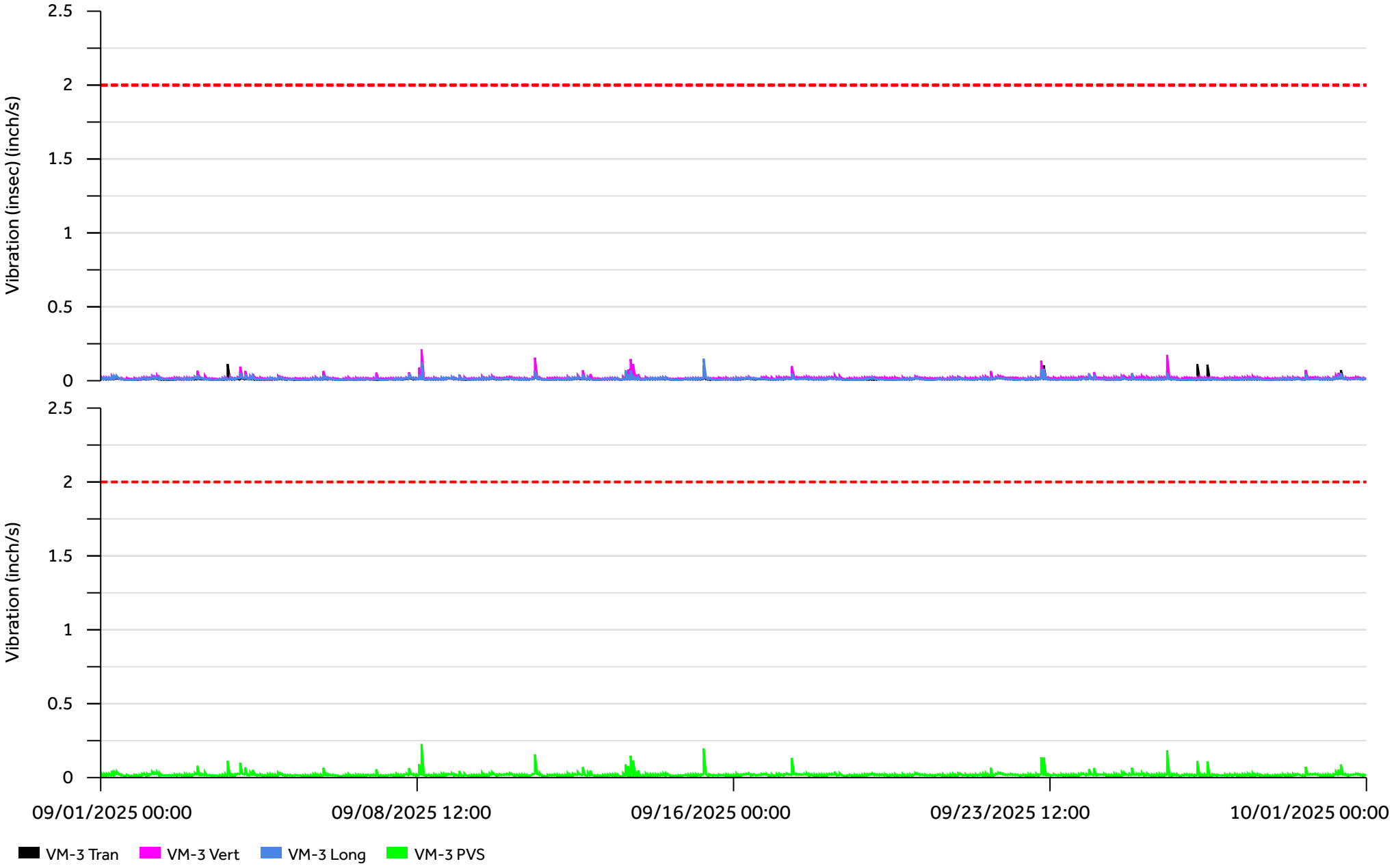
Graph 2

VM-2- Vibration Monitor



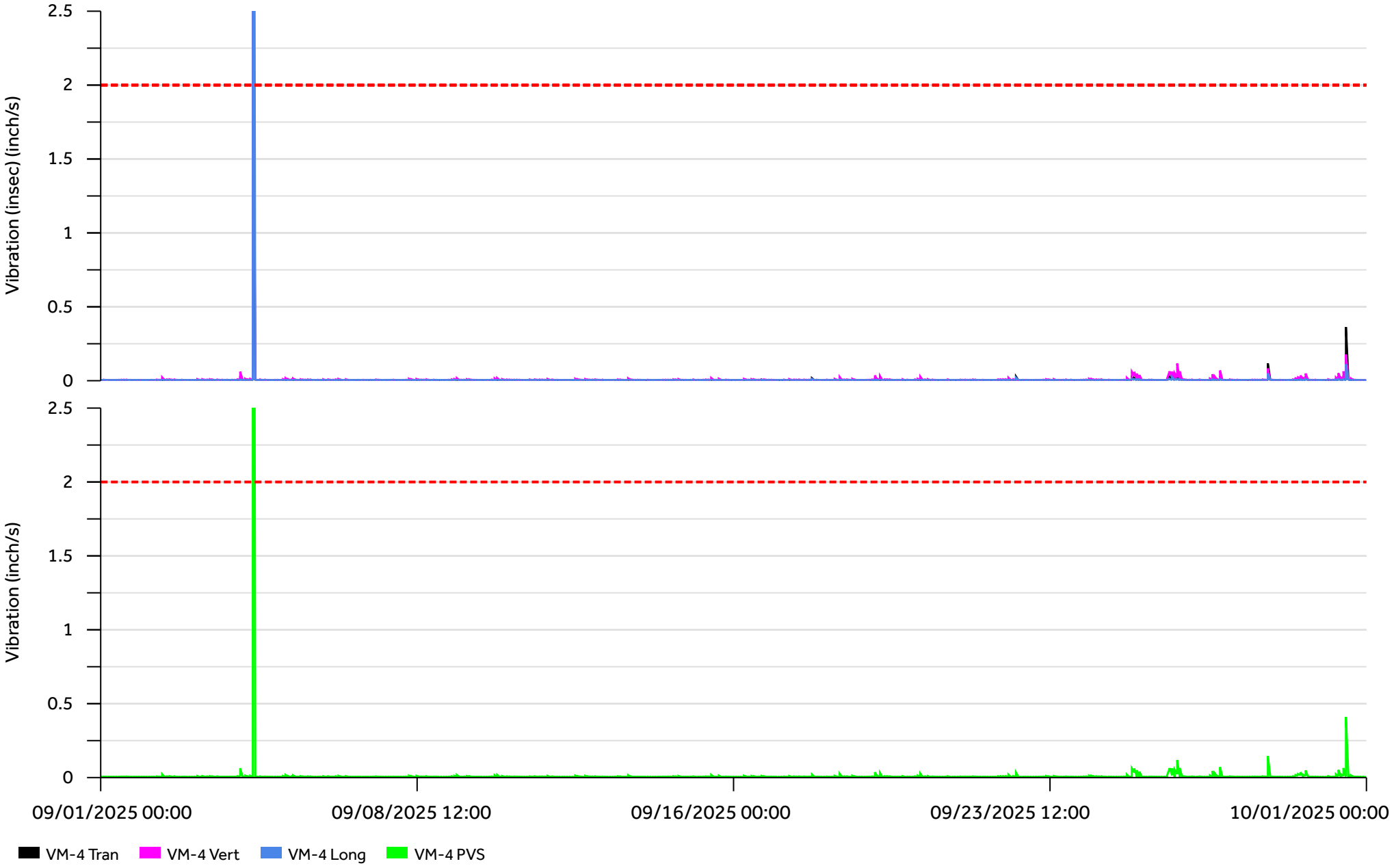
Graph 3

VM-3- Vibration Monitor



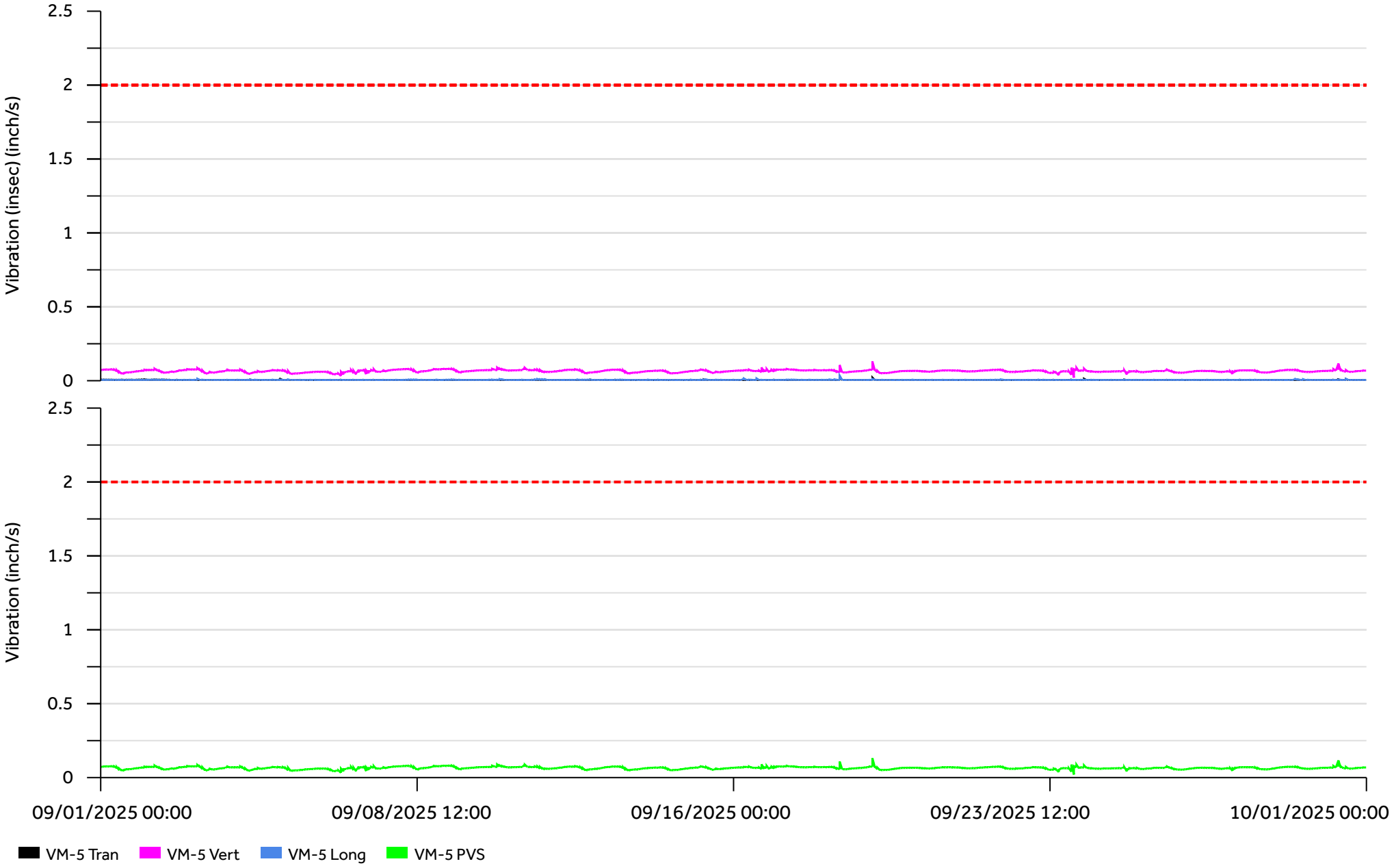
Graph 4

VM-4- Vibration Monitor



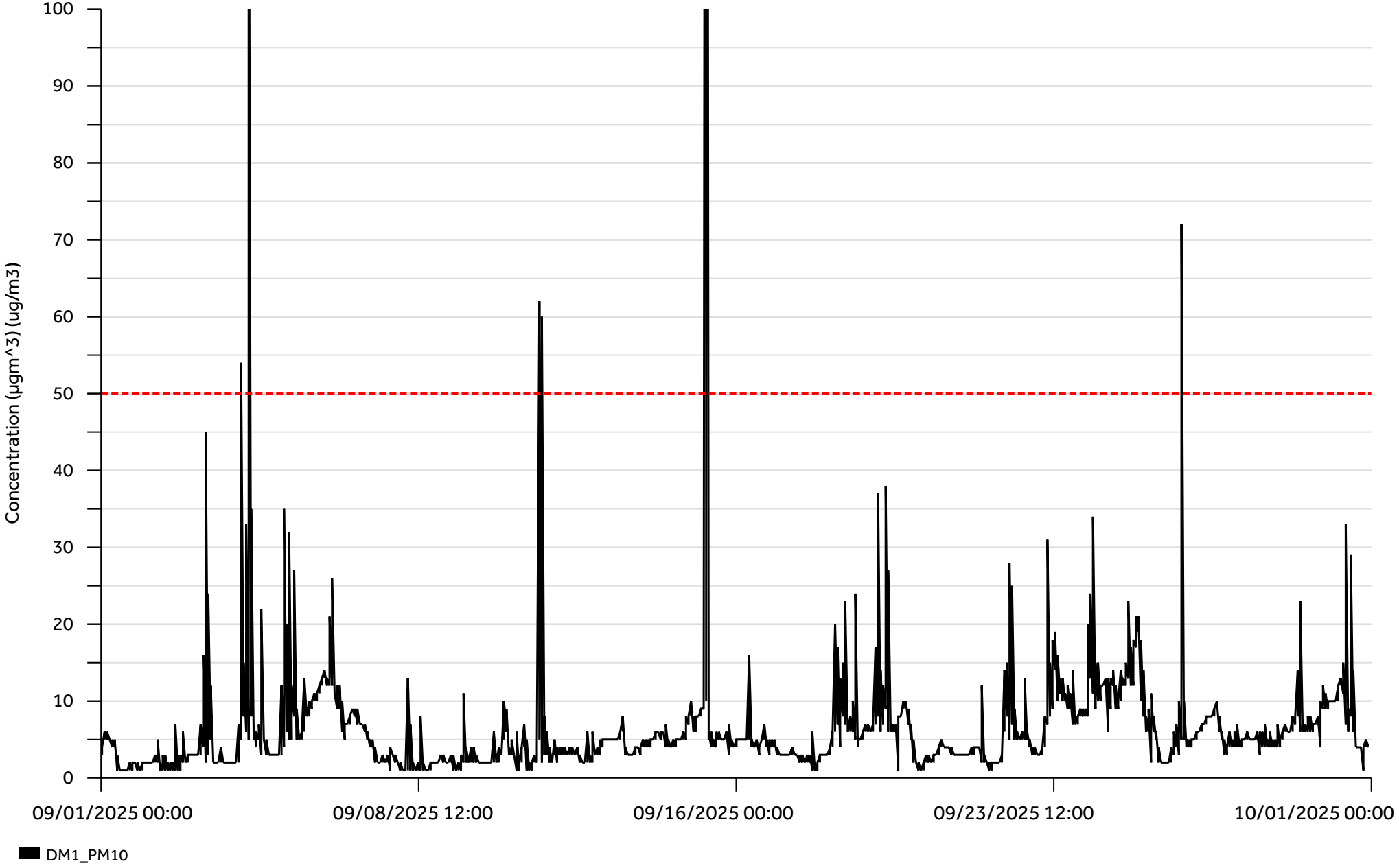
Graph 5

VM-5- Vibration Monitor



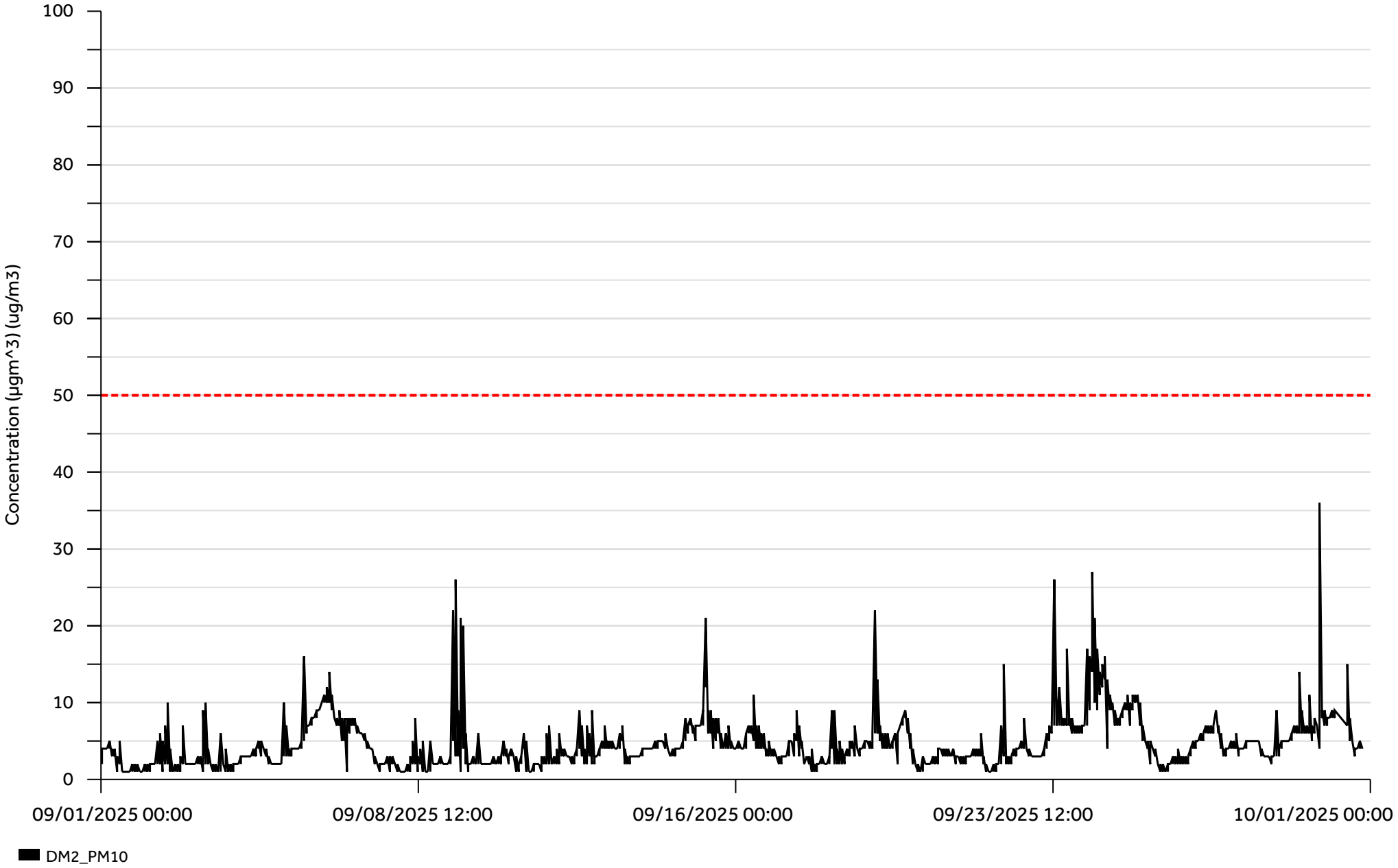
Graph 6

DM1 - PM10



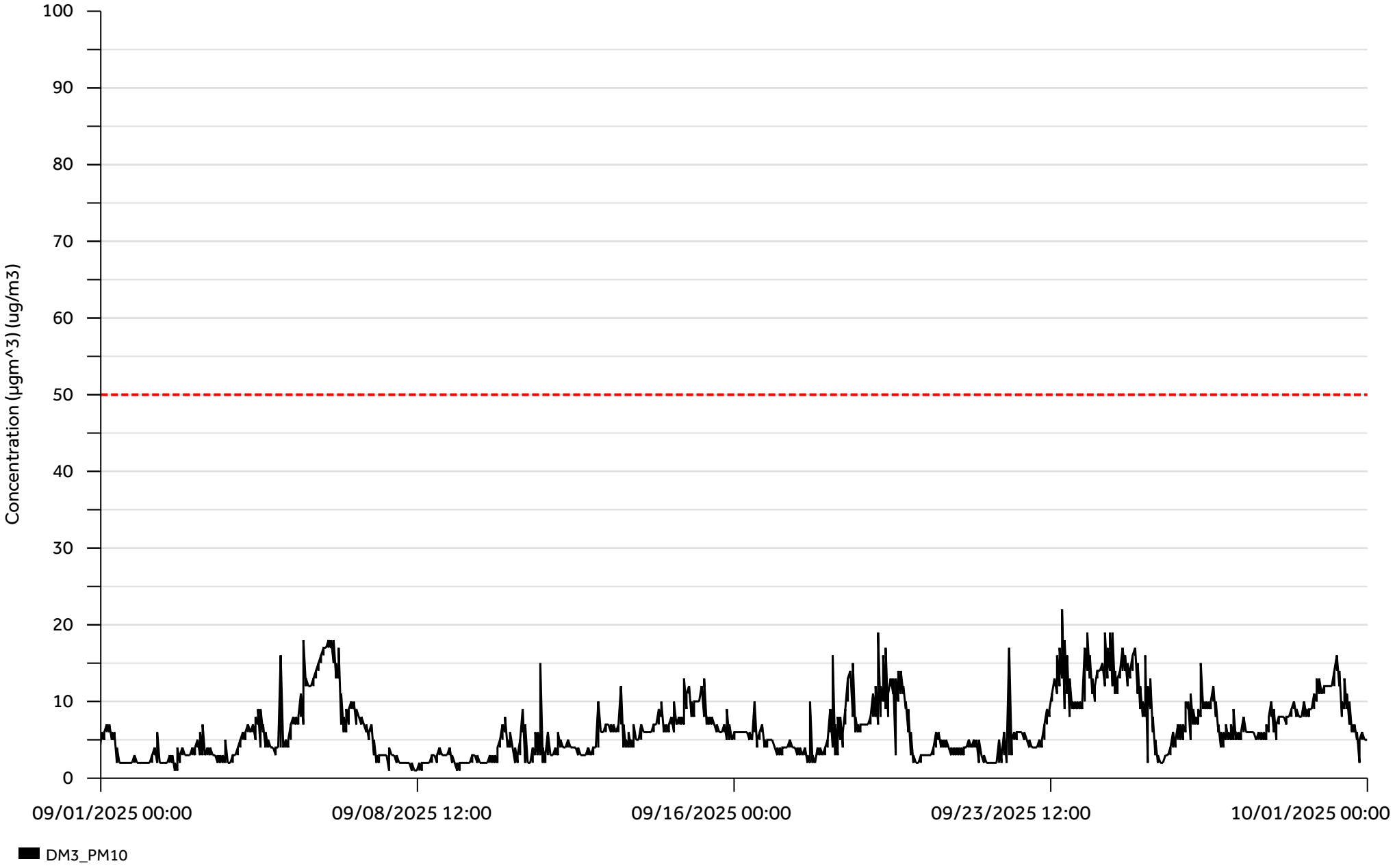
Graph 7

DM2-PM10

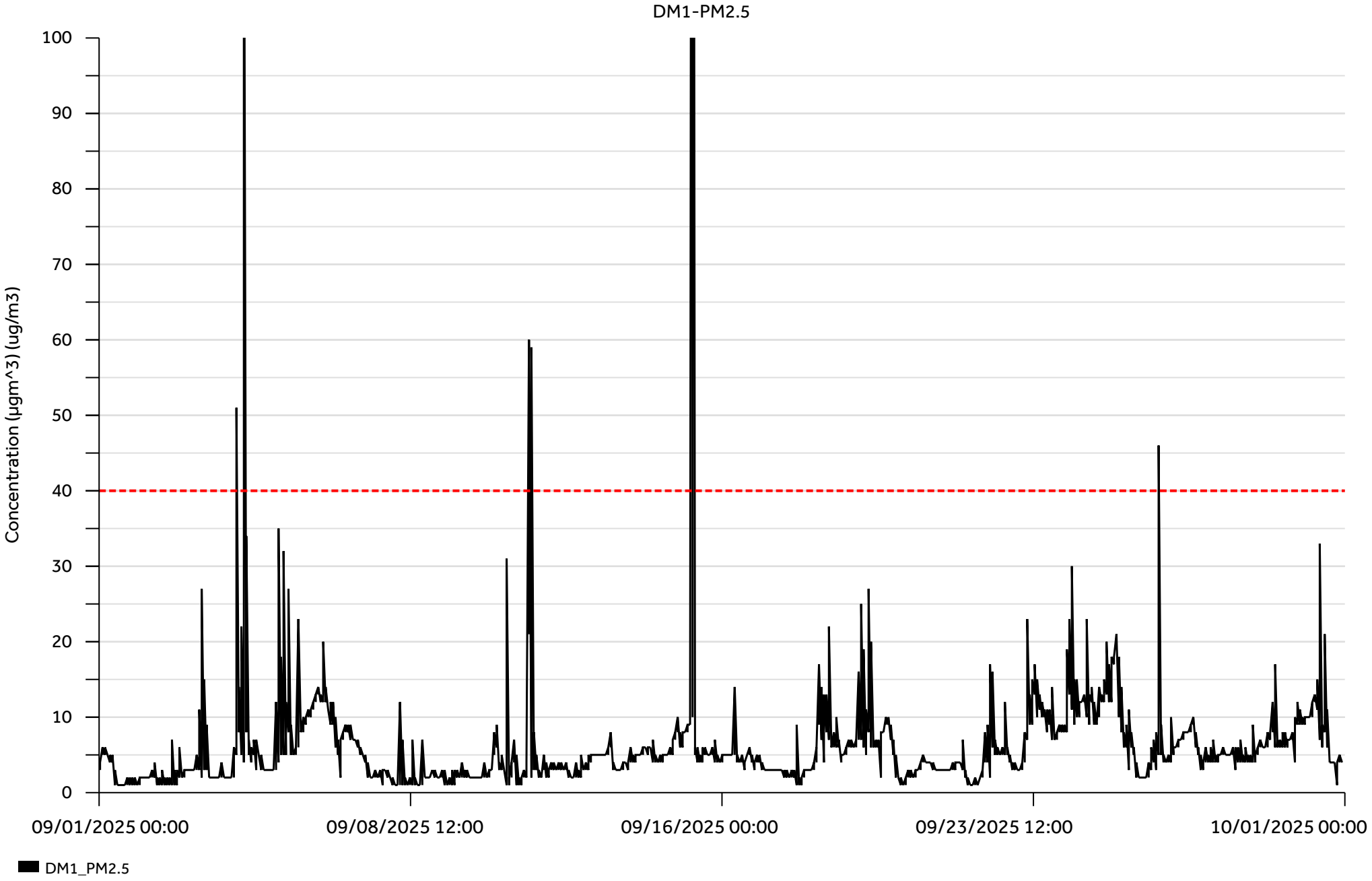


Graph 8

DM3-PM10

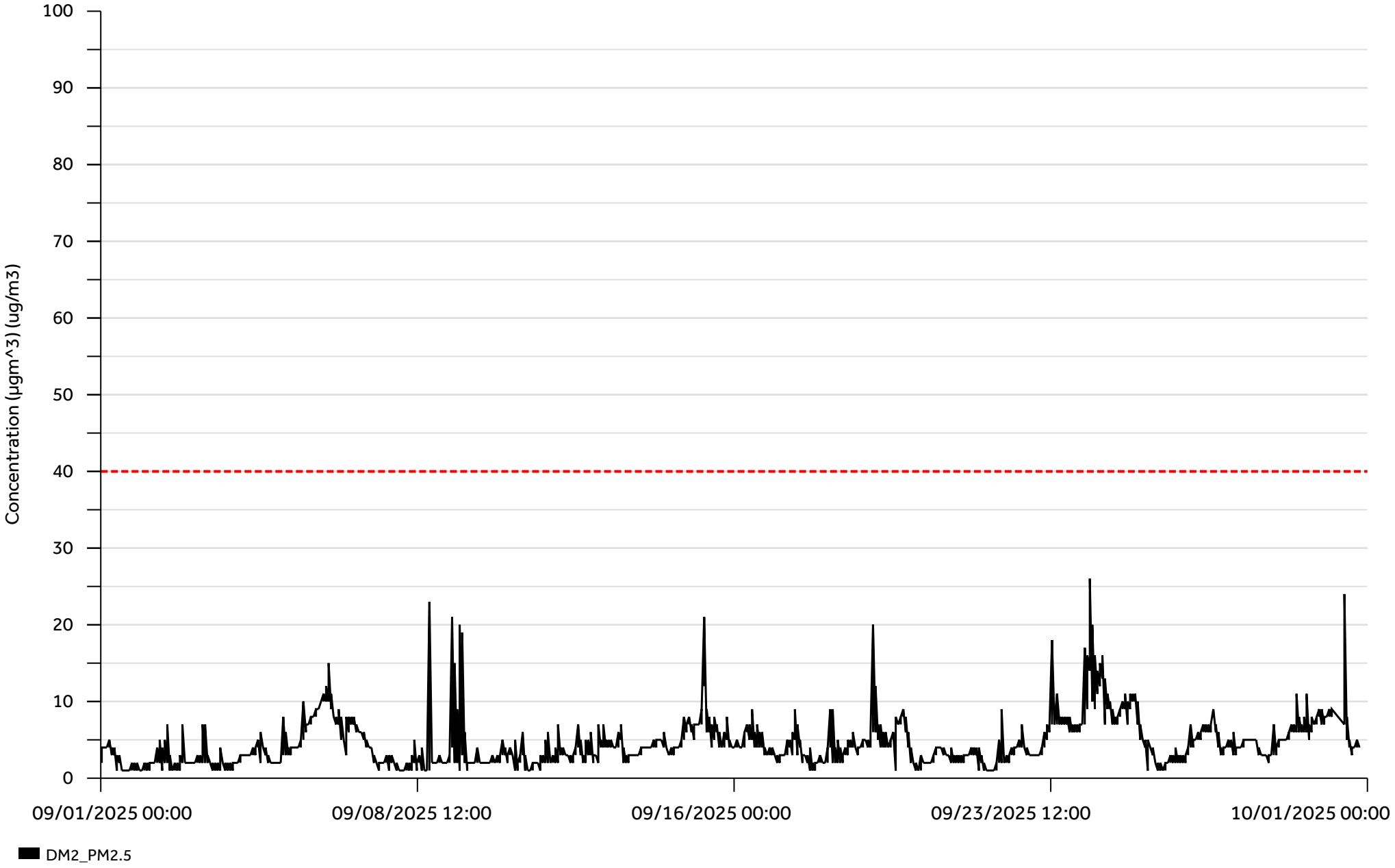


Graph 9


DM1-PM2.5
Concentration (µgm^3) (ug/m3)
100
90
80
70
60
50
40
30
20
10
0
09/01/2025 00:00
09/08/2025 12:00
09/16/2025 00:00
09/23/2025 12:00
10/01/2025 00:00
DM1_PM2.5

Graph 10

DM2-PM2.5



Graph 11

DM3-PM2.5