Richard Crookes Constructions

The Art Gallery of NSW
Sydney Modern Development

Noise and Vibration Monitoring Results
Report May 2022

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1 Introduction

White Noise Acoustics has been engaged to undertake long term noise and vibration monitoring on the Sydney Modern development associated with the Art Gallery of NSW and development.

Monitoring at the site includes potential noise vibration levels generated from construction works conducted as part of Sydney Modern development associated with the Art Gallery of NSW and develop at a number of locations on the site including two noise and four vibration monitors.

Monitoring commenced at the site from the 11th December 2019.
Additional monitoring was installed as part of the landscaping works to the entry of the art gallery on the 24th September 2021.

This report includes the results for noise and vibration logging for the month of May 2022.

2 Development Description

The proposed development includes the demolition of existing buildings on the site, excavation of basement in ground works such that the future Sydney Modern project can be constructed. The site is located within the Art Gallery of NSW site and is located to the north of the existing gallery, partly extending over the Eastern Distributor land bridge and includes a disused Navy fuel bunker located to the northeast of this land bridge.

The site location and indicative location of monitors is detailed in the Figure below.

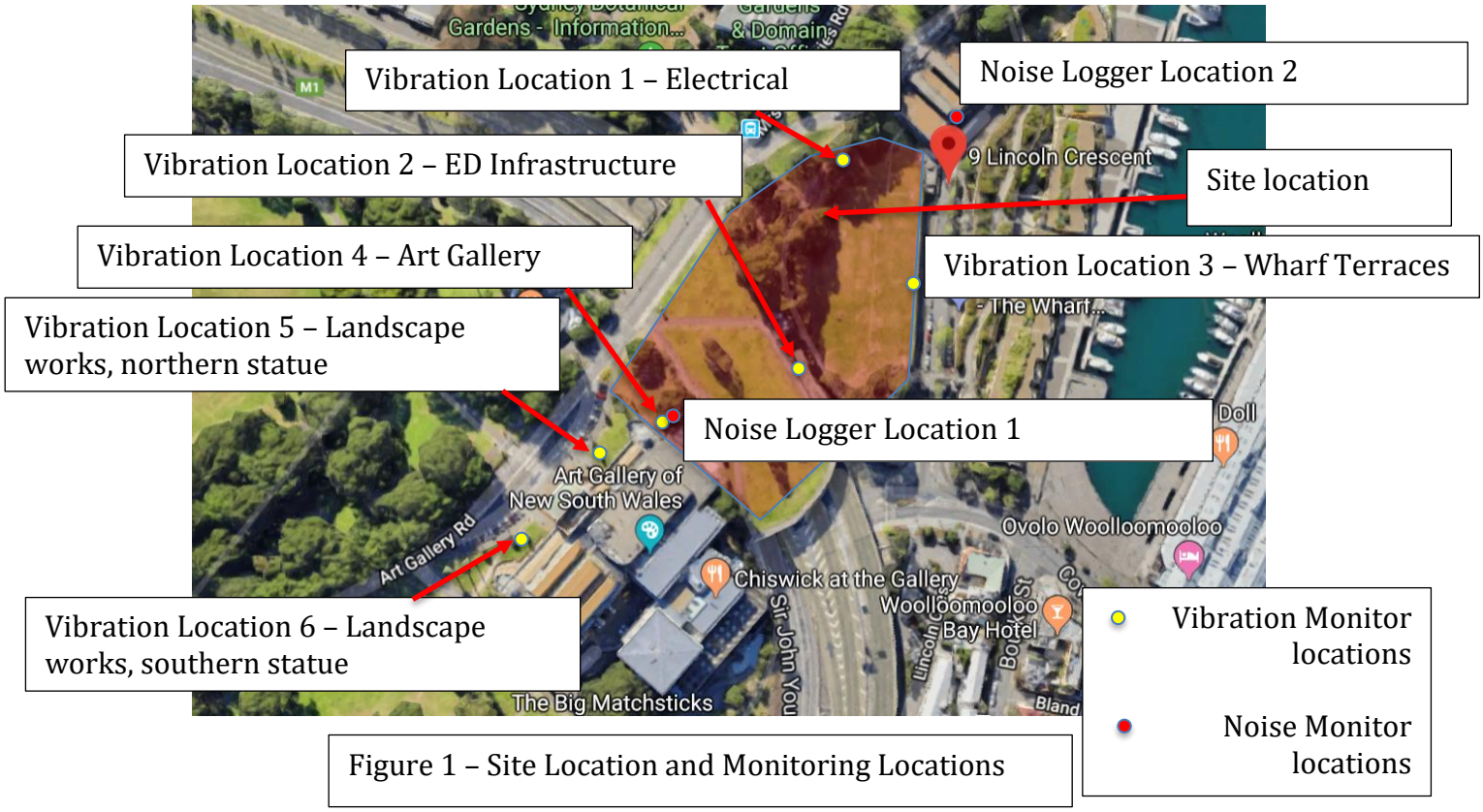


Figure 1 – Site Location and Monitoring Locations

3 Vibration Monitor Locations

Four vibration monitors have been installed on the site as to assess vibrations from building works. Vibration monitor locations include the following.

1. Location 1 - Monitor 7543 and 7547 – Electrical infrastructure representative location:
    a. Trigger 4 mm/s
    b. Alert 6 mm/s

2. Location 2 - Monitor 7542 – ED infrastructure
    a. Trigger 7mm/s
    b. Alert 15 mm/s

3. Location 3 - Monitor 7541 – Wharf Terraces
    a. Trigger 3 mm/s
    b. Alert 4 mm/s

4. Location 4 - Monitor 7517 and 7531 - Art gallery
    a. Trigger 1.5 mm/s
    b. Alert 2 mm/s

The additional monitors included as part of the landscaping works includes the following:

5. Location 5 – Omnidot Monitor – Entry – Northern Statue
    a. Trigger 1.0 mm/s
    b. Alert 2 mm/s

6. Location 6 - Omnidot Monitor – Entry – Southern Statue
    a. Trigger 1.0 mm/s
    b. Alert 2 mm/s

3.1 Project Requirements

This section of the report details the assessment of construction vibration impacts on surrounding receivers.

Effects of ground borne vibration on buildings may be segregated into the following three categories:

- Effects on building contents – where vibration can cause damage to fixtures, fittings and other non-building related objects.
- Effects on building structures – where vibration can compromise the integrity of the building or structure itself.

3.1.1 Vibration Criteria – Building Contents and Structure

The vibration effects on the building itself are assessed against international standards as follows:

- For transient vibration: British Standard BS 7385: Part 2-1993 "Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration" (BSI 1993); and
- For continuous or repetitive vibration: German DIN 4150: Part 3 – 1999 "Effects of Vibration on Structure" (DIN 1999).

3.1.1.1 Standard BS 7385 Part 2 - 1993

For transient vibration, as discussed in standard BS 7385 Part 2-1993, the criteria are based on peak particle velocity (mm/s) which is to be measured at the base of the building. These are summarised in Table 1 and illustrated in the Figure below.

Table 1 Transient vibration criteria as per standard BS 7385 Part 2 - 1993

Line in Figure below	Type of Building	Peak Component Particle Velocity in Frequency Range of Predominant Pulse	
		4 Hz to 15 Hz	15 Hz and Above
1	Reinforced or framed structures Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	
2	Unreinforced or light framed structures Residential or light commercial type buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

Standard BS 7385 Part 2 – 1993 states that the values in Table 1 relate to transient vibration which does not cause resonant responses in buildings. Where the dynamic loading caused by continuous vibration events is such as that results in dynamic magnification due to resonance (especially at the lower frequencies where lower guide values apply), then the values in Table 1 need to be reduced by up to 50% (refer to Line 3 in the Figure below).

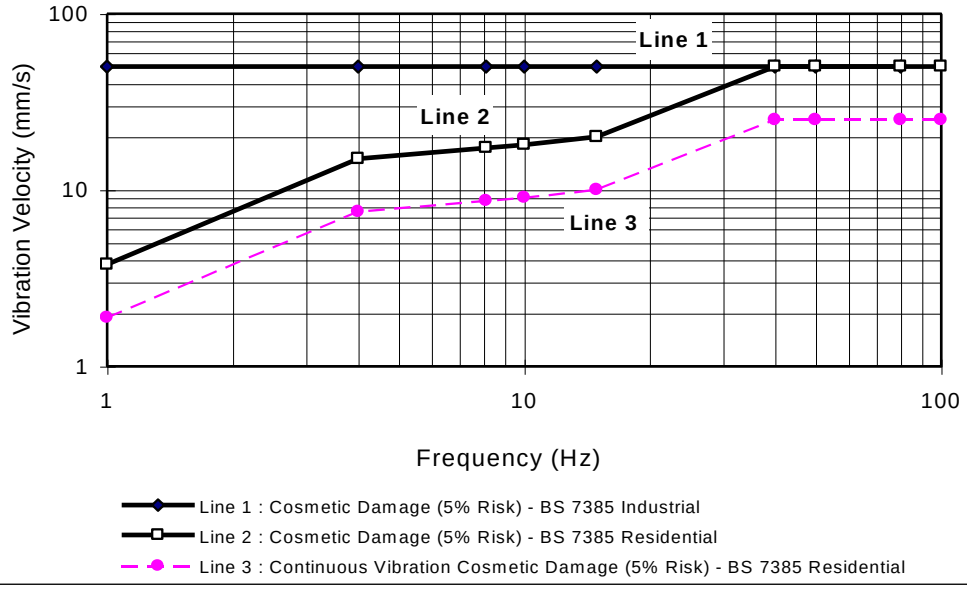


Figure 10 - BS 7385 Part 2 – 1993, graph of transient vibration values for cosmetic damage

In the lower frequency region where strains associated with a given vibration velocity magnitude are higher, the recommended values corresponding to Line 2 are reduced. Below a frequency of 4 Hz where a high displacement is associated with the relatively low peak component particle velocity value, a maximum displacement of 0.6 mm (zero to peak) is recommended. This displacement is equivalent to a vibration velocity of 3.7 mm/s at 1 Hz.

The standard also states that minor damage is possible at vibration magnitudes which are greater than twice those given in Table 1, and major damage to a building structure may occur at values greater than four times the tabulated values.

Fatigue considerations are also addressed in the standard and it is concluded that unless calculation indicates that the magnitude and number of load reversals is significant (in respect of the fatigue life of building materials) then the values in Table 1 should not be reduced for fatigue considerations.

3.1.1.2 Standard DIN 4150 Part 3 - 1999

For continuous or repetitive vibration, standard DIN 4150 Part 3-1999 provides criteria based on values for peak particle velocity (mm/s) measured at the foundation of the building; these are summarised in Table 2. The criteria are frequency dependent and specific to particular categories of structures.

Table 2 Structural damage criteria as per standard DIN 4150 Part 3 - 1999

Type of Structure	Peak Component Particle Velocity, mm/s			
	Vibration at the foundation at a frequency of			Vibration of horizontal plane of highest floor at all frequencies
	1 Hz to 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz[1]	
Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40
Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15
Structures that, because of their sensitivity to vibration, do not correspond to those listed in lines 1 and 2 and are of great intrinsic value (e.g. buildings that are under a preservation order)	3	3 to 8	8 to 10	8
Note 1: For frequencies above 100Hz, at least the values specified in this column shall be applied.				

3.2 Summary of Project Vibration Criteria

The existing buildings which neighbour the project site are detailed below:

1. North – Electrical infrastructure building.
2. East – residential buildings including Wharf Terraces.
3. West – Existing Art Gallery of NSW.
4. Heritage storage tanks on the site.
5. The Eastern Distributor road infrastructure.

Based on the details of the vibration criteria detailed in the sections above and the Coffey *Geotechnical Excavation Monitoring Plan* the recommended construction vibration impact criteria to protect the neighbouring receivers to the site includes the following:

1. Electrical infrastructure building - 7mm/s or specific criteria provided by the Ausgrid.
2. Residential Receivers (Wharf residence) – 5mm/s.
3. Eastern Distributor road infrastructure - 15mm/s.
4. Existing Art Gallery Buildings – 2.5mm/s.
5. Heritage storage tanks – 5mm/s

As part of the additional works with the landscaping the criteria for the protection of the art gallery and statues includes the following:

1. Existing Art Gallery Buildings and statues – 2.5mm/s.

4 Noise Monitor Locations

Two noise monitoring locations have been used for the assessment of noise generated from the construction of the project. These locations include the following:

1. To the north east – A noise logger has been installed in the external roof of the neighbouring electrical infrastructure building. This location has been use to assess noise from the site to the Wharf Terraces residential building located to the east of the site. The logger is located at a representative location to works being conducted on the site.

2. To the south of the site – This logger is located to the south of the site to monitor noise impacts on the Art Gallery and the open public space of the Domain.

The location of the noise logger is detailed in Figure 1 of this report.

4.1 Construction Noise Objectives

This section of the report details the relevant construction noise criteria which is applicable to the site including the EPA's *Interim Construction Noise Guideline* (ICNG) and the projects Conditions of Consent.

A detailed construction noise assessment is detailed within the projects *Construction Noise and Vibration Management Plan.*

4.1.1 Interim Construction Noise Guideline

Noise criteria for construction and demolition activities are discussed in the *Interim Construction Noise Guideline* (ICNG). The ICNG also recommends procedures to address potential impacts of construction noise on residences and other sensitive land uses. The main objectives of the ICNG are summarised as follows:

- Promote a clear understanding of ways to identify and minimise noise from construction works;
- Focus on applying all "feasible" and "reasonable" work practices to minimise construction noise impacts;
- Encourage construction to be undertaken only during the recommended standard hours unless approval is given for works that cannot be undertaken during these hours;
- Streamline the assessment and approval stages and reduce time spent dealing with complaints at the project implementation stage; and
- Provide flexibility in selecting site-specific feasible and reasonable work practices in order to minimise noise impacts.

The ICNG contains a quantitative assessment method which is applicable to this project. Guidance levels are given for airborne noise at residences and other sensitive land uses.

The quantitative assessment method involves predicting noise levels at sensitive receivers and comparing them with the Noise Management Levels (NMLs). The NML affectation categories for receivers have been reproduced from the guideline and are listed in the table below.

Table 3 – Noise Management Levels from Construction – Quantitative Assessment

Receiver Type	Time of Day	Noise Management Level LAeq(15minute)[1,2]	How to Apply
Residential	Recommended standard hours: Monday to Friday 7 am to 6 pm Saturday 8 am to 3.30 pm No work on Sundays or public holidays	Noise affected RBL + 10 dB	The noise affected level represents the point above which there may be some community reaction to noise. • Where the predicted or measured LAeq(15minute) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. • The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
		Highly noise affected 75 dBA	The highly noise affected level represents the point above which there may be strong community reaction to noise. • Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: 1. Times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences. 2. If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
	Outside recommended standard hours	Noise affected RBL + 5 dB	• A strong justification would typically be required for works outside the recommended standard hours. • The proponent should apply all feasible and reasonable work practices to meet the noise affected level. • Where all feasible and reasonable practices have been applied and noise is more than 5 dB above the noise affected level, the proponent should negotiate with the community.

Table 3 – Continued

Receiver Type	Time of Day	Noise Management Level LAeq(15minute)1,2	How to Apply
Office, retail outlets	When is use	Highly noise affected 70 dBA	The external noise levels should be assessed at the most-affected occupied point of the premises

Note 1 *Noise levels apply at the property boundary that is most exposed to construction noise, and at a height of 1.5 m above ground level. If the property boundary is more than 30 m from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30 m of the residence. Noise levels may be higher at upper floors of the noise affected residence.*

Note 2 *The RBL is the overall single-figure background noise level measured in each relevant assessment period (during or outside the recommended standard hours). The term RBL is described in detail in the NSW Industrial Noise Policy (EPA 2000).*

Based on the table above the suitable construction noise management levels for works undertaken on the site is detailed in the table below.

Table 4 – Site Construction Noise Management Levels

Noise Source	Time Period	Receiver Type	Construction Noise Management Level	'High Noise Affected' Level
Construction Noise	Recommended standard hours: Monday to Friday 7 am to 6 pm Saturday 8 am to 3.30pm No work on Sundays or public holidays	Residence to the south of the site	59 dB(A) LAeq (15min)	75 dB(A) LAeq (15min)
		Commercial Receivers	59 dB(A) LAeq (15min) When in use	70 dB(A) LAeq (15min) When in use

Note 1: Construction noise management levels based on the Interim Construction Noise Guideline

4.2 Noise Monitoring Results

Noise monitoring has been undertaken for this period which includes the month of May 2022 and is ongoing at the site.

The results of vibration monitoring are included in Appendix F and G.

During the monitoring period of May the recoded noise levels are summarised below:

1. Noise Logger location 1 – Art Gallery – Noise levels were generally within the maximum affected noise levels to the adjacent receivers. Works undertaken on the site includes noise mitigation controls as detailed by the projects Construction Noise and Vibration Management Plan.
2. Noise Logger location 2 – Wharf Terraces– Noise levels were generally within the maximum affected noise levels to the adjacent receivers. Works undertaken on the site includes noise mitigation controls as detailed by the projects Construction Noise and Vibration Management Plan.

5 Vibration Monitoring

This section of the report details the results of noise and vibration monitoring undertaken at the site.

The vibration loggers include Texcel, ETM type vibration loggers with external Geophones which are continuously operational. The equipment includes operational conditions including the following:

1. The loggers include a trigger level. All vibration events above the trigger level are recorded.
2. The vibration loggers are set to recode vibration levels of 0.05 mm/s and above.
3. In the event a vibration of greater than 0.05 mm/s is recorded by the equipment then data is captured at this time, including:
    a. Magnitude of vibration, including component peaks and compliance level as a vector sum.
    b. Temperature
    c. Battery charge/power
4. For periods when vibration is not above 0.05 mm/s events are not recorded.
5. The results of the vector sum vibration magnitudes are included in this reporting.

The vibration loggers installed to the art gallery entry areas as part of the landscaping working include Omnidot vibration monitors with a internal geophones/accelerometers which are continuously operational. The equipment includes operational conditions including the following:

1. The loggers include a trigger level. All vibration events above the trigger level are recorded.
2. The vibration loggers are set to recode events detailed in Section 3 above.
3. Magnitude of vibration, including component peaks and compliance level as a vector sum.
4. Battery charge/power
5. For periods when vibration is not above 1.00 mm/s events are not recorded.
6. The results of the vector sum vibration magnitudes are included in this reporting.

5.1 Vibration Monitoring Results

Vibration monitoring has been undertaken on the site from the 11th December 2019 and is ongoing for the initial 4 vibration monitors.

The additional vibration logging undertaken as part of the landscape works commenced on the 24th September 2021 and is ongoing.

The results of vibration monitoring for the month of May 2022 are presented in this report, detailed results are included in Appendix B to E for the vibration monitoring undertaken as part of the main works and Appendix H and I for the landscaping works.

During the testing period vibration levels which triggered an event to be investigated included the following:

Table 5 – Summary of Vibration Events

Logger Location	Logger Number	Time and date	Event Magnitude	Alert and Alarm Level	Comments
Electrical Infrastructure	7547	3/5/2022	Up to 15 mm/s	6mm/s 7mm/s	Event associated with works within close proximity to the geophone
		9/5/2022	Up to 25 mm/s		
		13/5/2022	Up to 34.5 mm/s		
Eastern Distributor	7542	-	-	8mm/s 15mm/s	No events recorded above alarm level during period
Wharf Terraces Externally	7541	-	-	4mm/s 5mm/s	No events recorded above alarm level during period
Art Gallery	7531	5/5/2022	Up to 15mm/s	2 mm/s 2.5 mm/s	Events resulting from soft ground works within the vicinity of the monitor. Activities to me managed to minimize vibration
		11/5/2022	Up to 79 mm/s		Event associated with monitor maintenance
Landscaping Works – Northern Statue	Omnidot – XOVITE	5/5/202	Up to 38 mm/s	2 mm/s 2.5 mm/s	Events resulting from maintenance to the hoarding of the statue
Landscaping Works – Southern Statue	Omnidot – XOVITE	17/5/2022	Up to 18.5 mm/s	2 mm/s 2.5 mm/s	Events resulting from weather event.
		23/5/2022	Up to 5.5 mm/s		Events resulting from soft ground works within the vicinity of the monitor. Activities to me managed to minimize vibration

Based on the results of the vibration logging vibration generated from the construction activities undertaken on the Sydney modern Project site were below project alarm vibration requirements at all monitoring stations associated with construction activities or events recorded have been investigated as required by the projects construction noise and vibration management plan.

During the monitoring period loggers 7517 and 7543 have been replaced with loggers 7531 and 7547 such that the logger can be calibrated based on the requirements for the equipment to be within 2 years of calibration.

6 Conclusion

This report details the construction noise and vibration monitoring being undertaken at the Sydney Modern development associated with the Art Gallery of NSW and development.

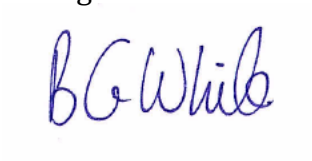
Monitoring commenced on site from the 11th December 2019 and is ongoing for the main works.

Additional vibration monitoring associated with the works undertaken as part of the landscaping at the entry of the Art Gallery were installed on the 24th September 2021 and are ongoing.

The results of monitoring included within this report include the month of May 2022.

For any additional information please do not hesitate to contact the person below.

Regards



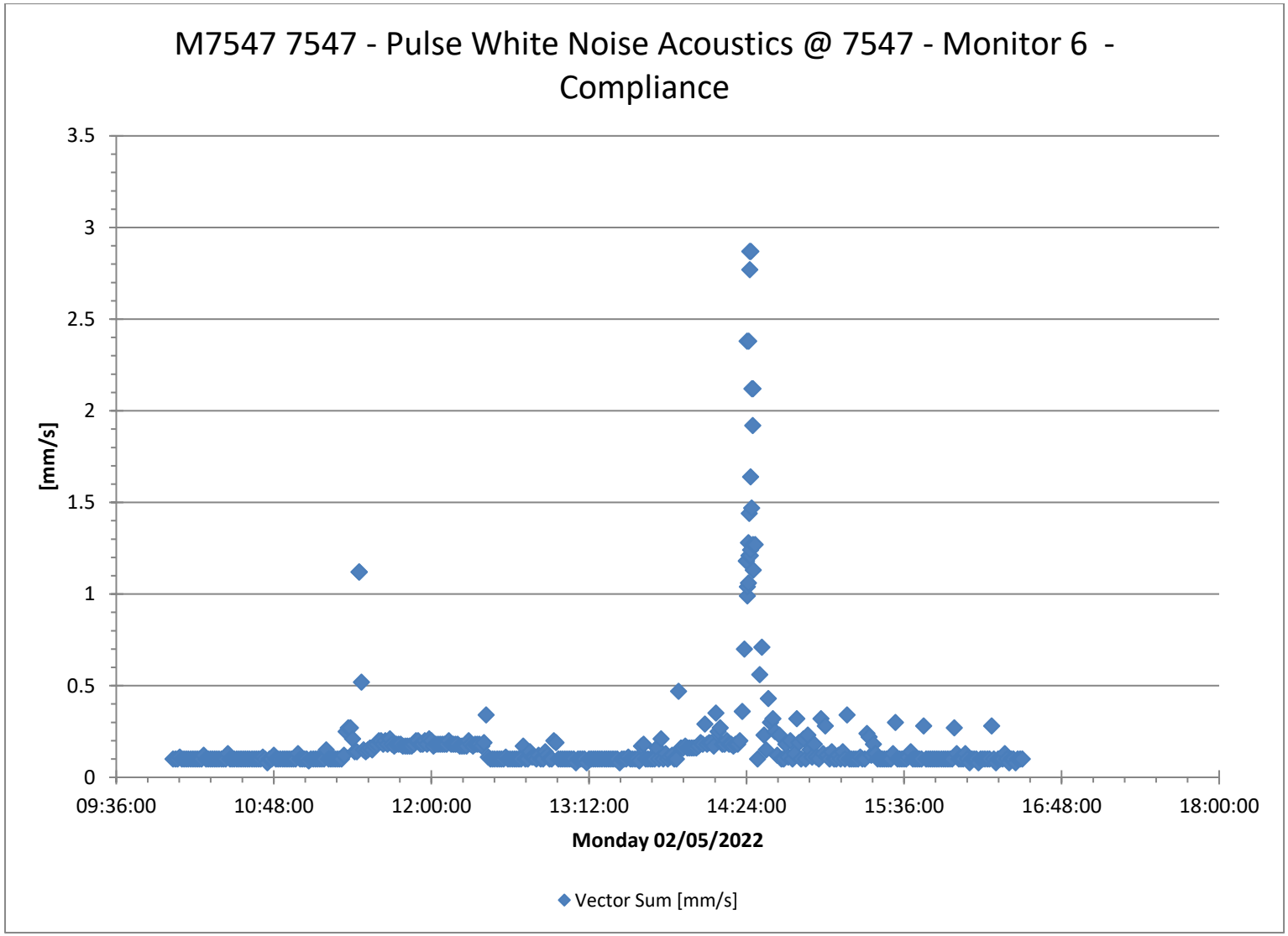
Ben White
Director
White Noise Acoustics

7 Appendix A – Glossary of Terms

Ambient Sound	The totally encompassing sound in a given situation at a given time, usually composed of sound from all sources near and far.
Audible Range	The limits of frequency which are audible or heard as sound. The normal ear in young adults detects sound having frequencies in the region 20 Hz to 20 kHz, although it is possible for some people to detect frequencies outside these limits.
Character, acoustic	The total of the qualities making up the individuality of the noise. The pitch or shape of a sound's frequency content (spectrum) dictate a sound's character.
Decibel [dB]	The level of noise is measured objectively using a Sound Level Meter. The following are examples of the decibel readings of every day sounds; 0dB the faintest sound we can hear 30dB a quiet library or in a quiet location in the country 45dB typical office space. Ambience in the city at night 60dB Martin Place at lunch time 70dB the sound of a car passing on the street 80dB loud music played at home 90dB the sound of a truck passing on the street 100dB the sound of a rock band 115dB limit of sound permitted in industry 120dB deafening
dB(A)	*A-weighted decibels* The ear is not as effective in hearing low frequency sounds as it is hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter. The sound pressure level in dB(A) gives a close indication of the subjective loudness of the noise.
Frequency	Frequency is synonymous to *pitch*. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.
Loudness	A rise of 10 dB in sound level corresponds approximately to a doubling of subjective loudness. That is, a sound of 85 dB is twice as loud as a sound of 75 dB which is twice as loud as a sound of 65 dB and so on
L_{Max}	The maximum sound pressure level measured over a given period.
L_{Min}	The minimum sound pressure level measured over a given period.
L_1	The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.
L_{10}	The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.
L_{90}	The level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L_{90} noise level expressed in units of dB(A).
L_{eq}	The "equivalent noise level" is the summation of noise events and integrated over a selected period of time.
Background Sound Low	The average of the lowest levels of the sound levels measured in an affected area in the absence of noise from occupants and from unwanted, external ambient noise sources. Usually taken to mean the L_{A90} value
Ctr	A frequency adaptation term applied in accordance with the procedures described in ISO 717.
dB (A)	'A' Weighted overall sound pressure level
Noise Reduction	The difference in sound pressure level between any two areas. The term "noise reduction" does not specify any grade or performance quality unless accompanied by a specification of the units and conditions under which the units shall apply

NR Noise Rating	Single number evaluation of the background noise level. The NR level is normally around 5 to 6 dB below the “A” weighted noise level. The NR curve describes a spectrum of noise levels and is categorised by the level at 1000 Hz ie the NR 50 curve has a value of 50 dB at 1000 Hz. The NR rating is a tangential system where a noise spectrum is classified by the NR curve that just encompasses the entire noise spectrum consideration.
R_w	Weighted Sound Reduction Index - Laboratory test measurement procedure that provides a single number indication of the acoustic performance of a partition or single element. Calculation procedures for Rw are defined in ISO 140-2:1991 “Measurement of Sound Insulation in Buildings and of Building Elements Part 2: Determination, verification and application of precision data”.
R'_w	Field obtained Weighted Sound Reduction Index - this figure is generally up to 3-5 lower than the laboratory test determined level data due to flanked sound transmission and imperfect site construction.
Sound Isolation	A reference to the degree of acoustical separation between any two areas. Sound isolation may refer to sound transmission loss of a partition or to noise reduction from any unwanted noise source. The term “sound isolation” does not specify any grade or performance quality and requires the units to be specified for any contractual condition
Sound Pressure Level, L_P dB	A measurement obtained directly using a microphone and sound level meter. Sound pressure level varies with distance from a source and with changes to the measuring environment. Sound pressure level equals 20 times the logarithm to the base 10 of the ratio of the rms sound pressure to the reference sound pressure of 20 micro Pascals.
Sound Power Level, L_w dB	Sound power level is a measure of the sound energy emitted by a source, does not change with distance, and cannot be directly measured. Sound power level of a machine may vary depending on the actual operating load and is calculated from sound pressure level measurements with appropriate corrections for distance and/or environmental conditions. Sound power levels is equal to 10 times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power of 1 picoWatt
Speech Privacy	A non-technical term but one of common usage. Speech privacy and speech intelligibility are opposites and a high level of speech privacy means a low level of speech intelligibility. It should be recognised that acceptable levels of speech privacy do not require that speech from an adjacent room is inaudible.
Transmission Loss	Equivalent to Sound Transmission Loss and to Sound Reduction Index in terminology used in countries other than Australia. A formal test rating of sound transmission properties of any construction, by usually a wall, floor, roof etc. The transmission loss of all materials varies with frequency and may be determined by either laboratory or field tests. Australian Standards apply to test methods for both situations.

8 Appendix B – Logger Location 1 – Monitor 7543 and 7547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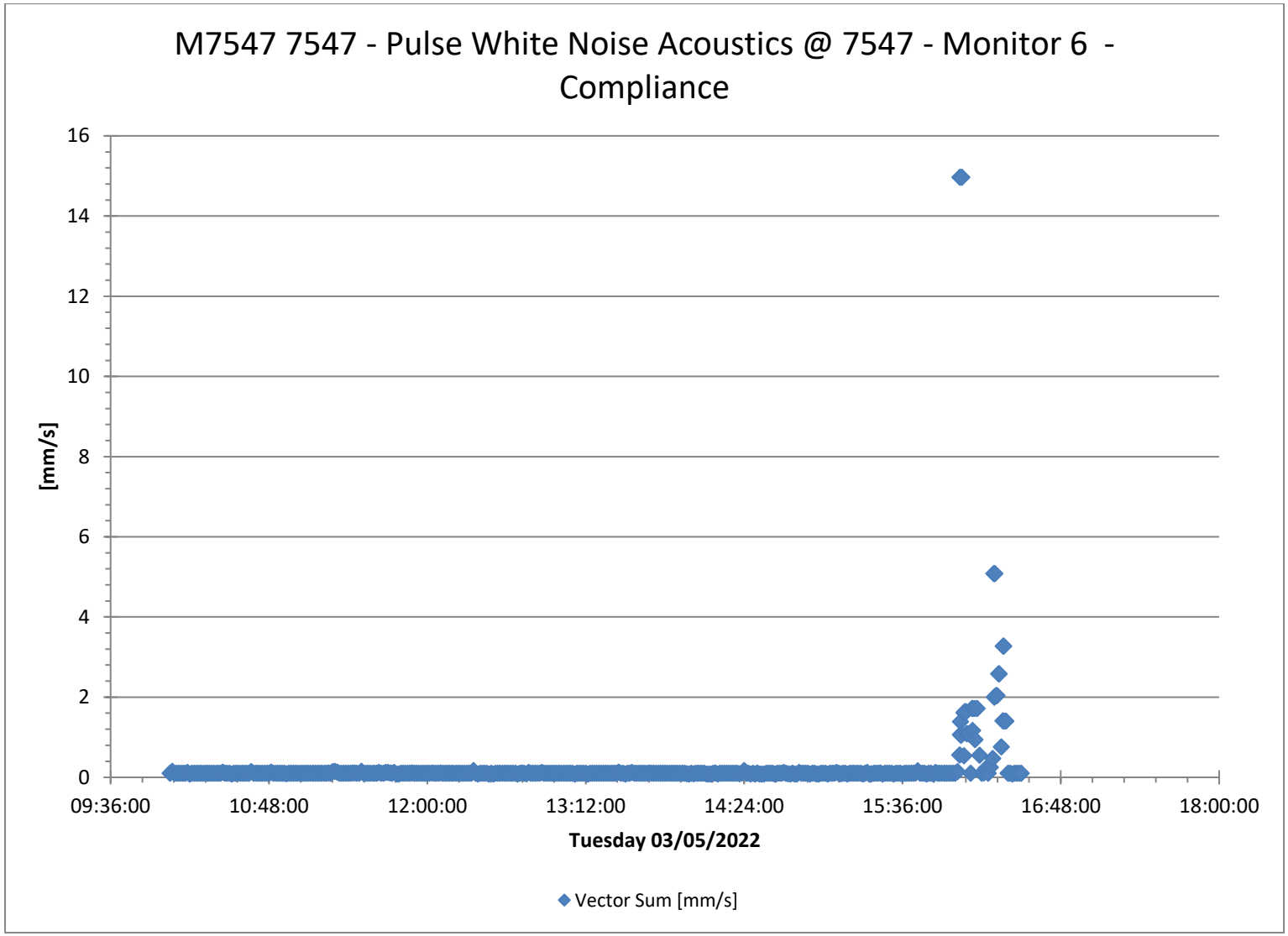
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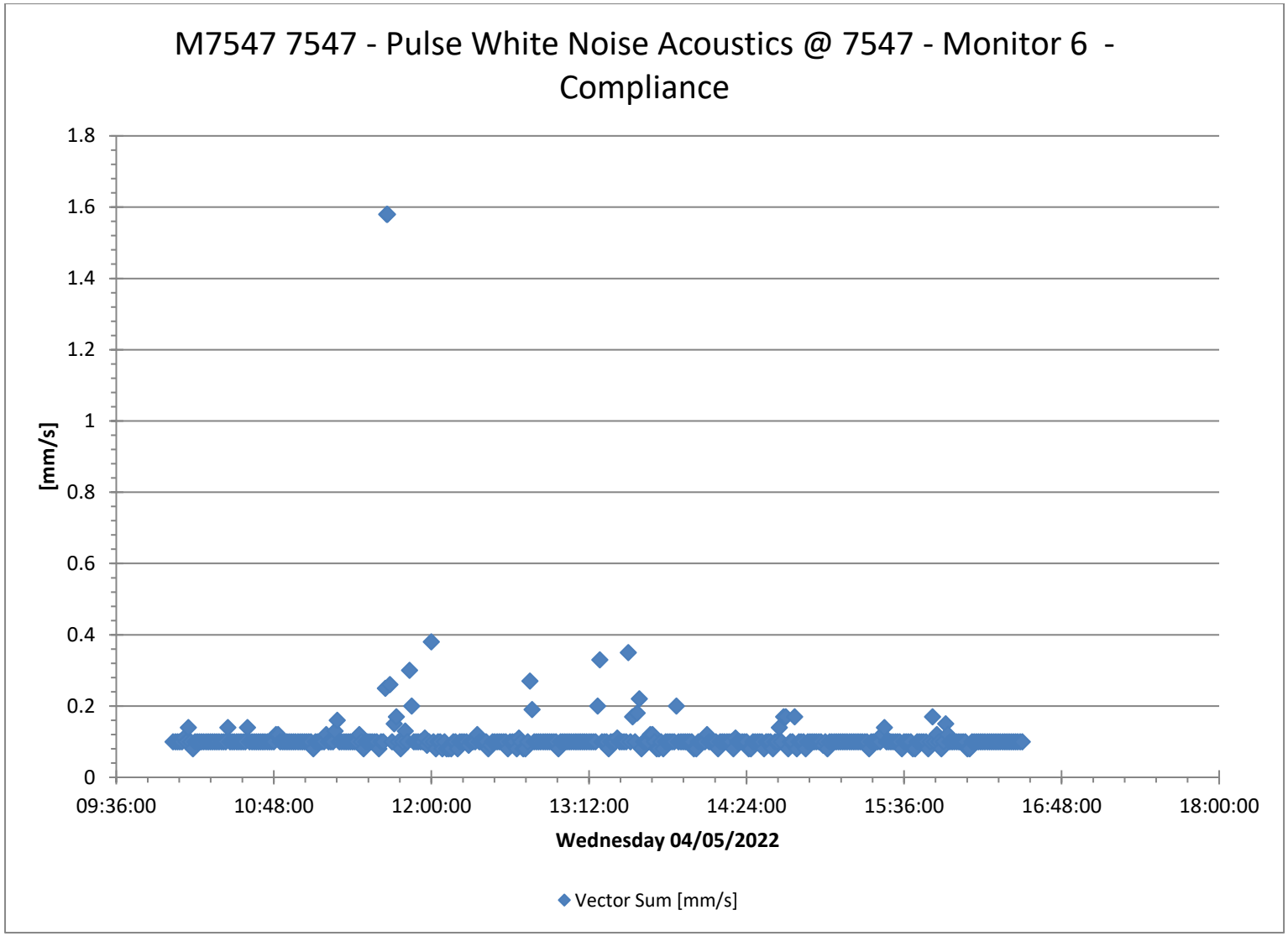
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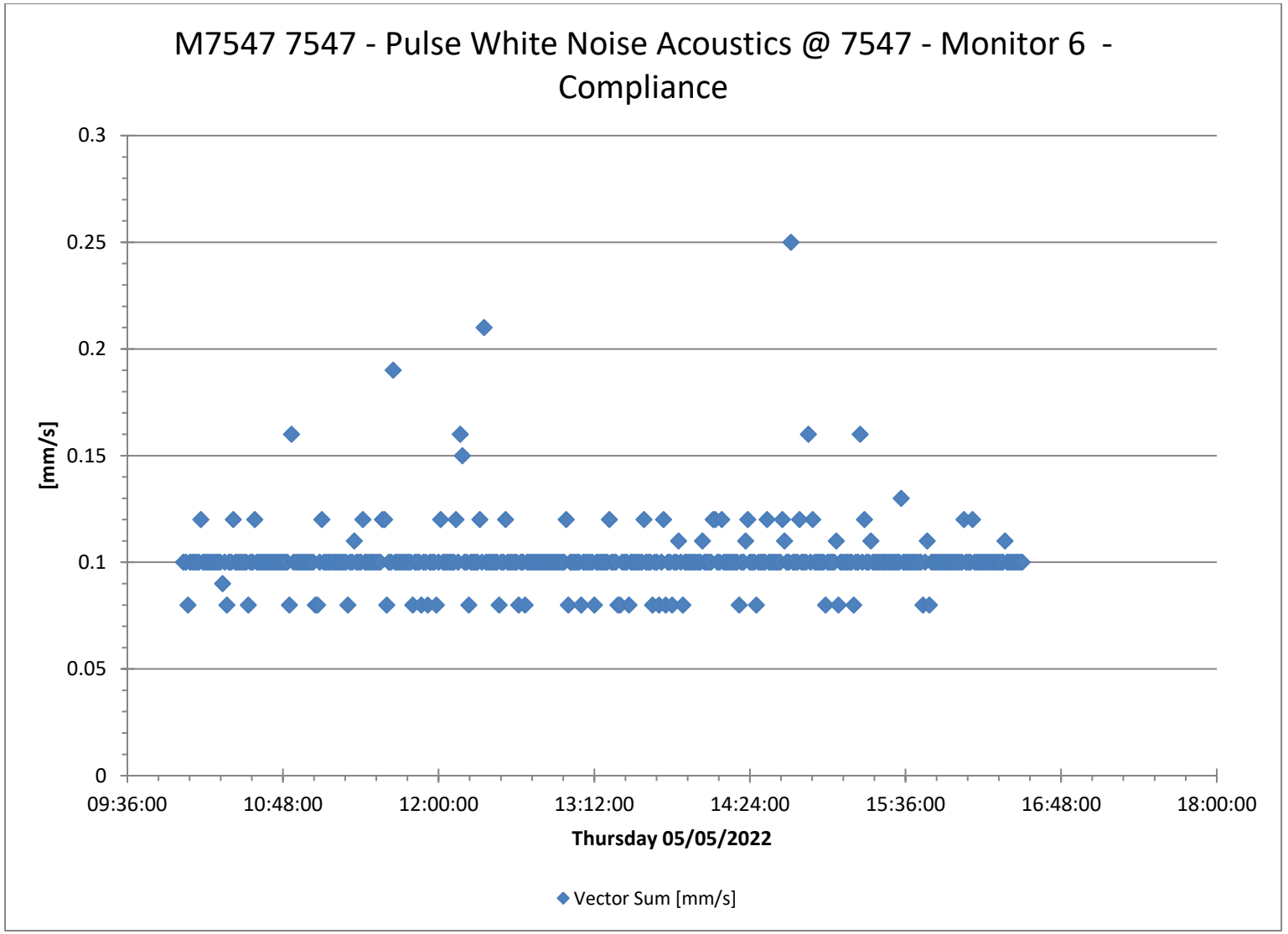
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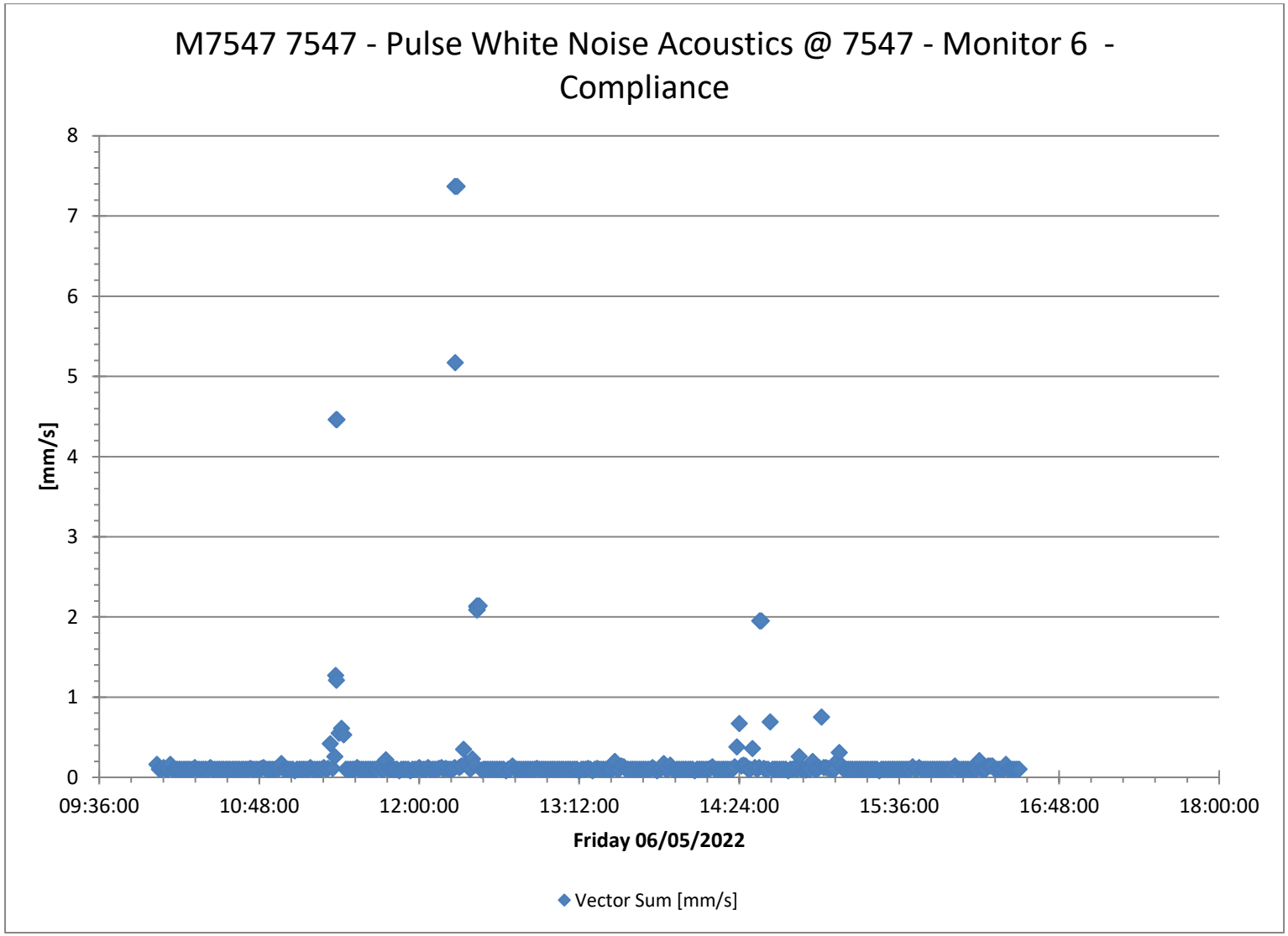
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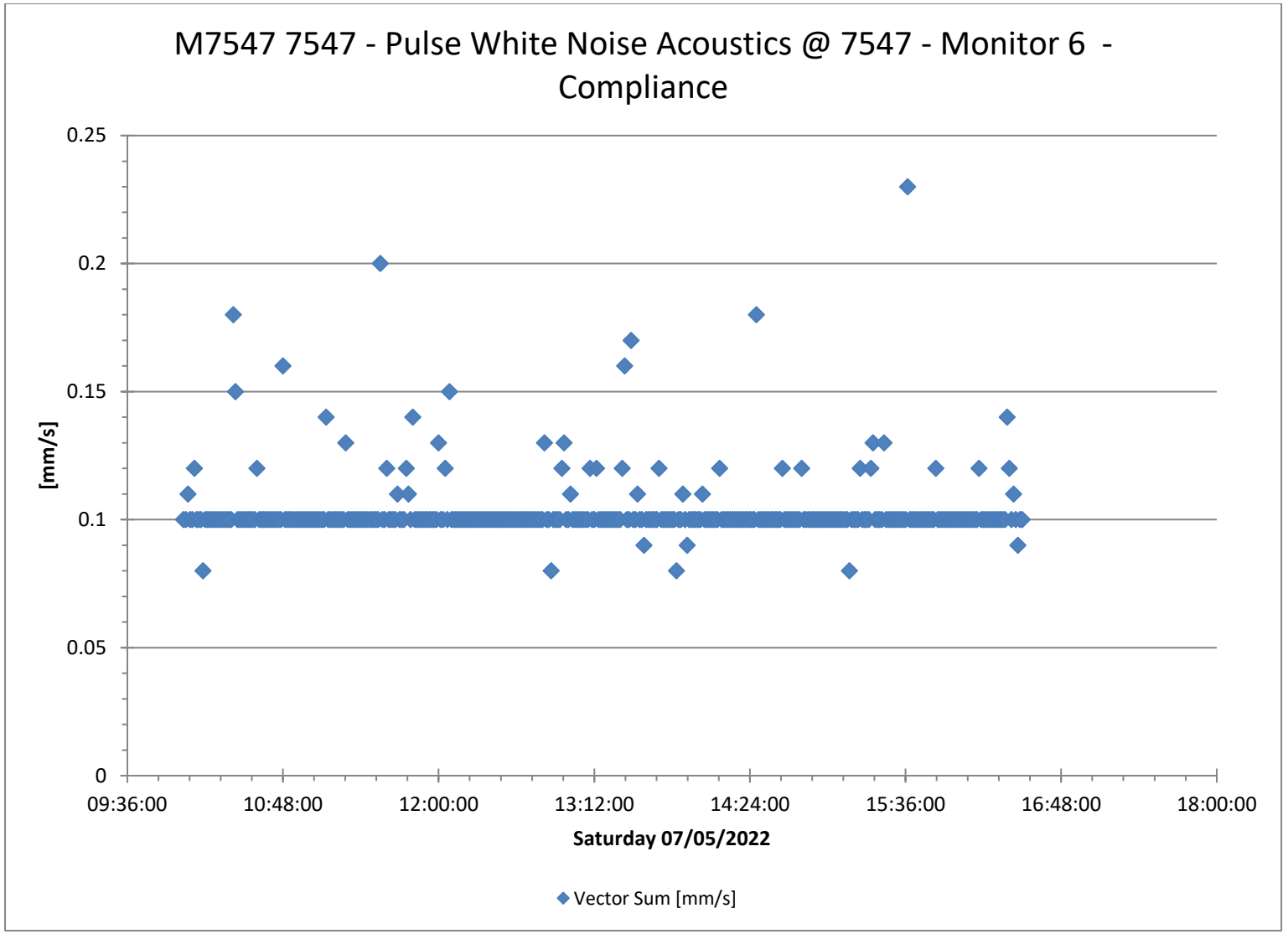
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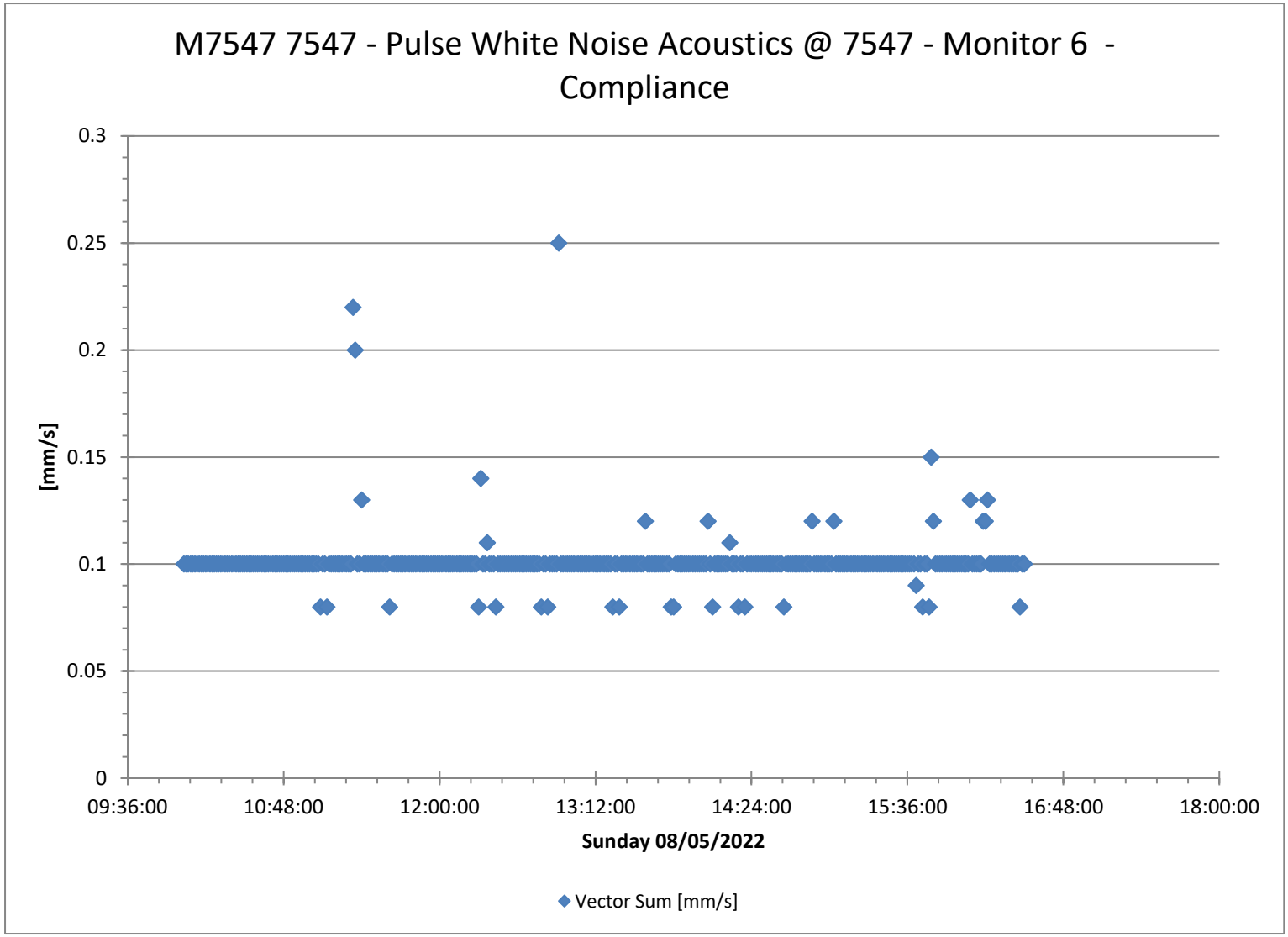
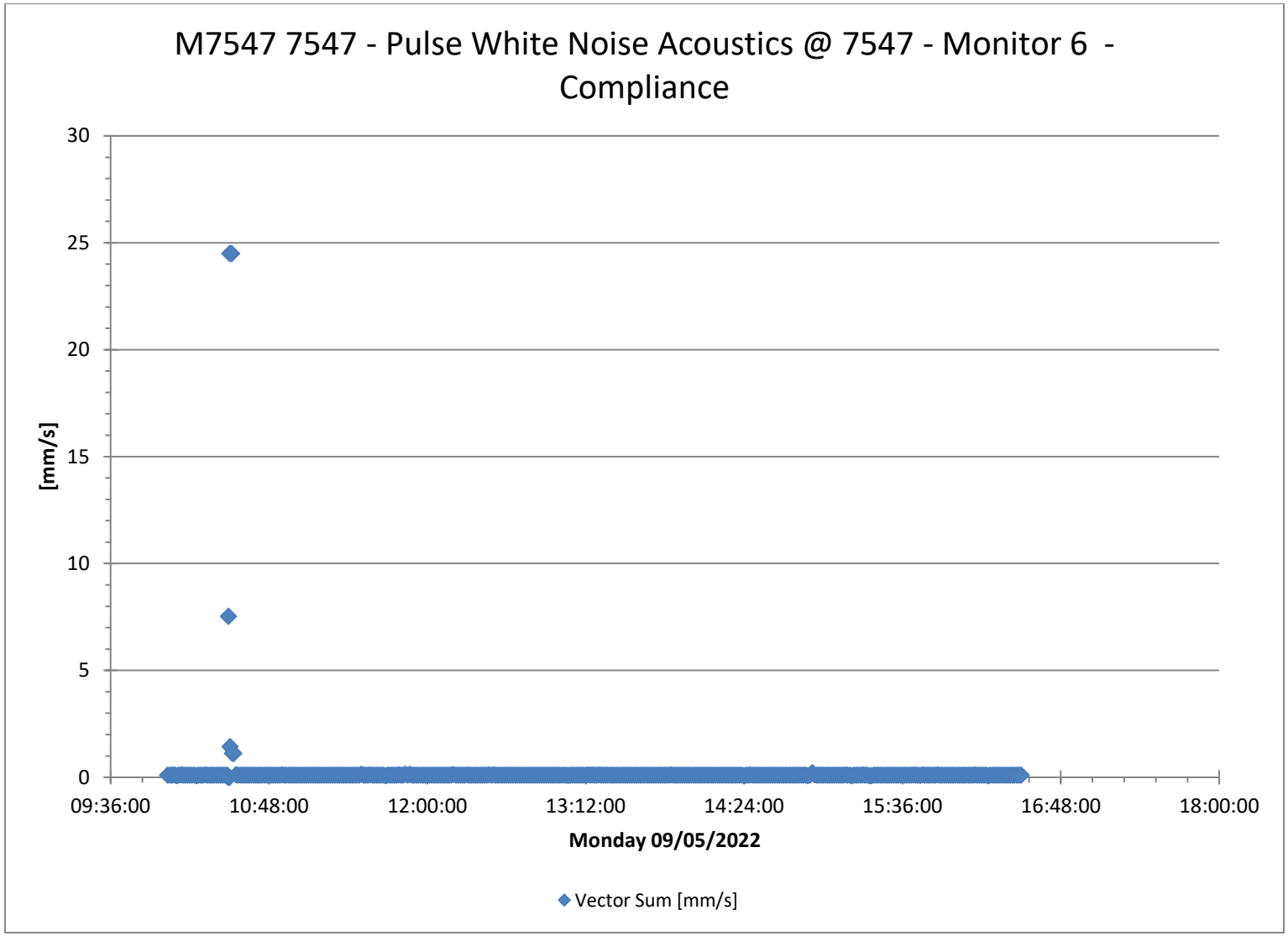
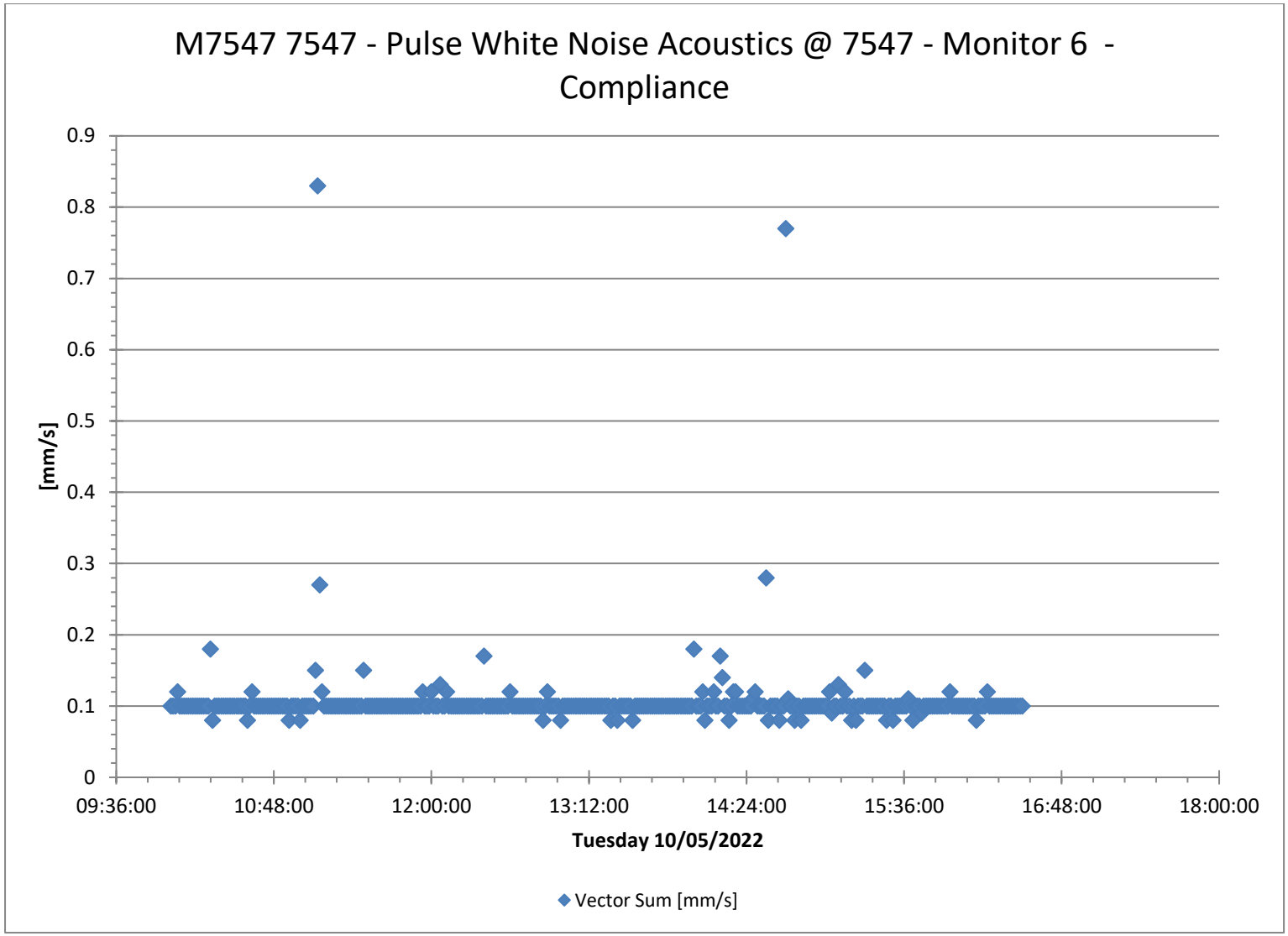
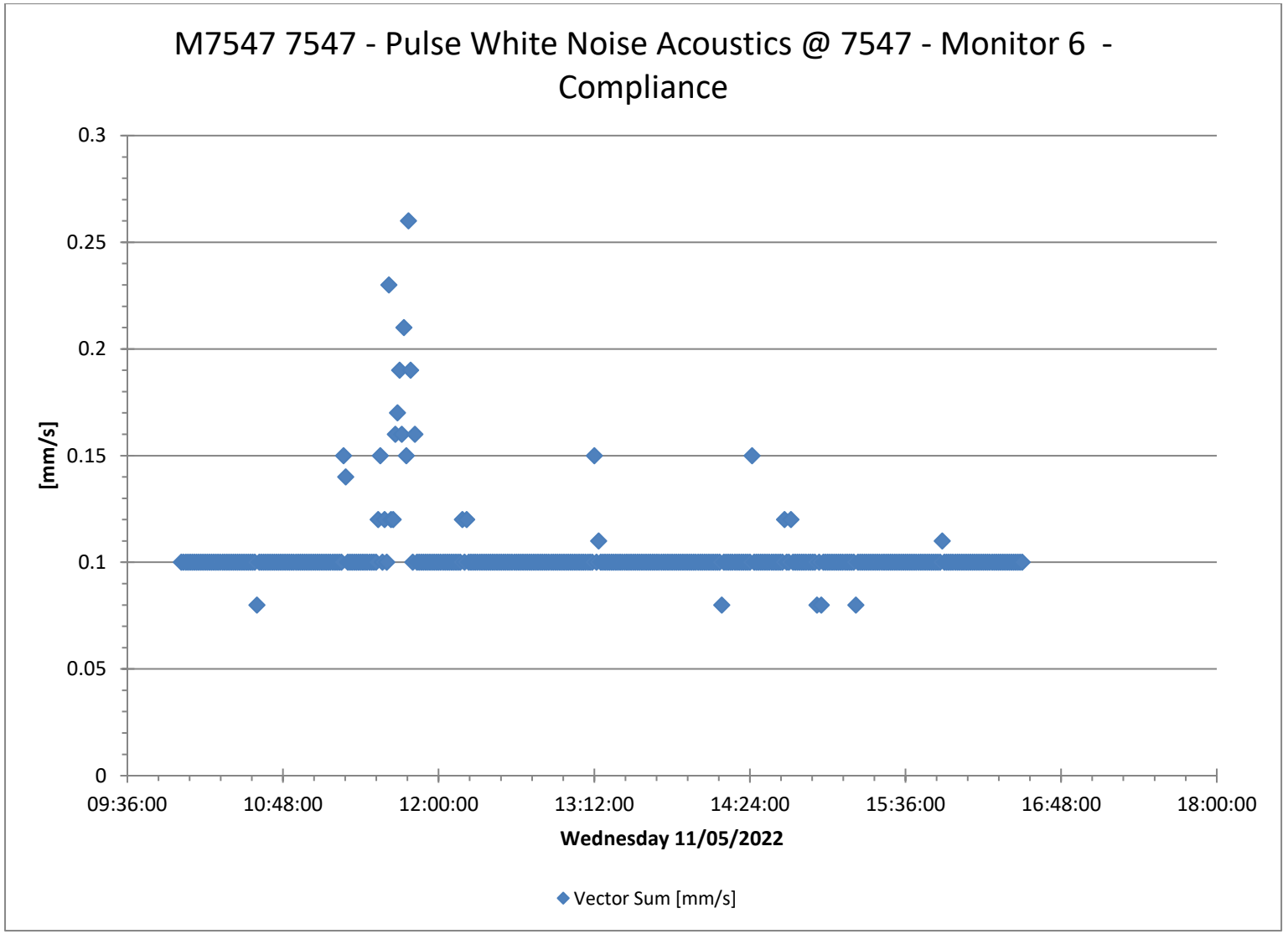
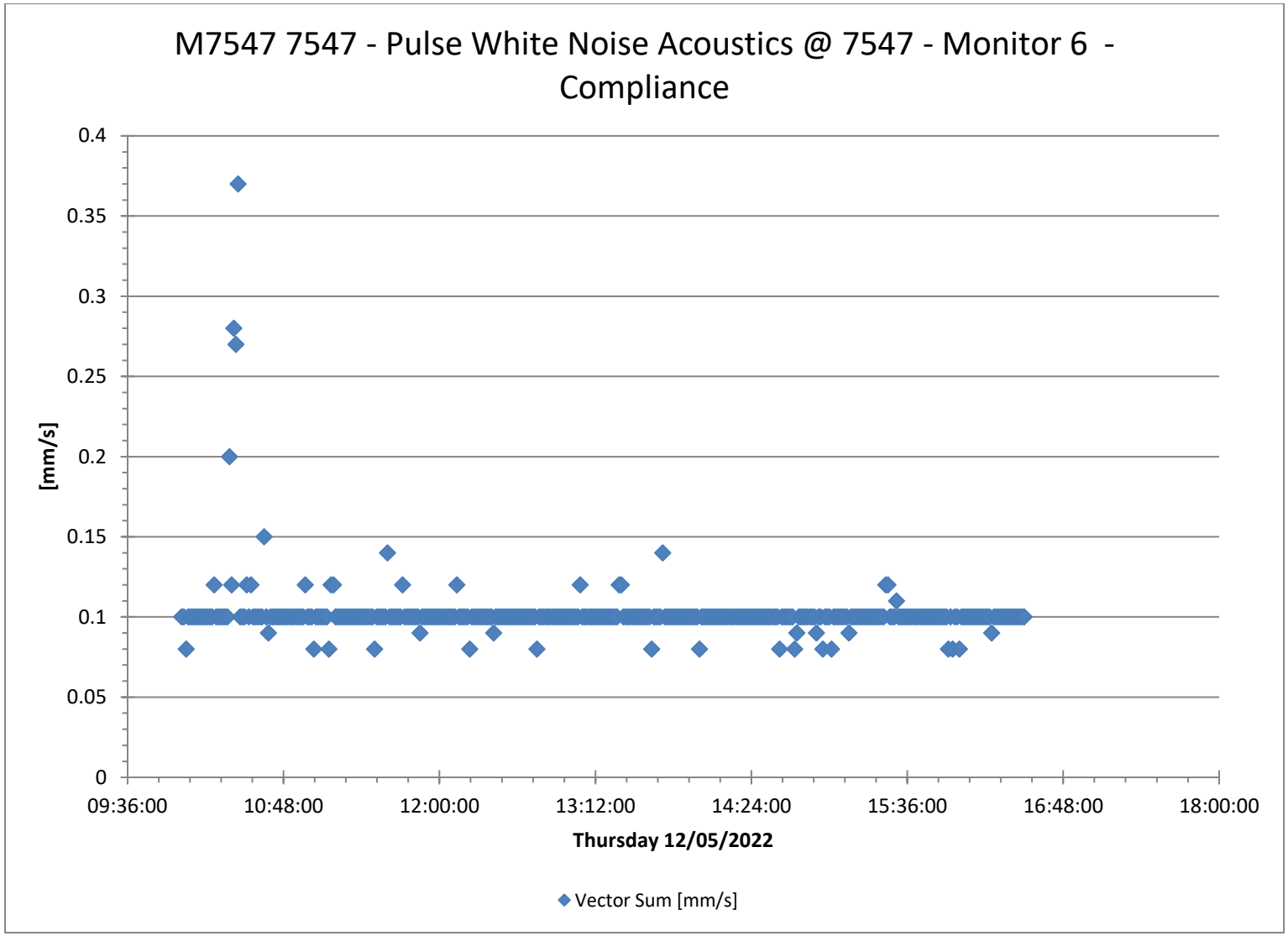
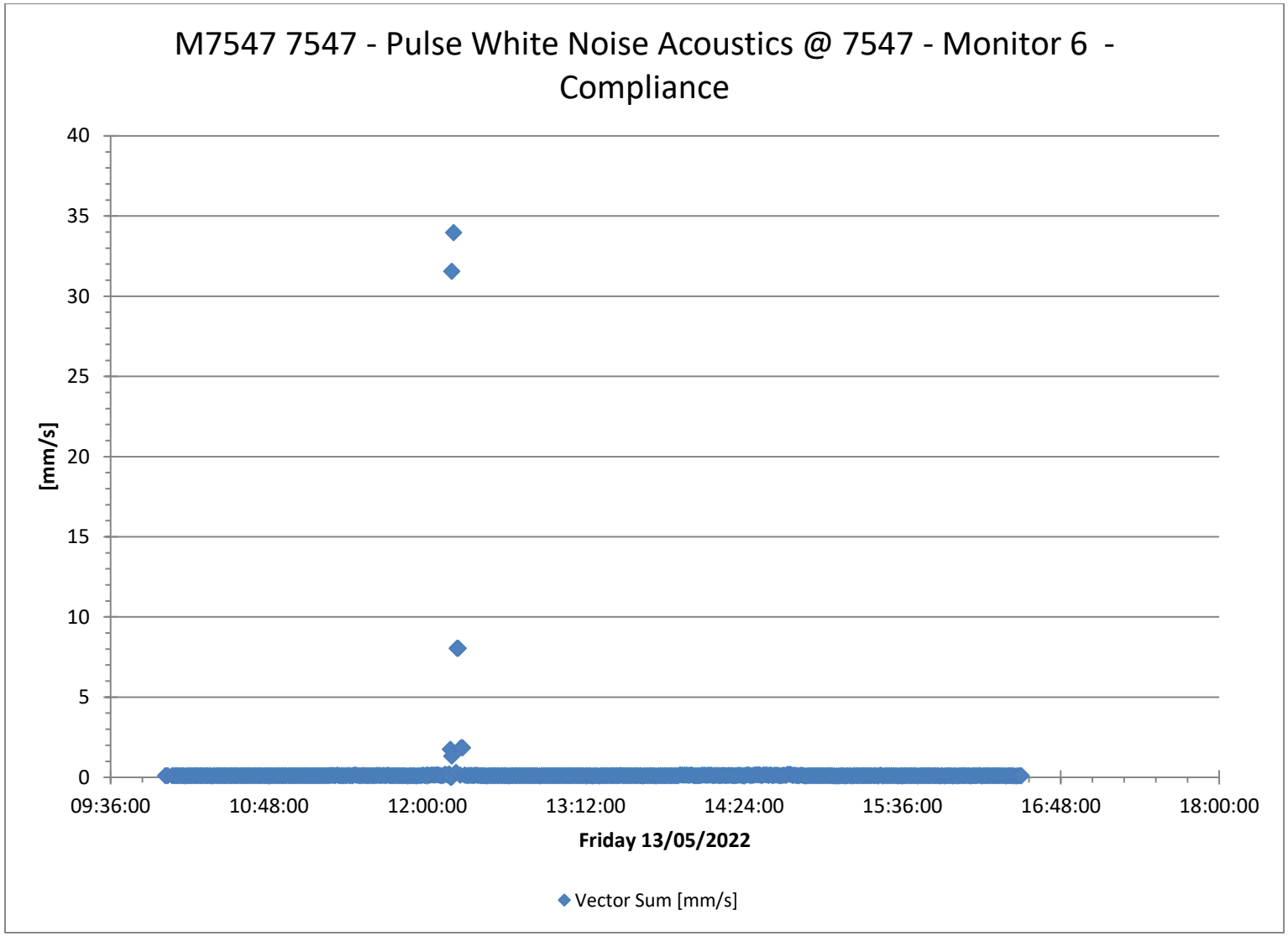

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
0.3
0.25
0.2
0.15
0.1
0.05
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Sunday 08/05/2022
Vector Sum [mm/s]

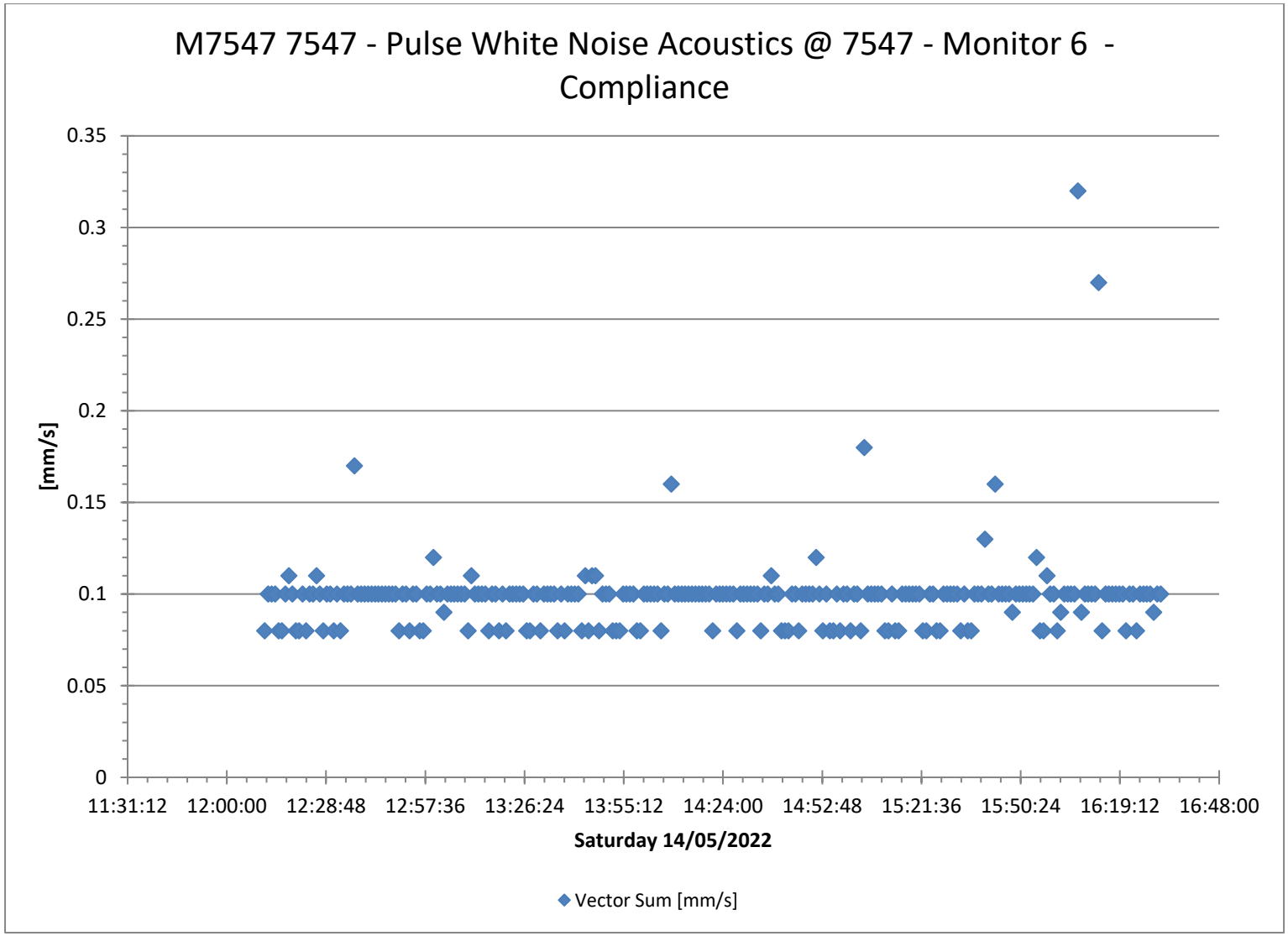

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
30
25
20
15
10
5
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Monday 09/05/2022
Vector Sum [mm/s]

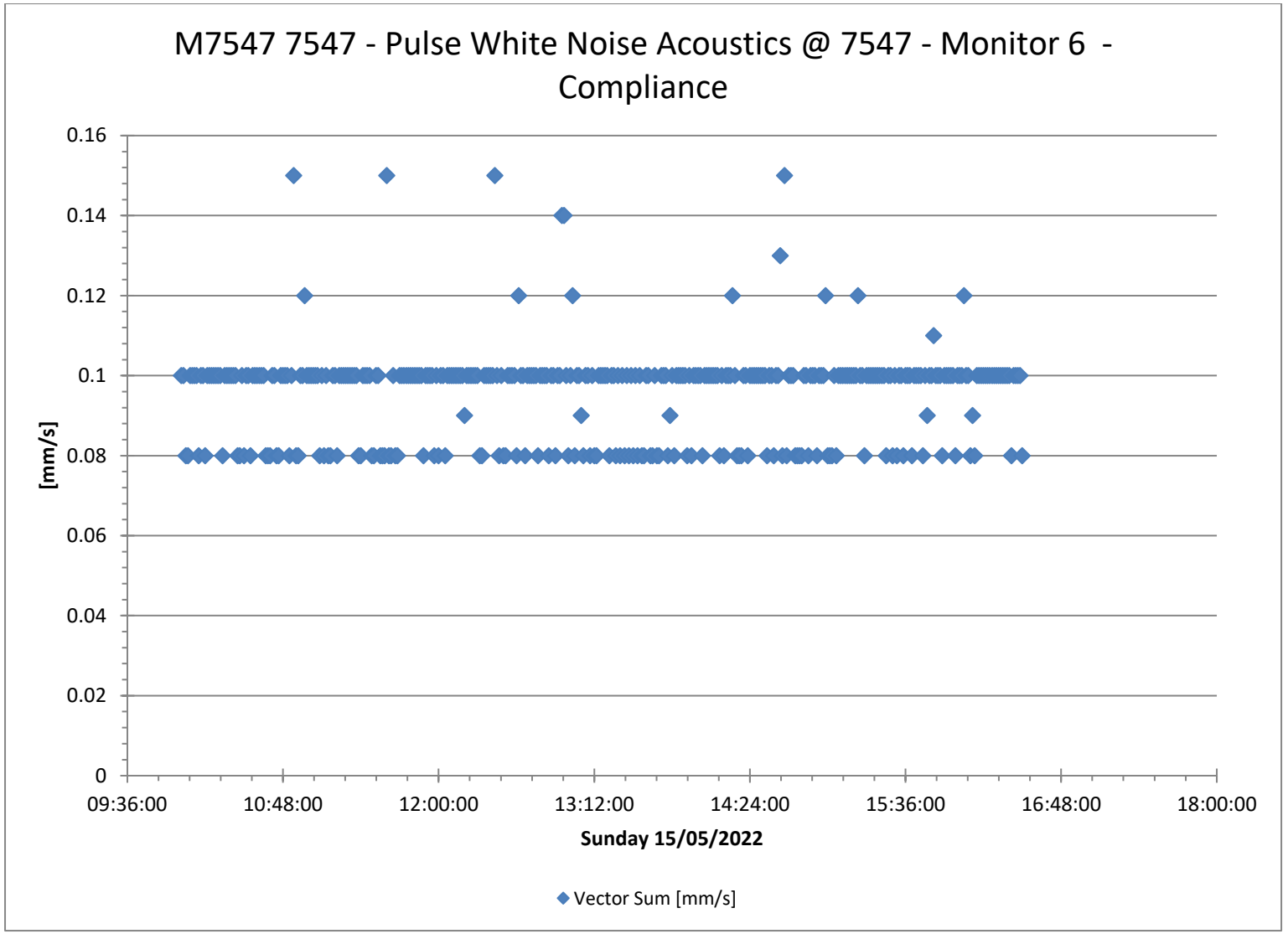

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Tuesday 10/05/2022
Vector Sum [mm/s]

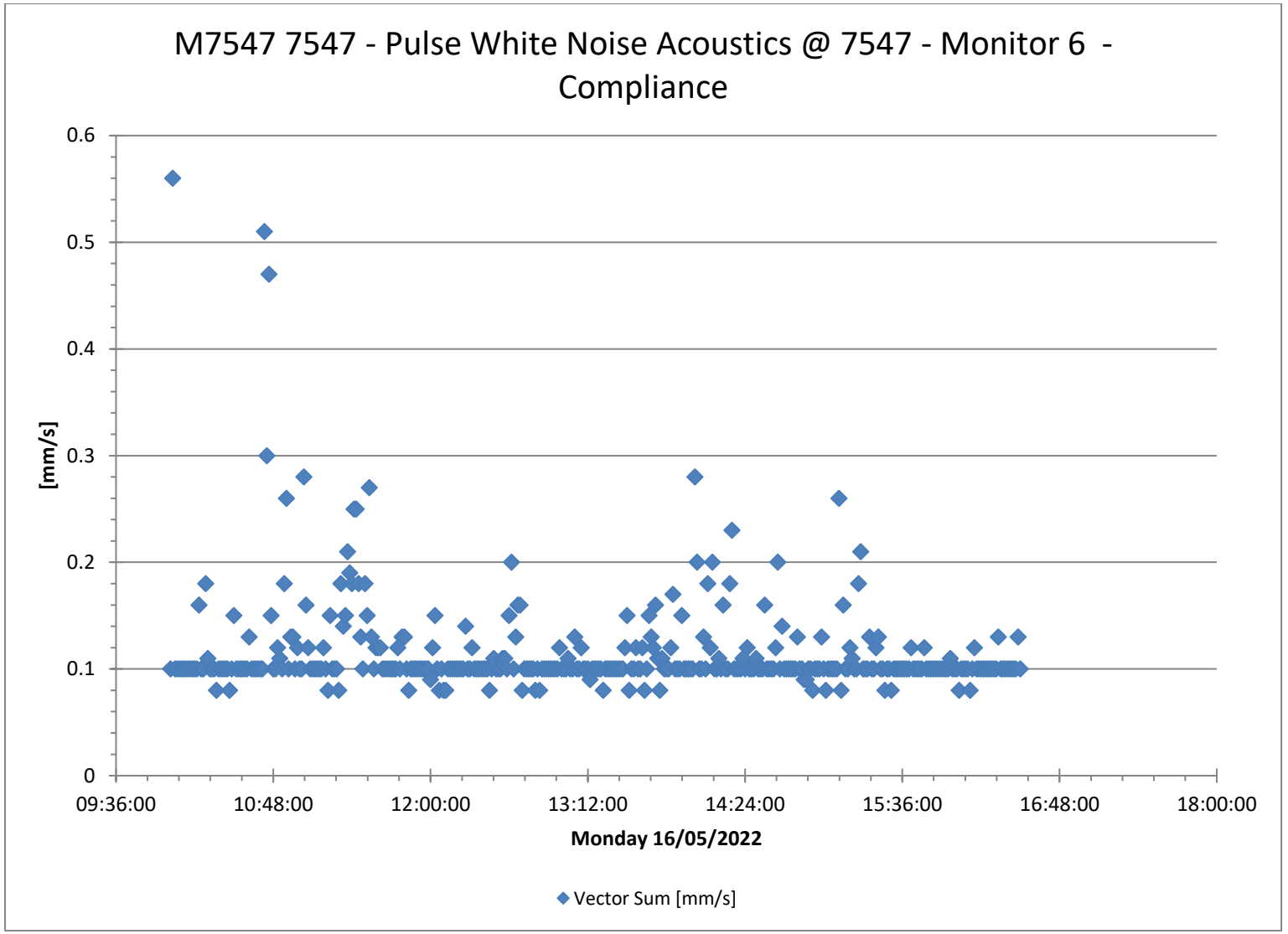

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
0.3
0.25
0.2
0.15
0.1
0.05
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Wednesday 11/05/2022
Vector Sum [mm/s]

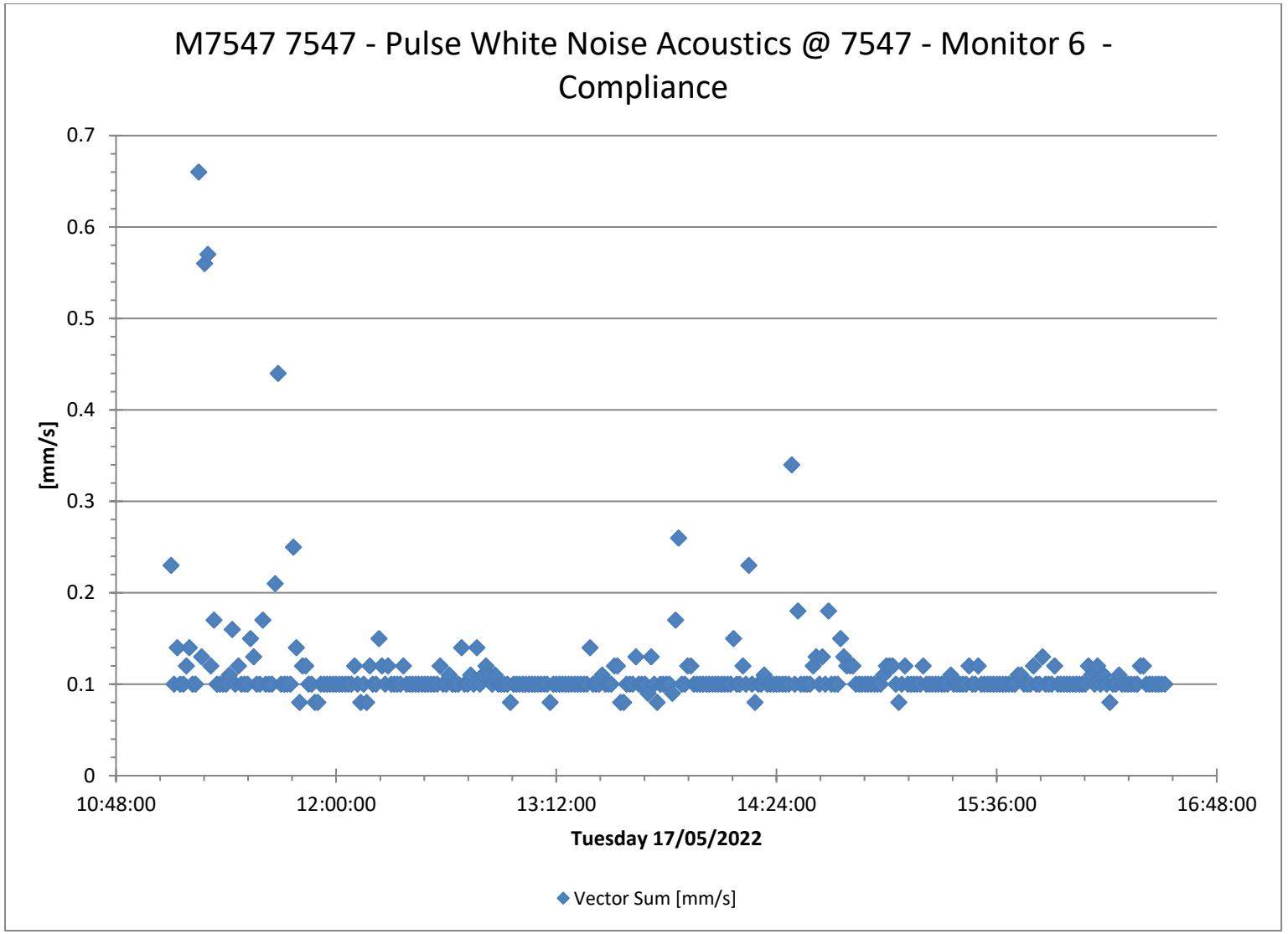

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Thursday 12/05/2022
Vector Sum [mm/s]

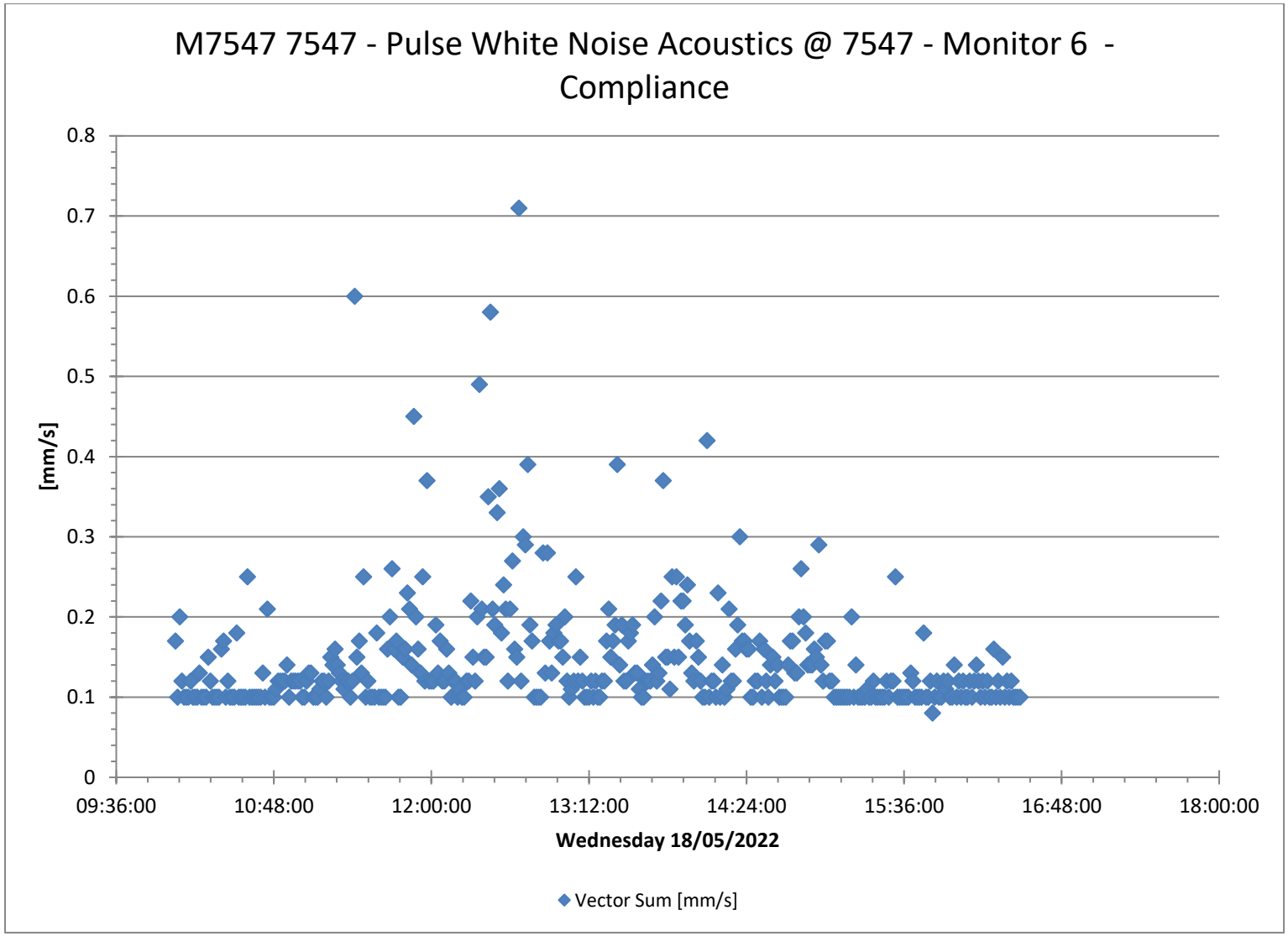

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
40
35
30
25
20
15
10
5
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Friday 13/05/2022
Vector Sum [mm/s]

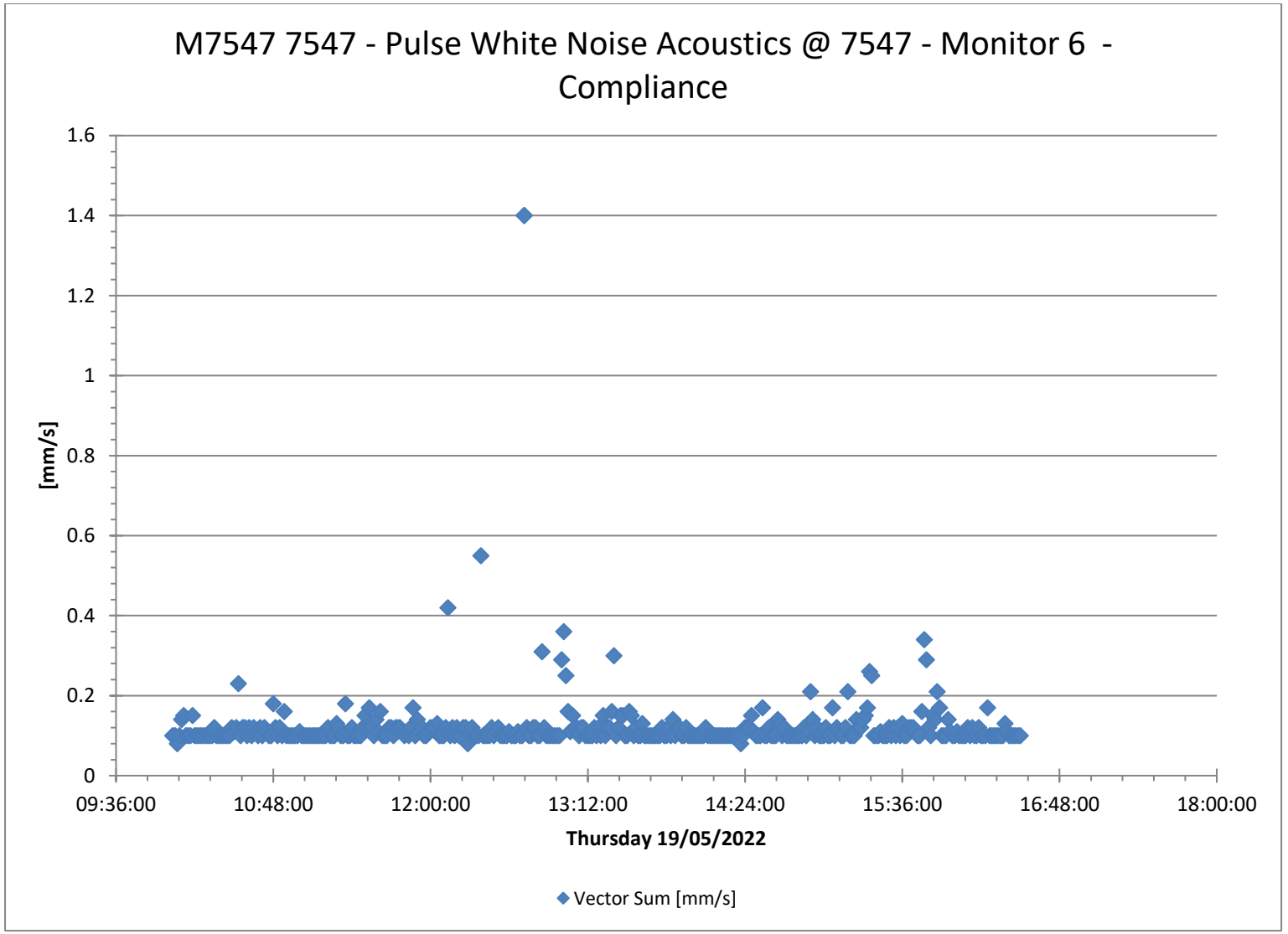

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
[mm/s]
11:31:12
12:00:00
12:28:48
12:57:36
13:26:24
13:55:12
14:24:00
14:52:48
15:21:36
15:50:24
16:19:12
16:48:00
Saturday 14/05/2022
Vector Sum [mm/s]

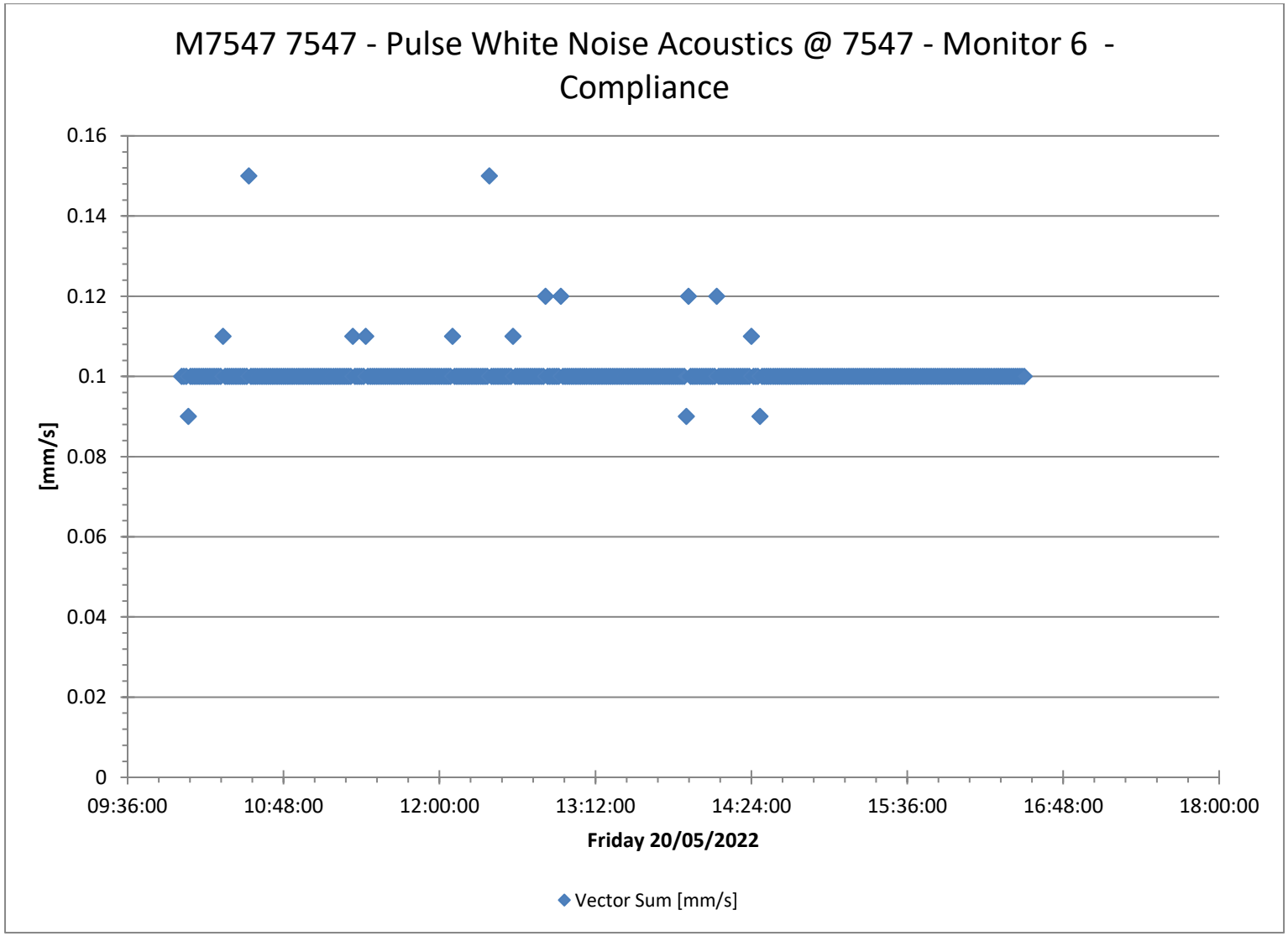

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Sunday 15/05/2022
Vector Sum [mm/s]

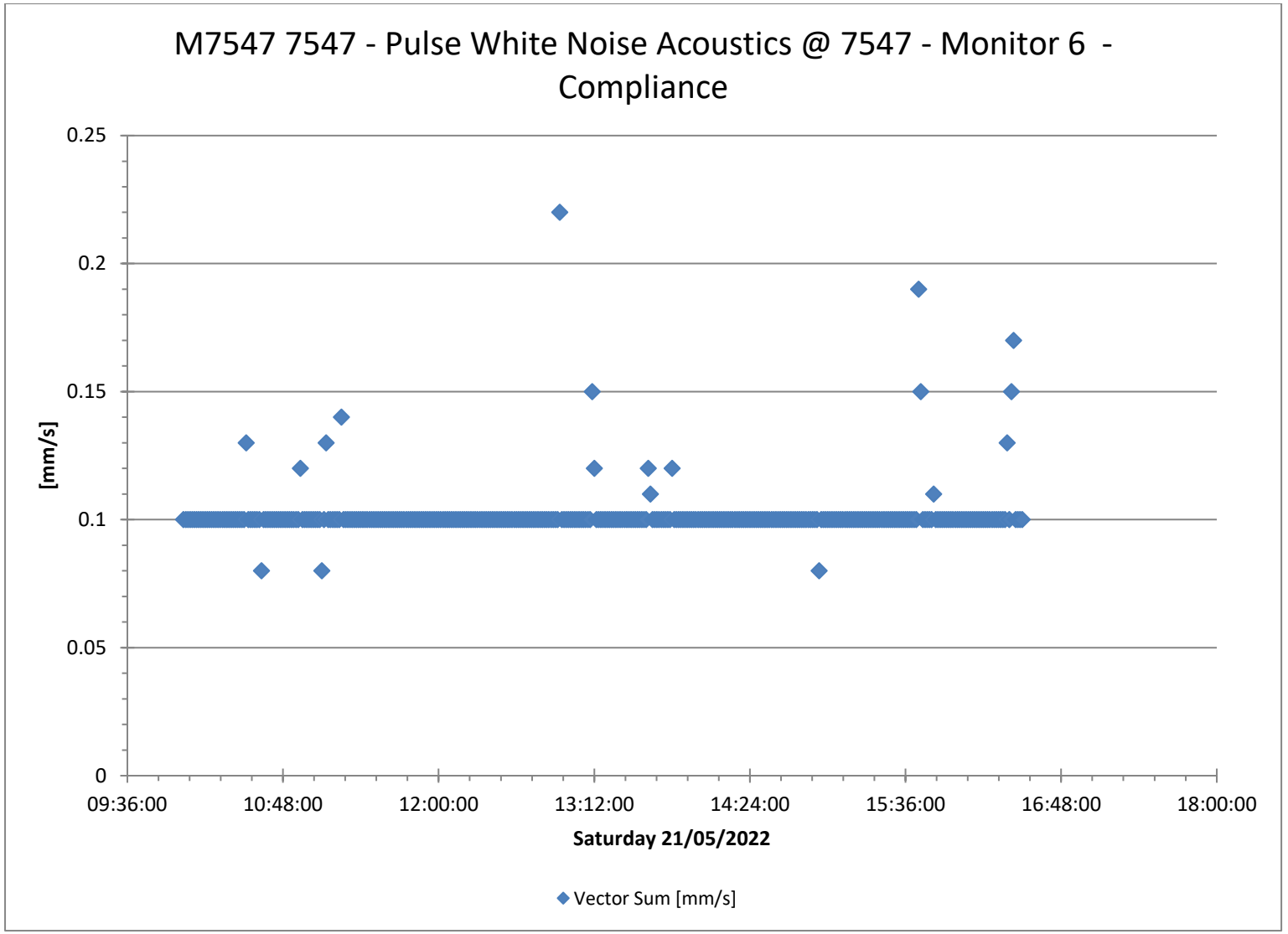

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
0.6
0.5
0.4
0.3
0.2
0.1
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Monday 16/05/2022
Vector Sum [mm/s]

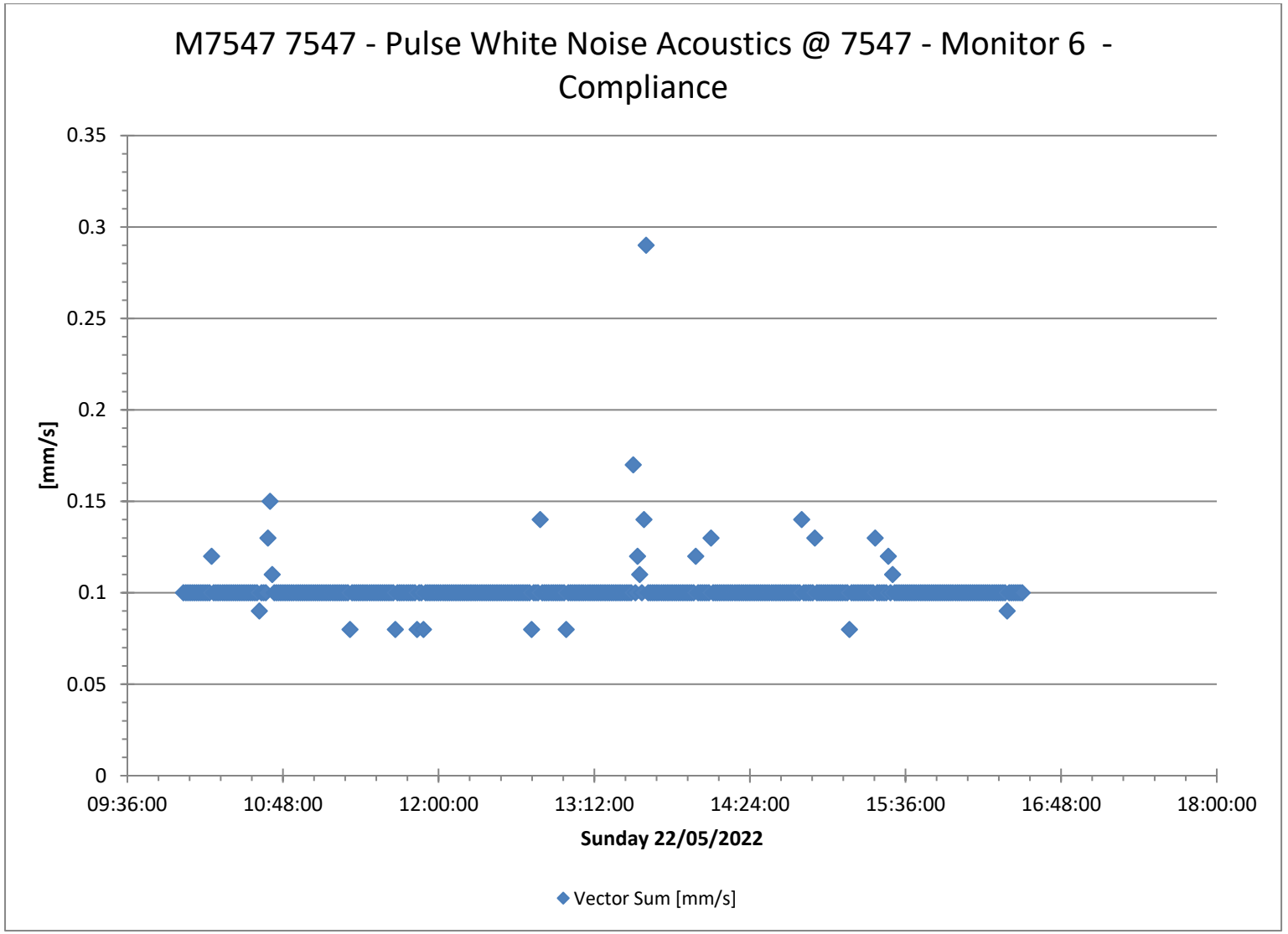

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
[mm/s]
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
Tuesday 17/05/2022
Vector Sum [mm/s]

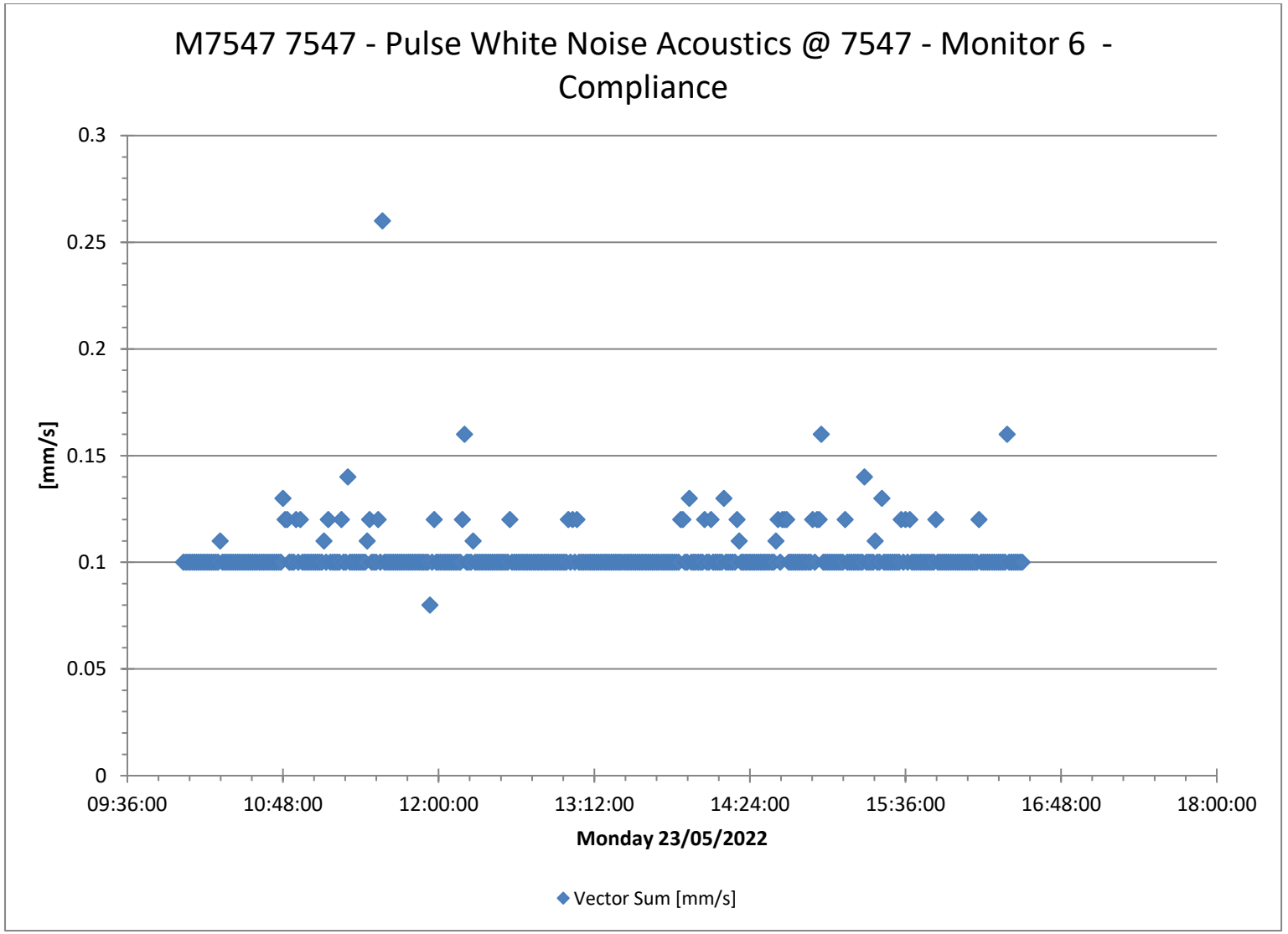

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
[mm/s]
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Wednesday 18/05/2022
Vector Sum [mm/s]

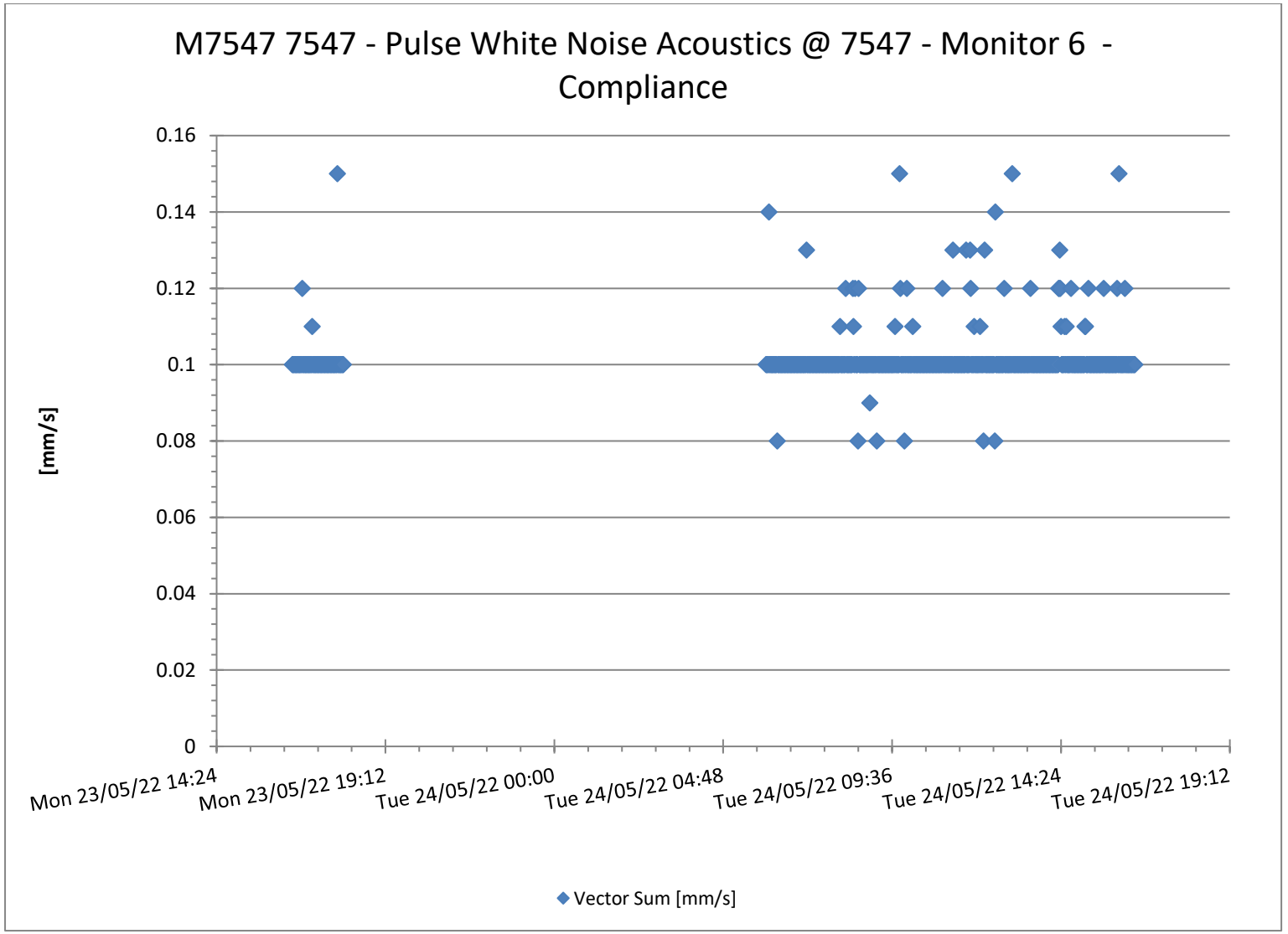

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Thursday 19/05/2022
Vector Sum [mm/s]

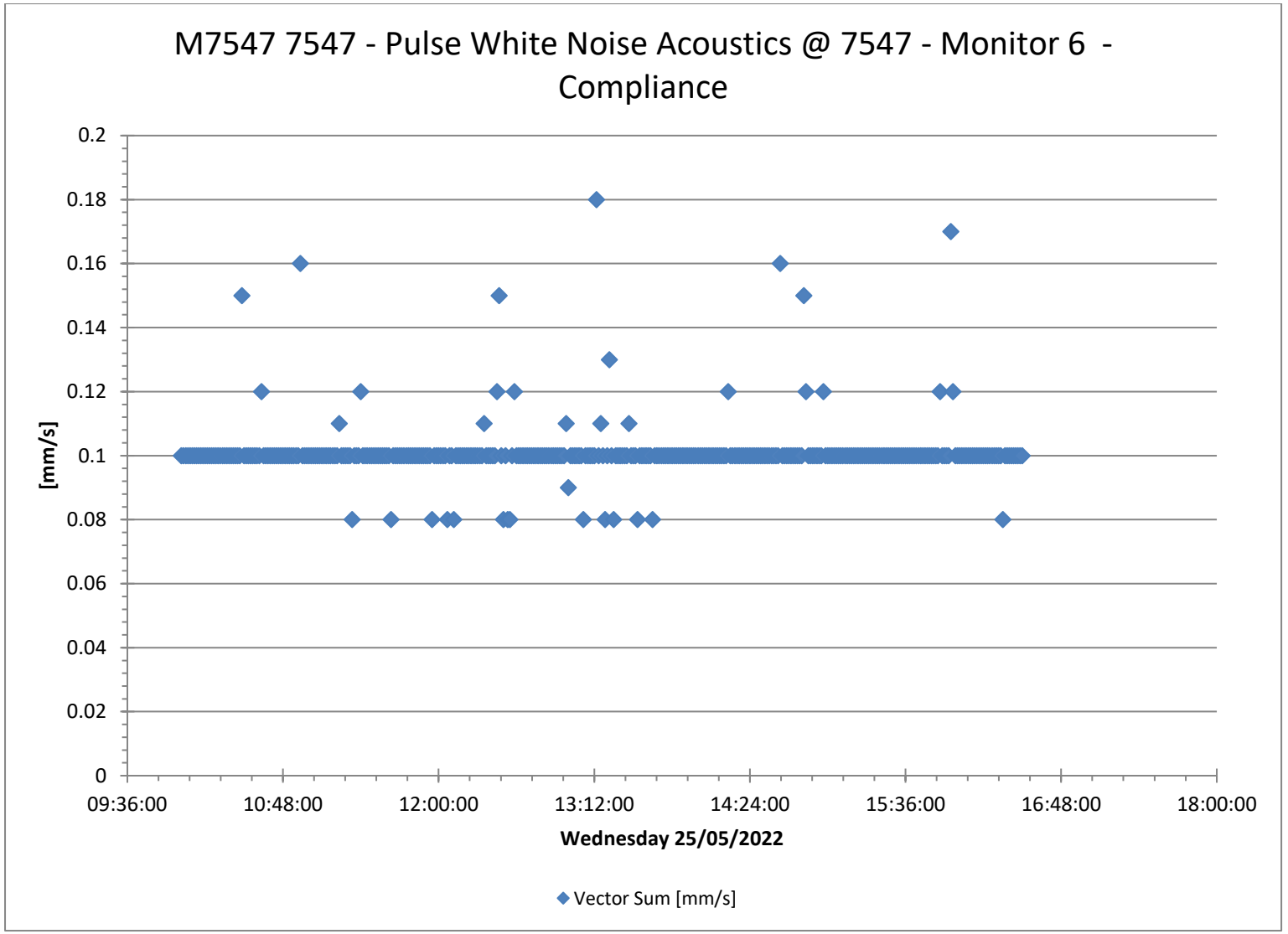

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Friday 20/05/2022
Vector Sum [mm/s]

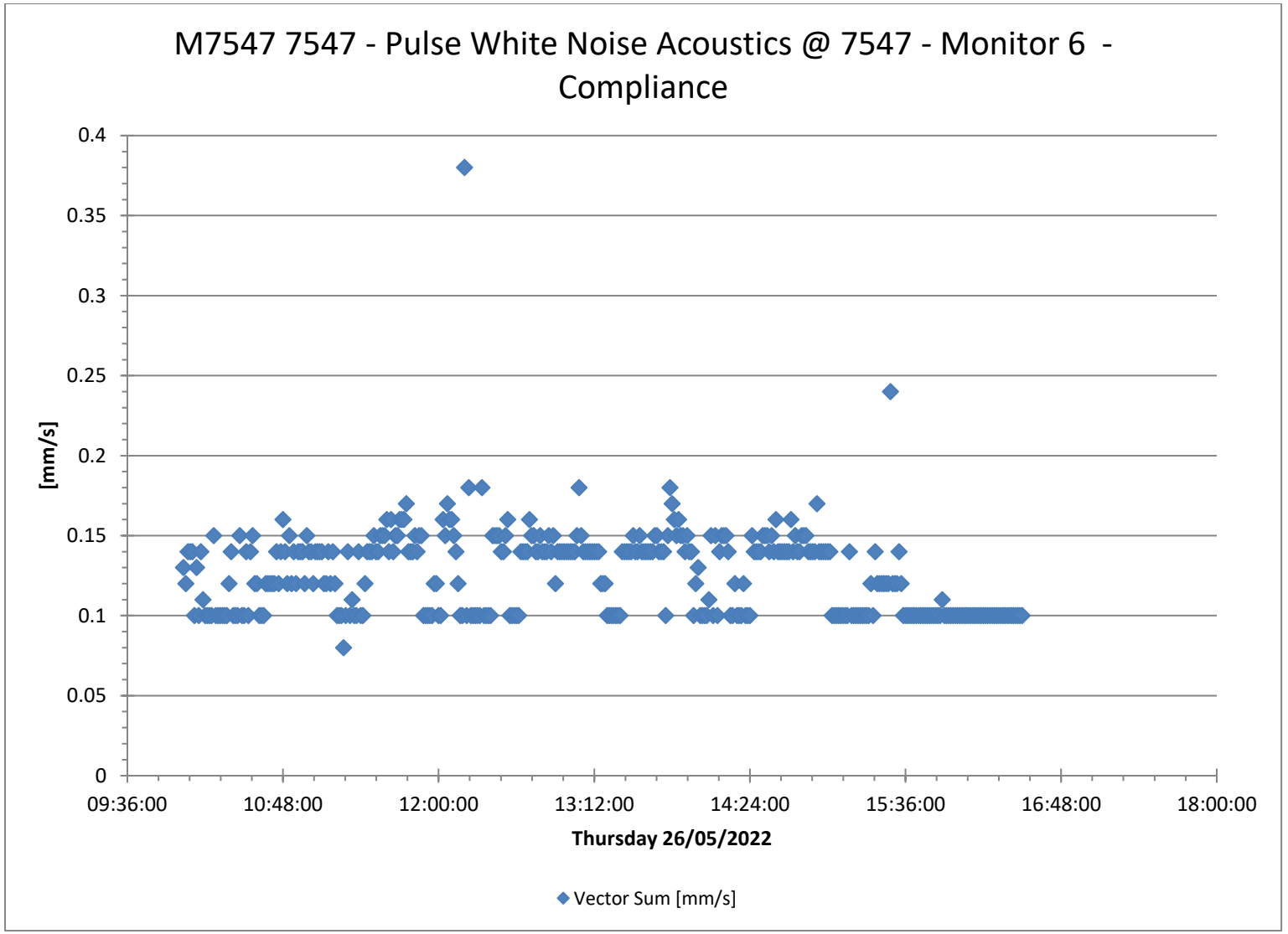

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
0.25
0.2
0.15
0.1
0.05
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Saturday 21/05/2022
Vector Sum [mm/s]

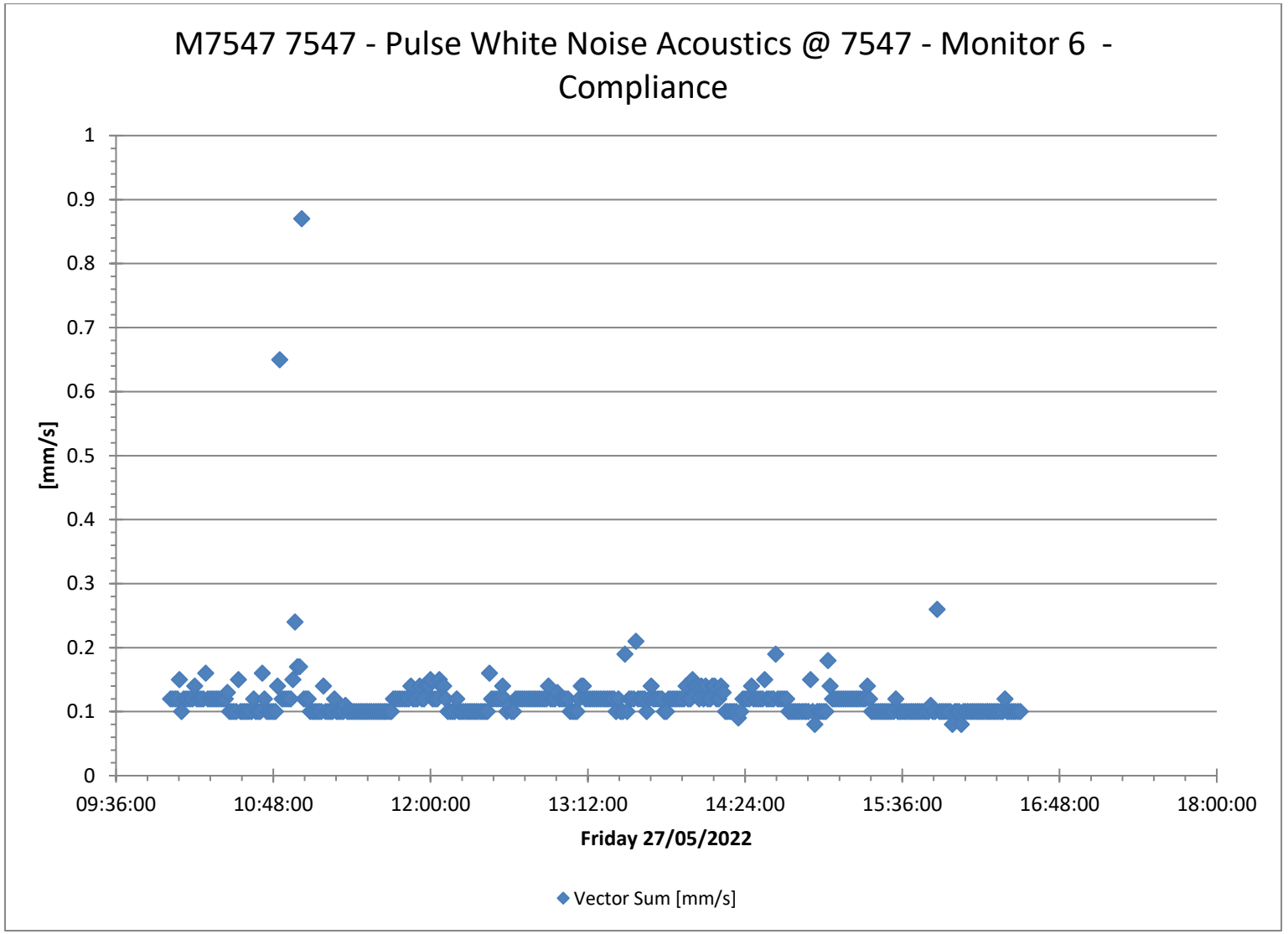

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Sunday 22/05/2022
Vector Sum [mm/s]

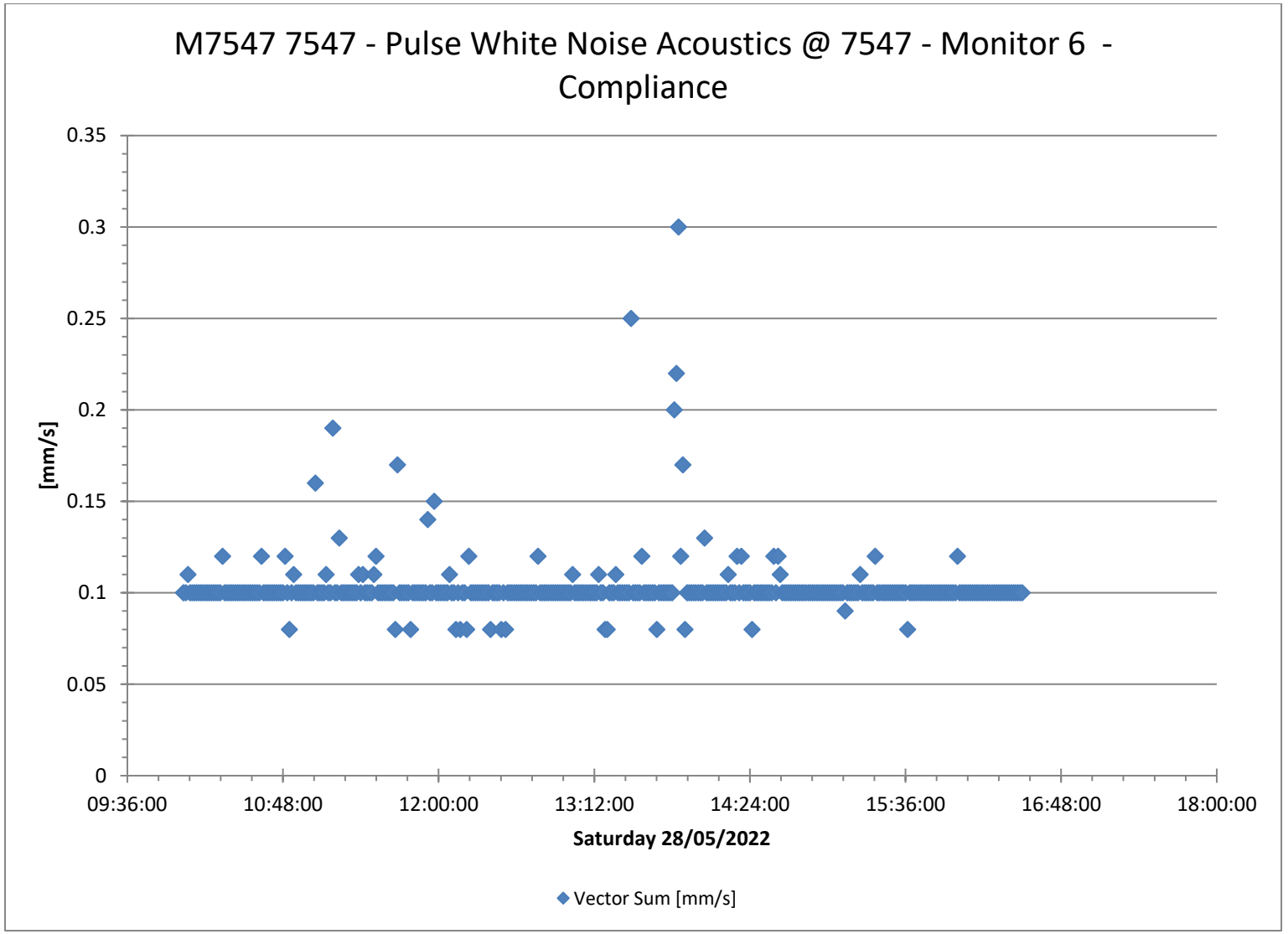

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
0.3
0.25
0.2
0.15
0.1
0.05
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Monday 23/05/2022
Vector Sum [mm/s]

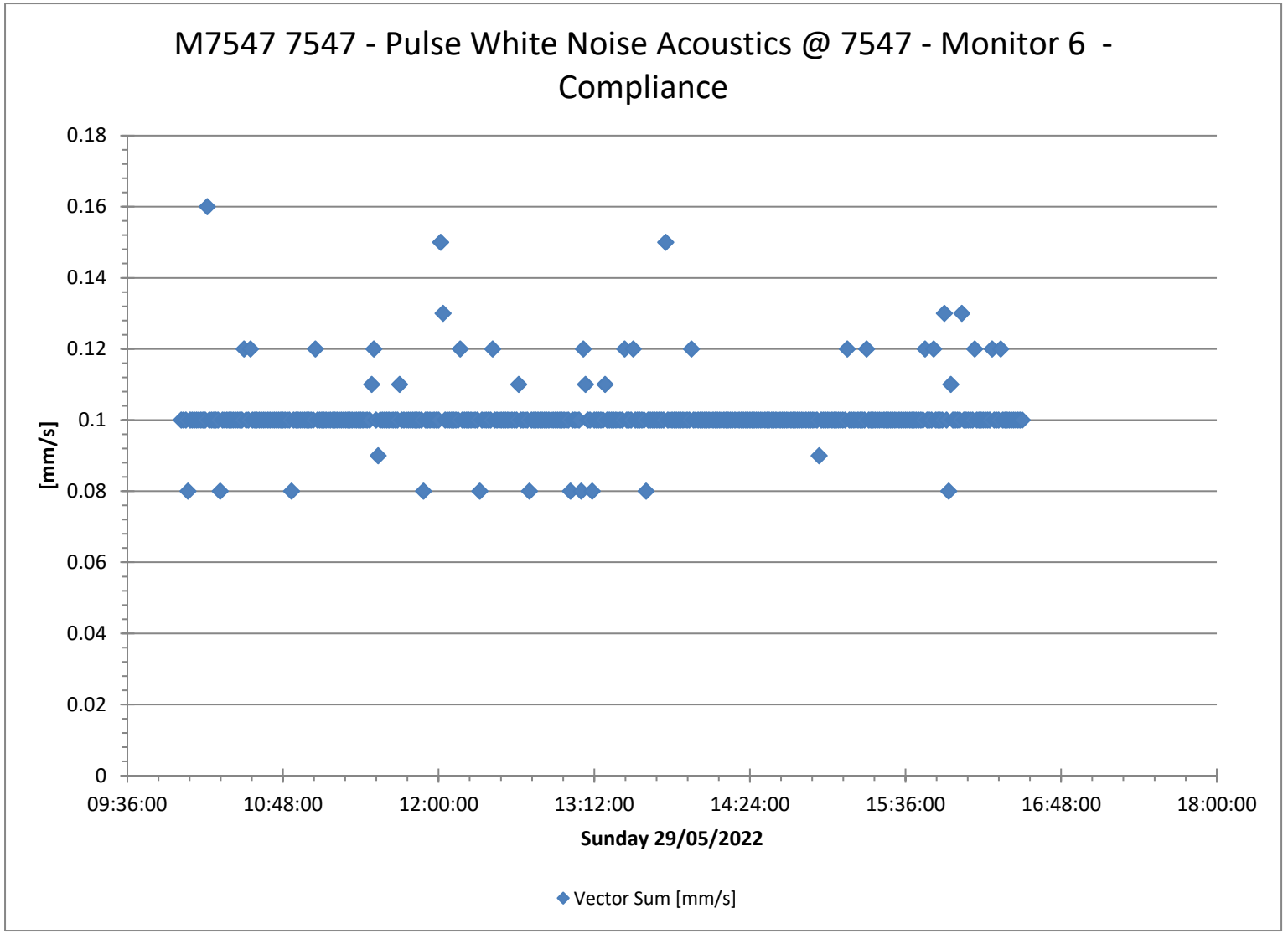

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
[mm/s]
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Mon 23/05/22 14:24
Mon 23/05/22 19:12
Tue 24/05/22 00:00
Tue 24/05/22 04:48
Tue 24/05/22 09:36
Tue 24/05/22 14:24
Tue 24/05/22 19:12
Vector Sum [mm/s]

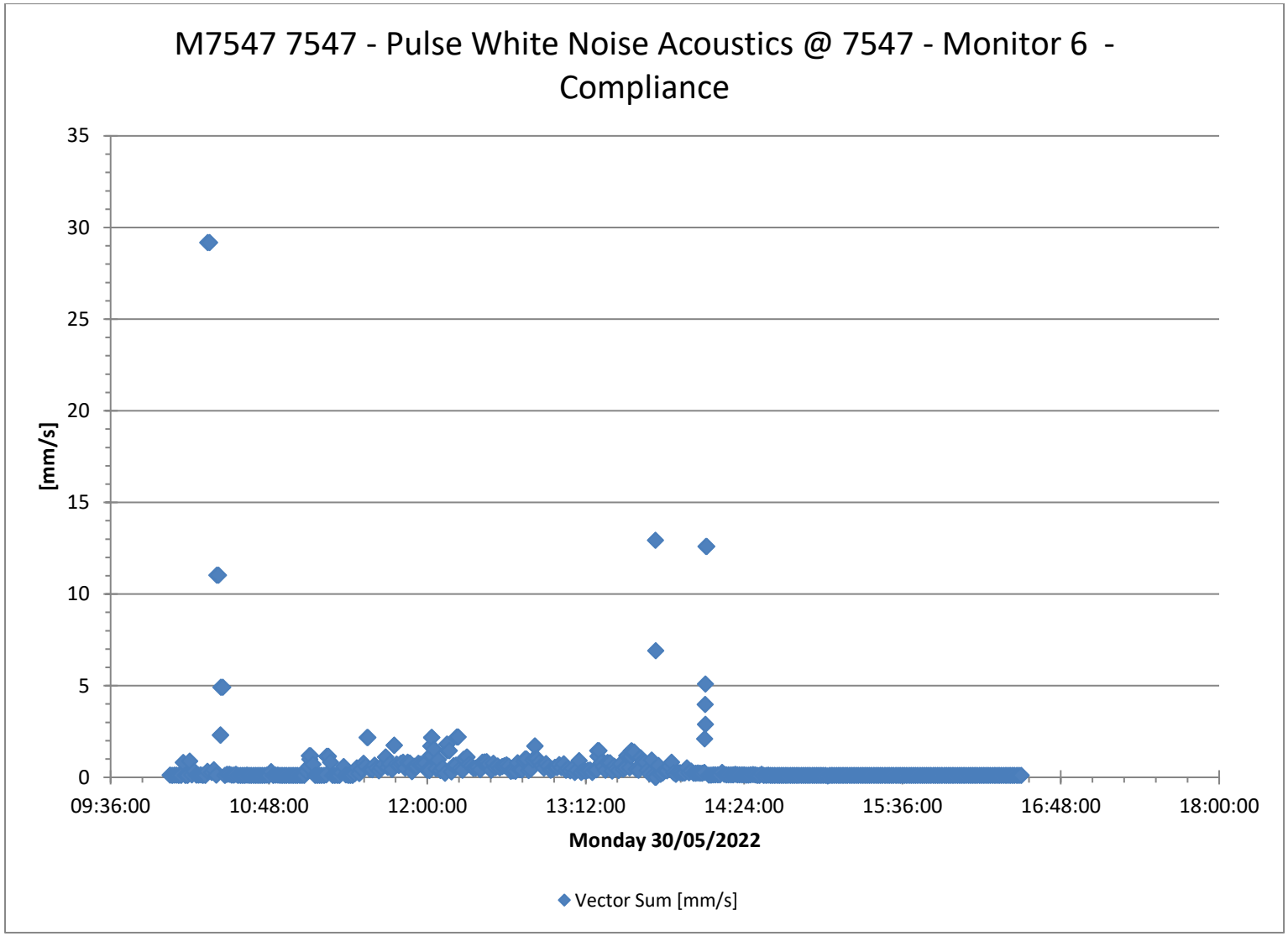

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Wednesday 25/05/2022
Vector Sum [mm/s]

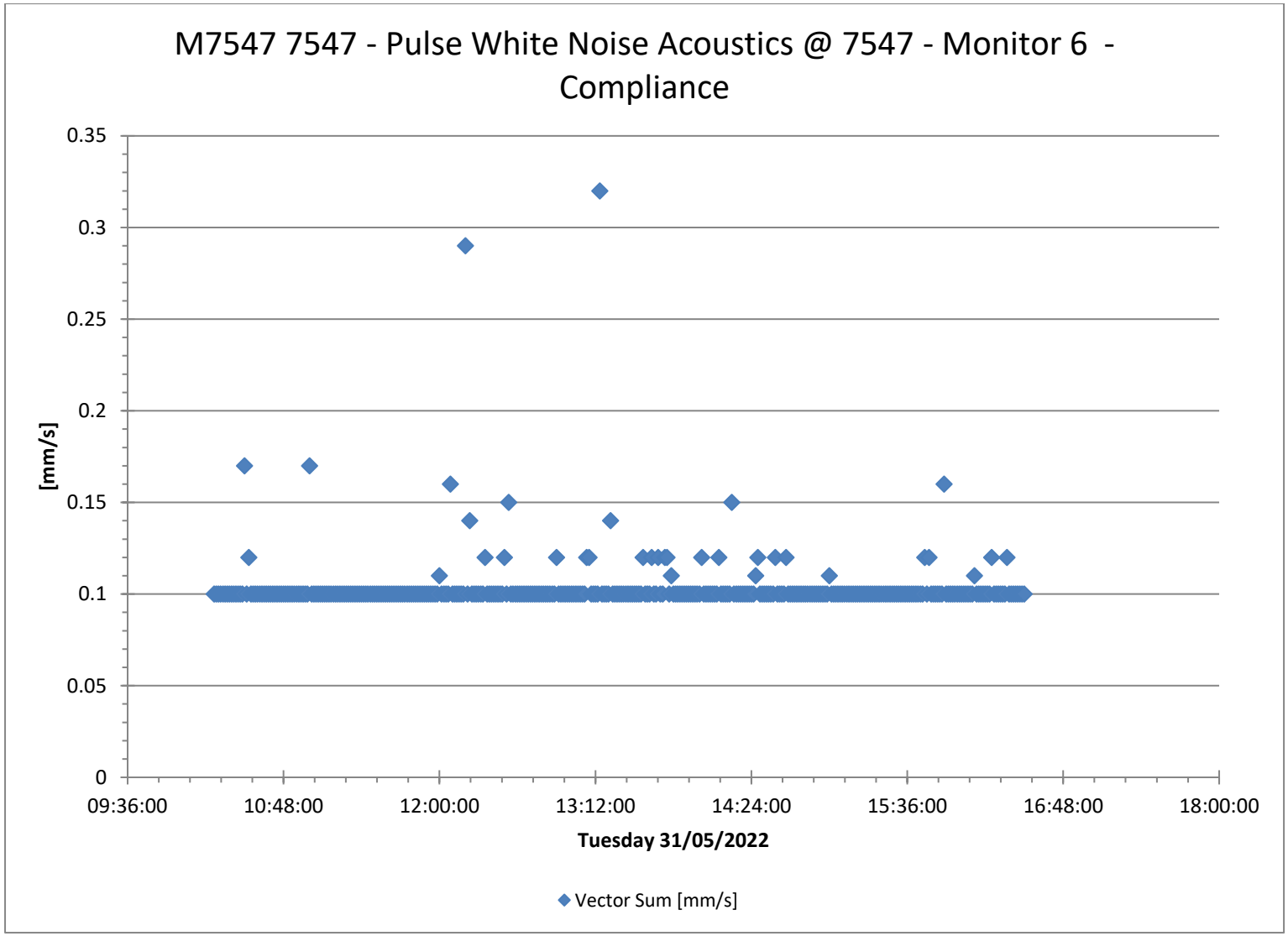

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Thursday 26/05/2022
Vector Sum [mm/s]


M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
[mm/s]
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Friday 27/05/2022
Vector Sum [mm/s]

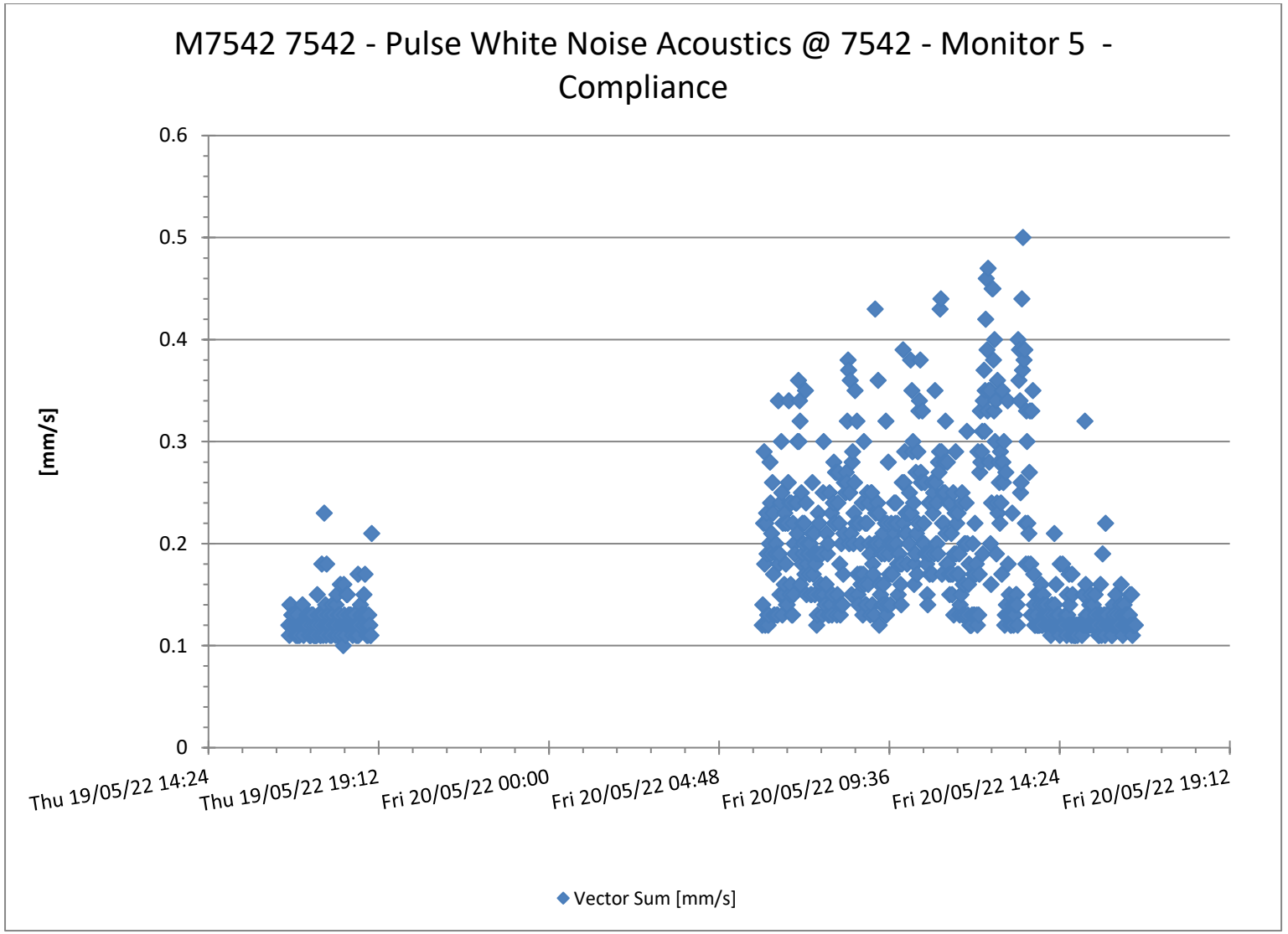

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Saturday 28/05/2022
Vector Sum [mm/s]

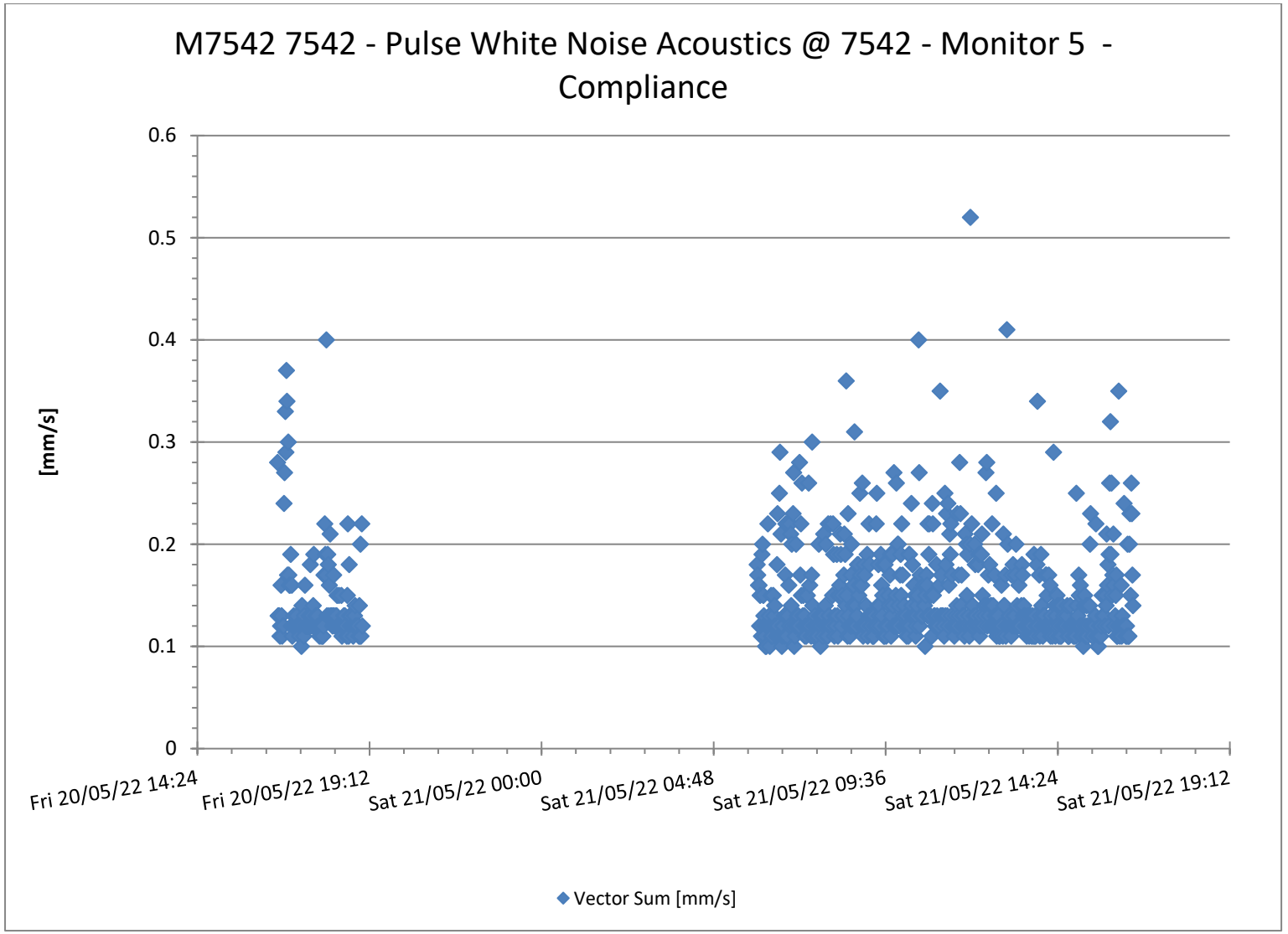

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Sunday 29/05/2022
Vector Sum [mm/s]

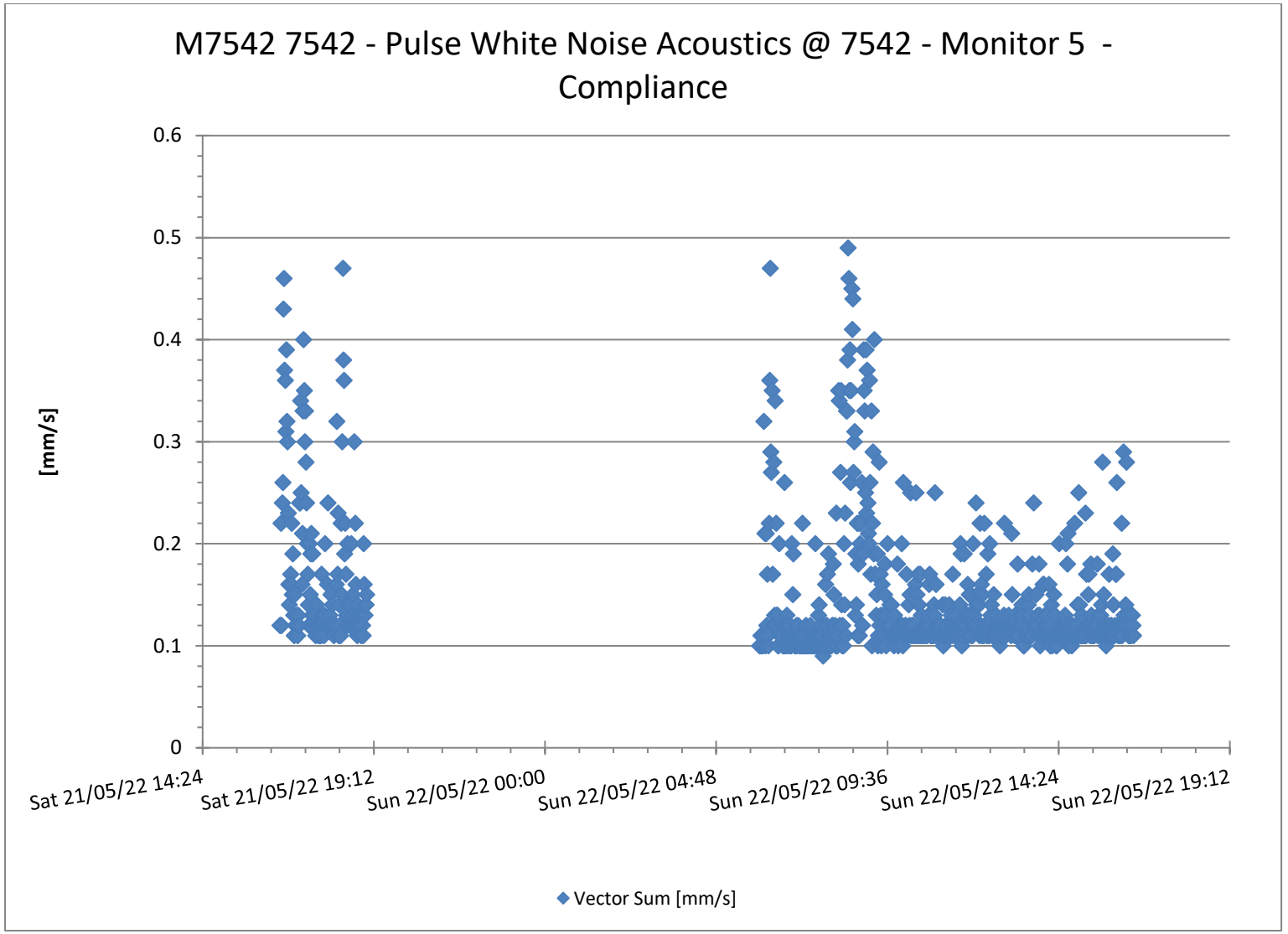

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
35
30
25
20
15
10
5
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Monday 30/05/2022
Vector Sum [mm/s]

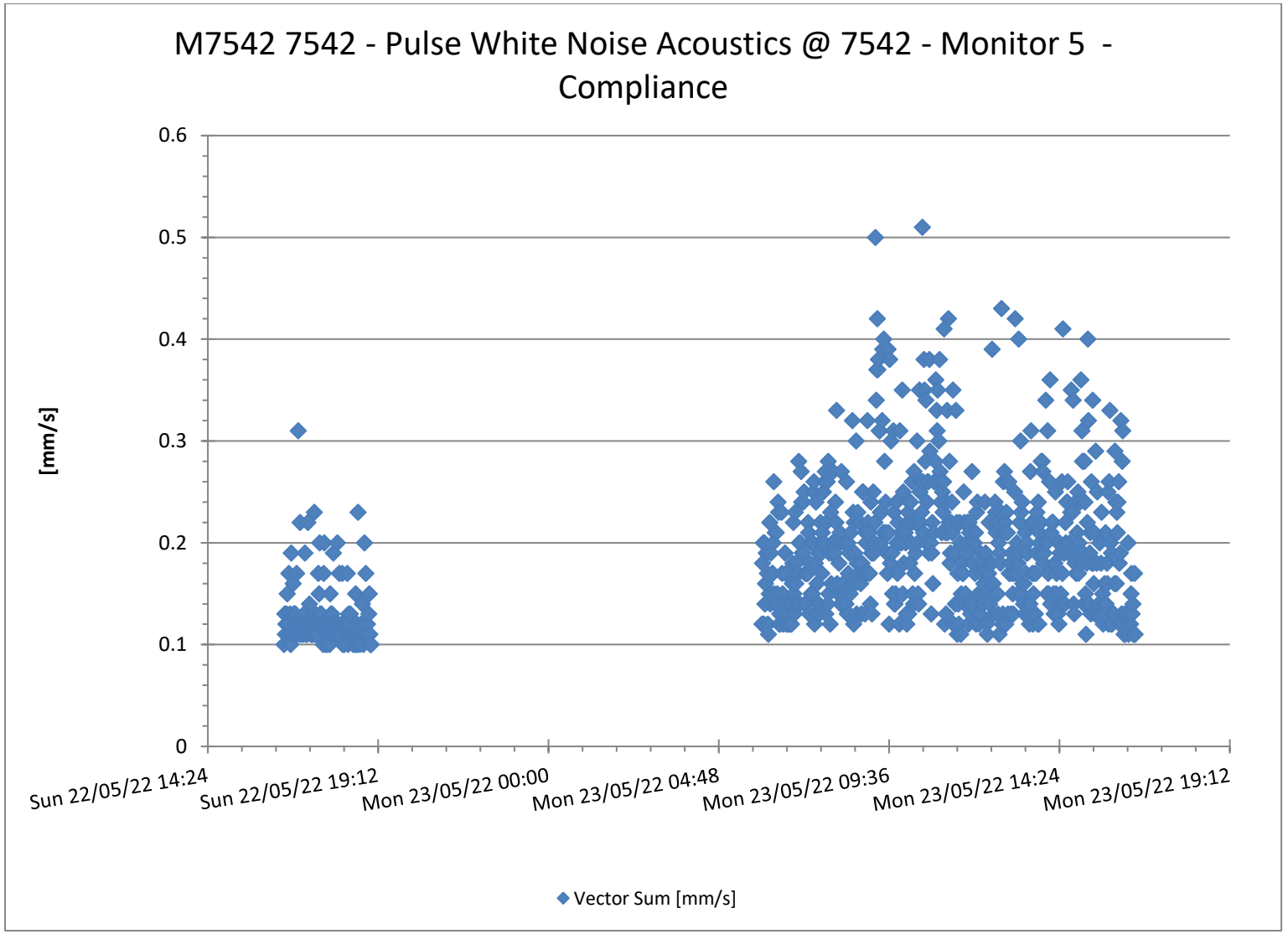

M7547 7547 - Pulse White Noise Acoustics @ 7547 - Monitor 6 - Compliance
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Tuesday 31/05/2022
Vector Sum [mm/s]

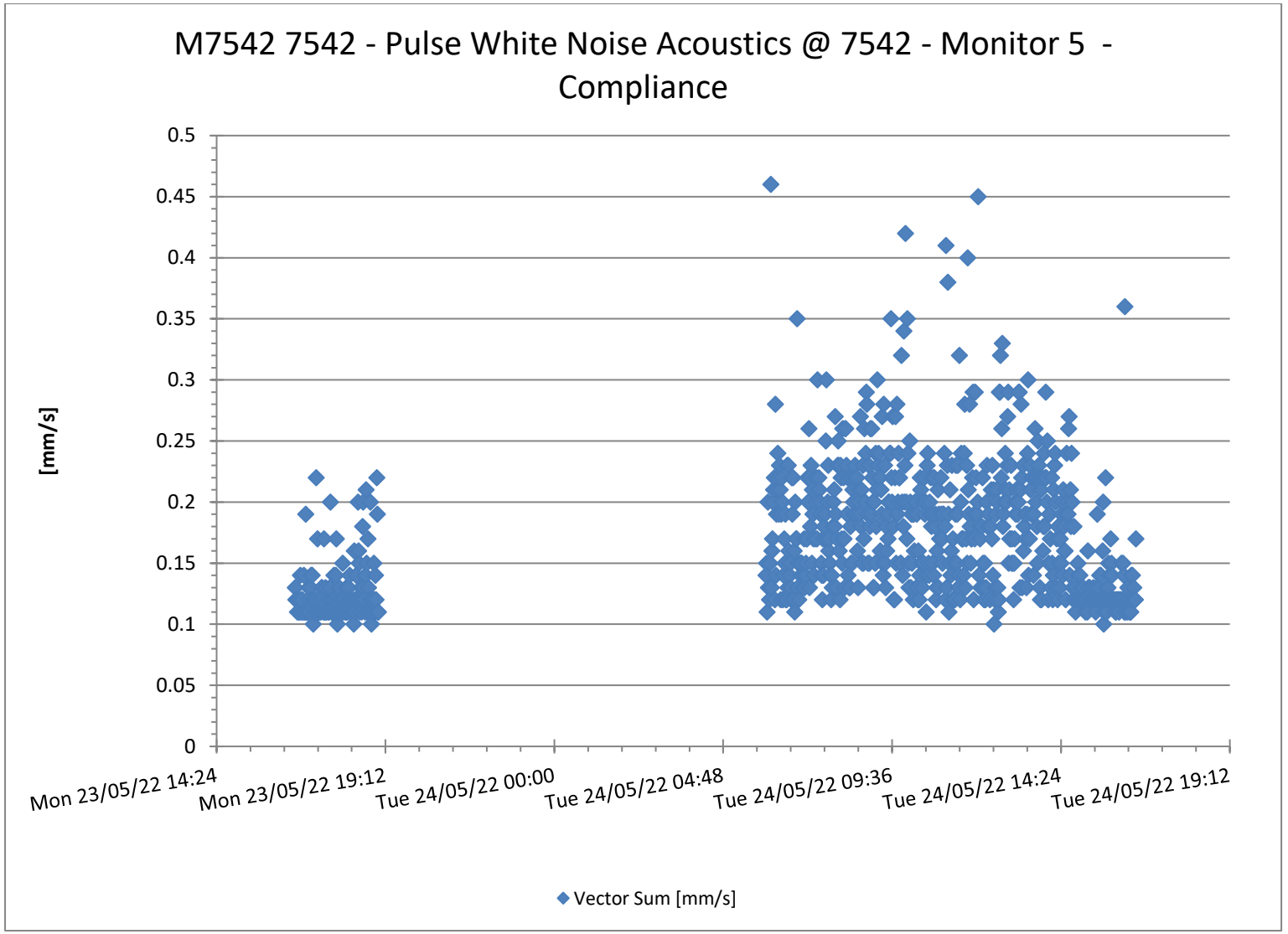
9 Appendix C –Logger Location 2 – Monitor M7542

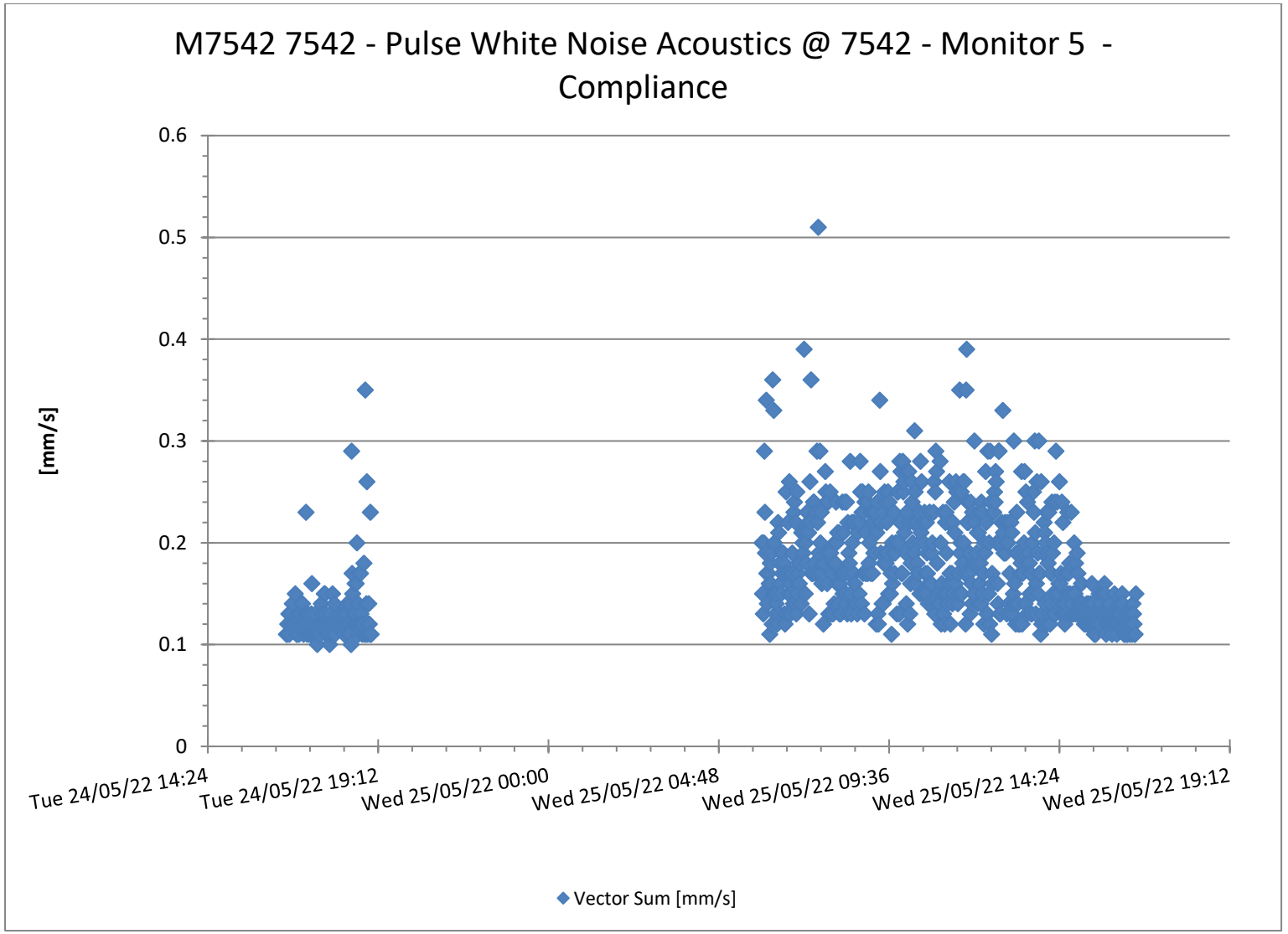

M7542 7542 - Pulse White Noise Acoustics @ 7542 - Monitor 5 - Compliance
[mm/s]
0.6
0.5
0.4
0.3
0.2
0.1
0
Thu 19/05/22 14:24
Thu 19/05/22 19:12
Fri 20/05/22 00:00
Fri 20/05/22 04:48
Fri 20/05/22 09:36
Fri 20/05/22 14:24
Fri 20/05/22 19:12
Vector Sum [mm/s]

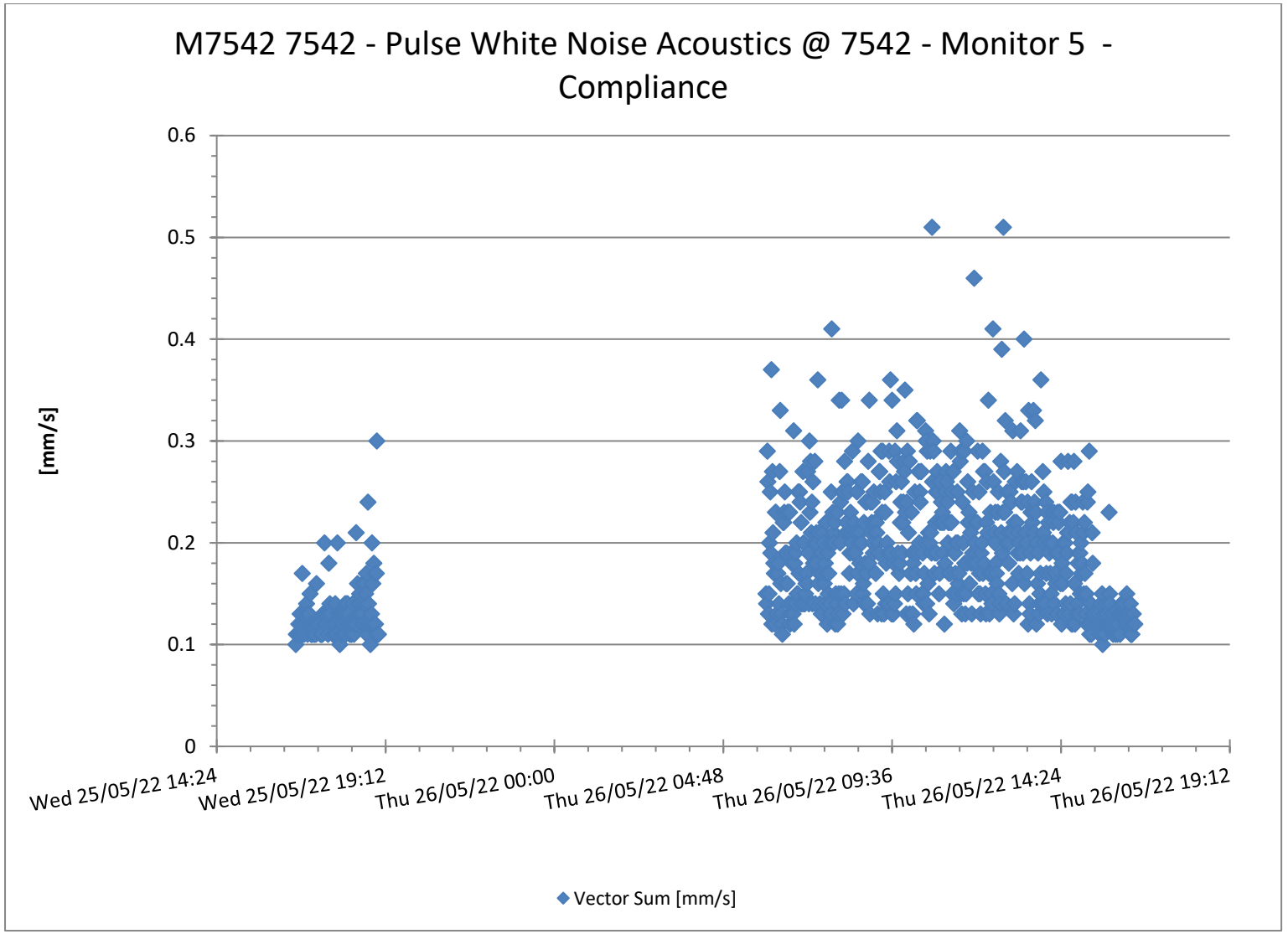

M7542 7542 - Pulse White Noise Acoustics @ 7542 - Monitor 5 - Compliance
[mm/s]
0.6
0.5
0.4
0.3
0.2
0.1
0
Fri 20/05/22 14:24
Fri 20/05/22 19:12
Sat 21/05/22 00:00
Sat 21/05/22 04:48
Sat 21/05/22 09:36
Sat 21/05/22 14:24
Sat 21/05/22 19:12
Vector Sum [mm/s]

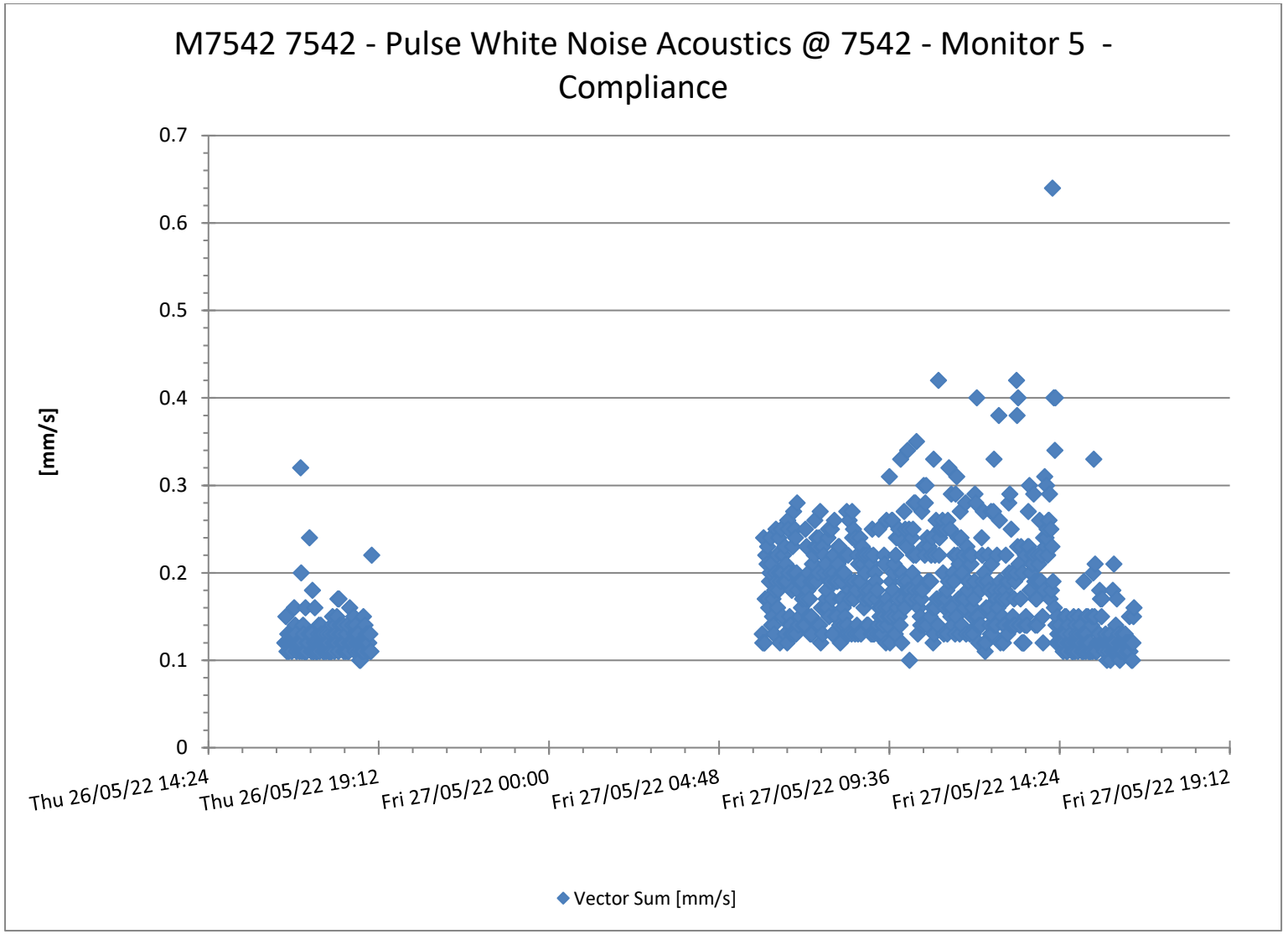

M7542 7542 - Pulse White Noise Acoustics @ 7542 - Monitor 5 - Compliance
[mm/s]
0.6
0.5
0.4
0.3
0.2
0.1
0
Sat 21/05/22 14:24
Sat 21/05/22 19:12
Sun 22/05/22 00:00
Sun 22/05/22 04:48
Sun 22/05/22 09:36
Sun 22/05/22 14:24
Sun 22/05/22 19:12
Vector Sum [mm/s]

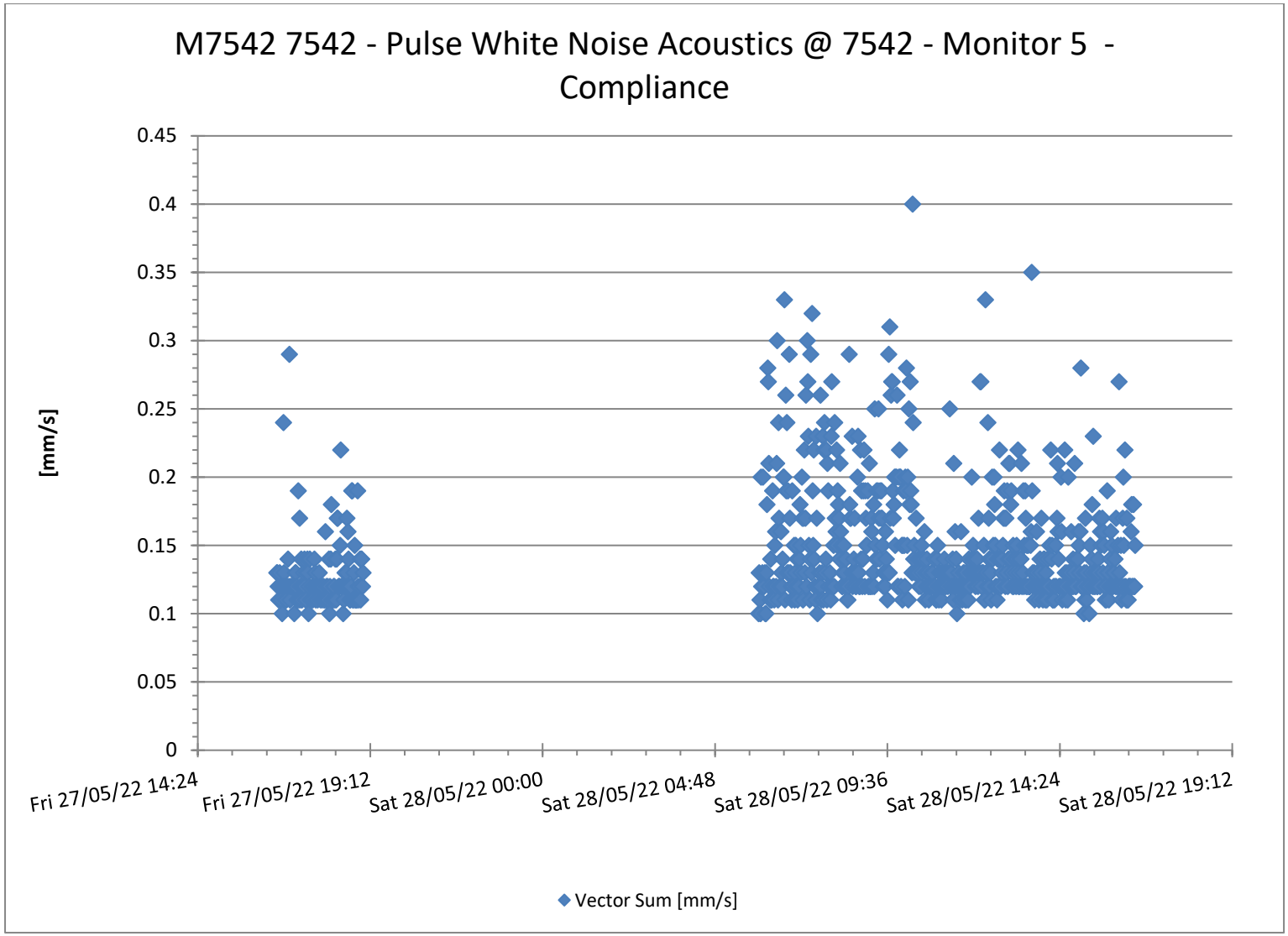

M7542 7542 - Pulse White Noise Acoustics @ 7542 - Monitor 5 - Compliance
[mm/s]
0.6
0.5
0.4
0.3
0.2
0.1
0
Sun 22/05/22 14:24
Sun 22/05/22 19:12
Mon 23/05/22 00:00
Mon 23/05/22 04:48
Mon 23/05/22 09:36
Mon 23/05/22 14:24
Mon 23/05/22 19:12
Vector Sum [mm/s]

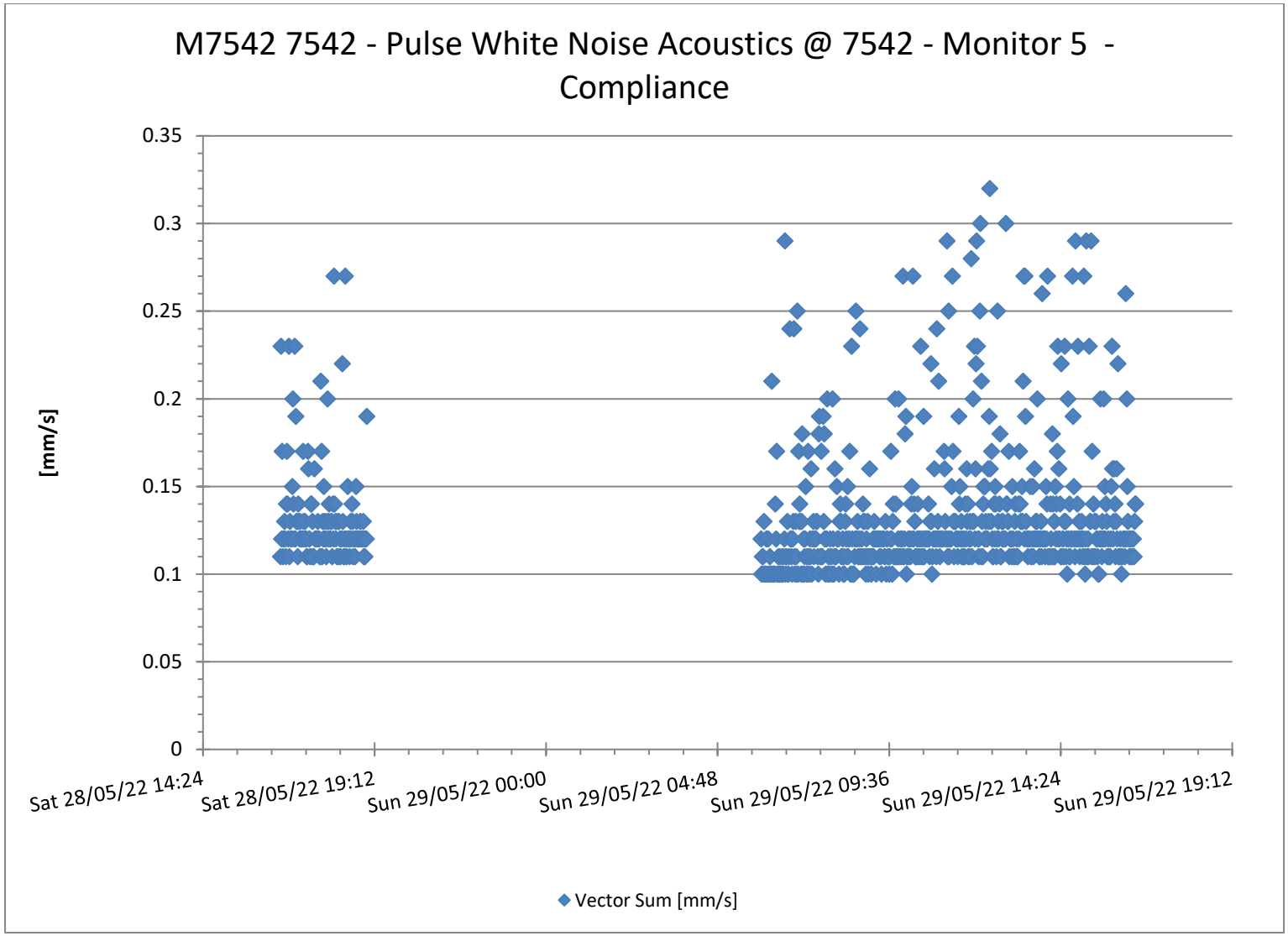

M7542 7542 - Pulse White Noise Acoustics @ 7542 - Monitor 5 - Compliance
[mm/s]
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Mon 23/05/22 14:24
Mon 23/05/22 19:12
Tue 24/05/22 00:00
Tue 24/05/22 04:48
Tue 24/05/22 09:36
Tue 24/05/22 14:24
Tue 24/05/22 19:12
Vector Sum [mm/s]

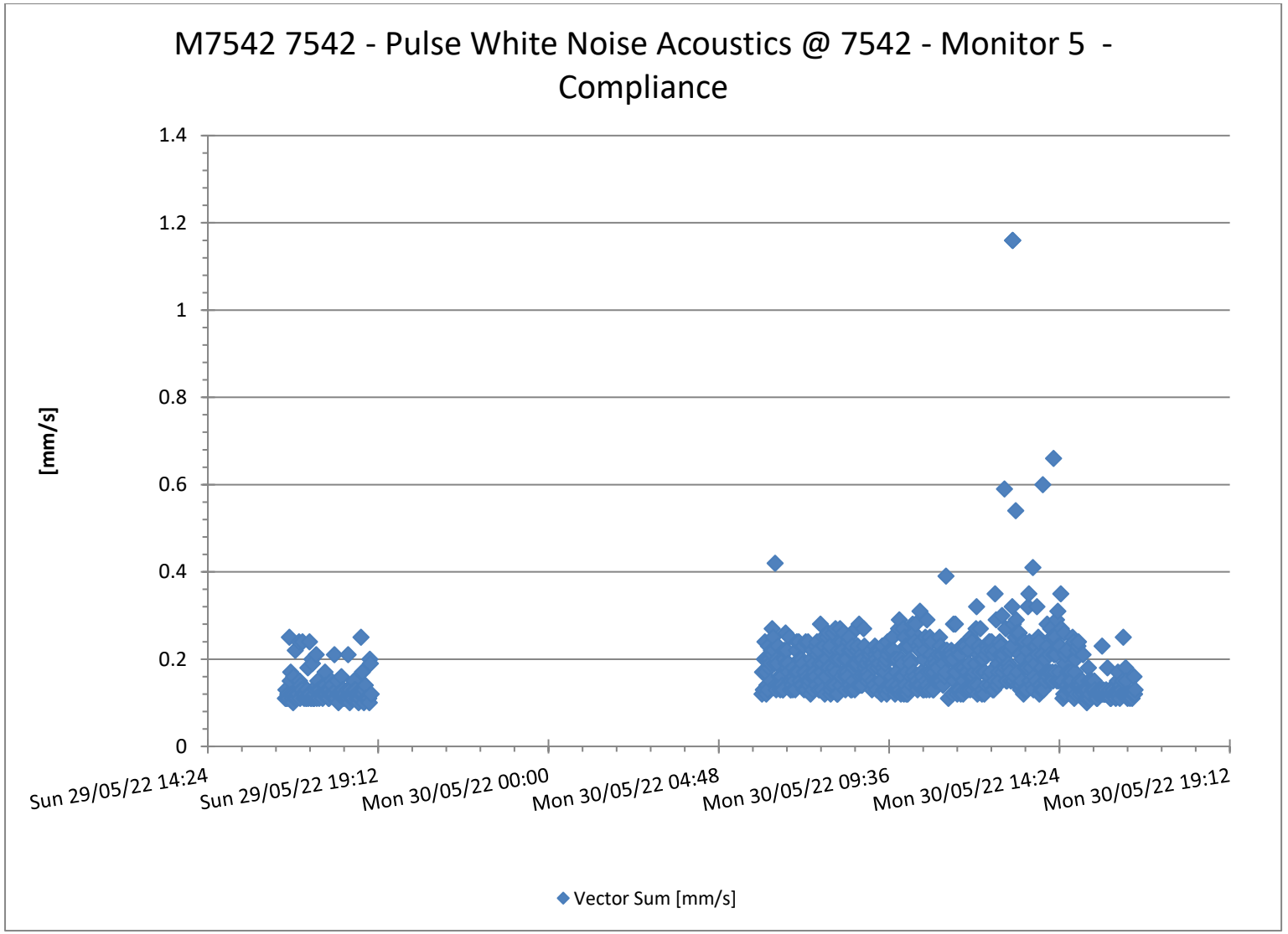

M7542 7542 - Pulse White Noise Acoustics @ 7542 - Monitor 5 - Compliance
[mm/s]
0.6
0.5
0.4
0.3
0.2
0.1
0
Tue 24/05/22 14:24
Tue 24/05/22 19:12
Wed 25/05/22 00:00
Wed 25/05/22 04:48
Wed 25/05/22 09:36
Wed 25/05/22 14:24
Wed 25/05/22 19:12
Vector Sum [mm/s]

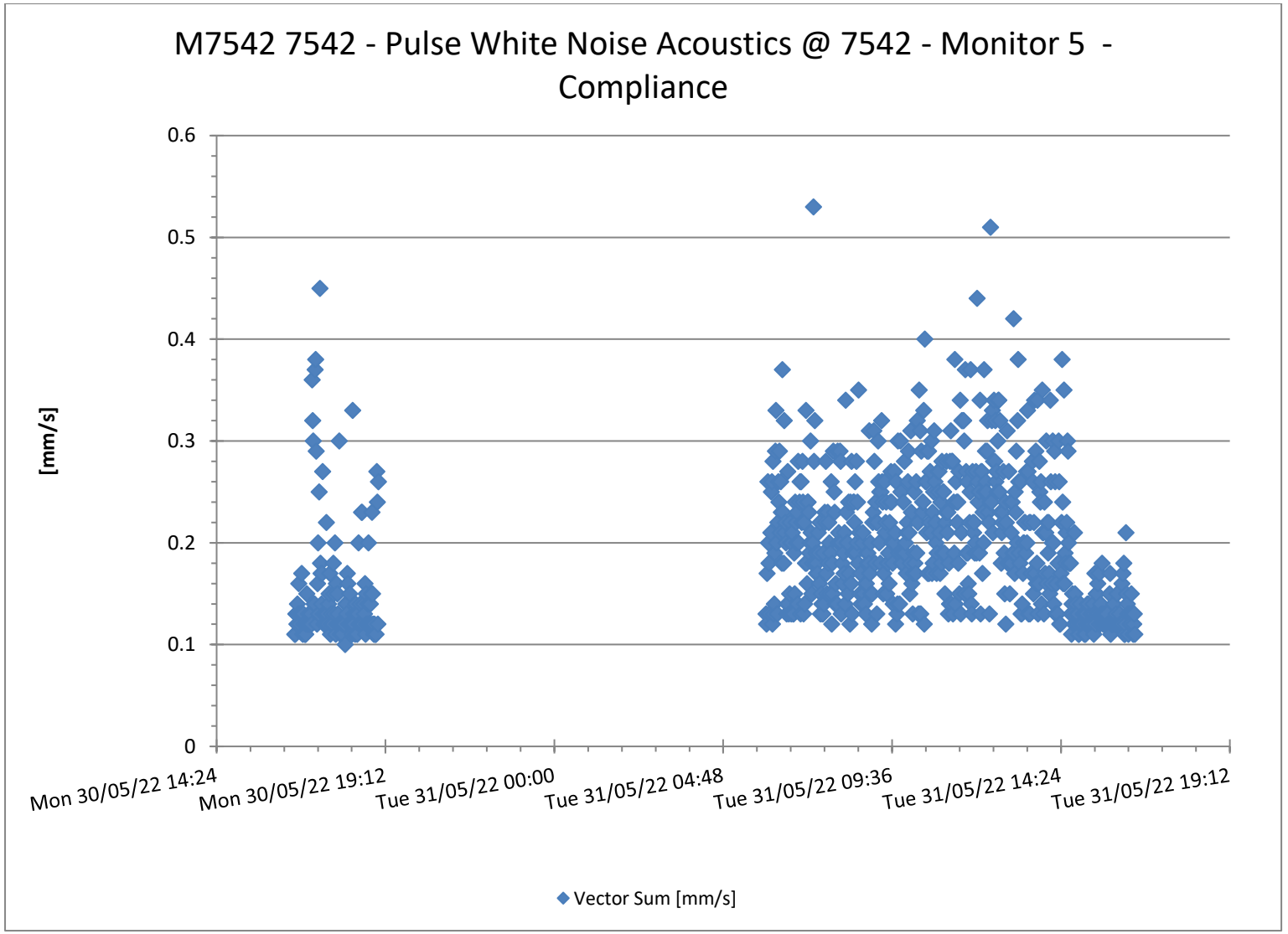

M7542 7542 - Pulse White Noise Acoustics @ 7542 - Monitor 5 - Compliance
[mm/s]
0.6
0.5
0.4
0.3
0.2
0.1
0
Wed 25/05/22 14:24
Wed 25/05/22 19:12
Thu 26/05/22 00:00
Thu 26/05/22 04:48
Thu 26/05/22 09:36
Thu 26/05/22 14:24
Thu 26/05/22 19:12
Vector Sum [mm/s]

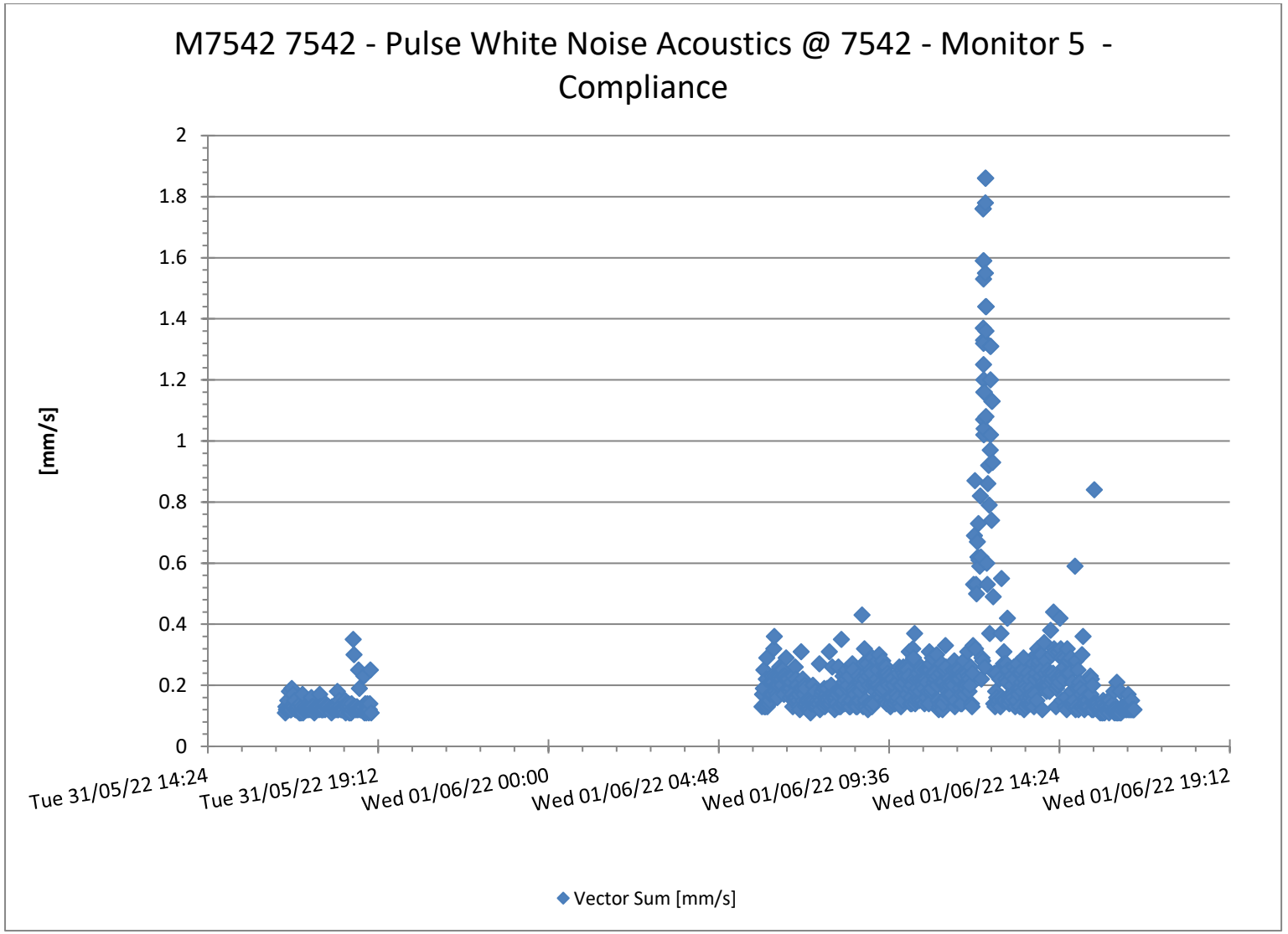

M7542 7542 - Pulse White Noise Acoustics @ 7542 - Monitor 5 - Compliance
[mm/s]
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Thu 26/05/22 14:24
Thu 26/05/22 19:12
Fri 27/05/22 00:00
Fri 27/05/22 04:48
Fri 27/05/22 09:36
Fri 27/05/22 14:24
Fri 27/05/22 19:12
Vector Sum [mm/s]


M7542 7542 - Pulse White Noise Acoustics @ 7542 - Monitor 5 - Compliance
[mm/s]
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Fri 27/05/22 14:24
Fri 27/05/22 19:12
Sat 28/05/22 00:00
Sat 28/05/22 04:48
Sat 28/05/22 09:36
Sat 28/05/22 14:24
Sat 28/05/22 19:12
Vector Sum [mm/s]

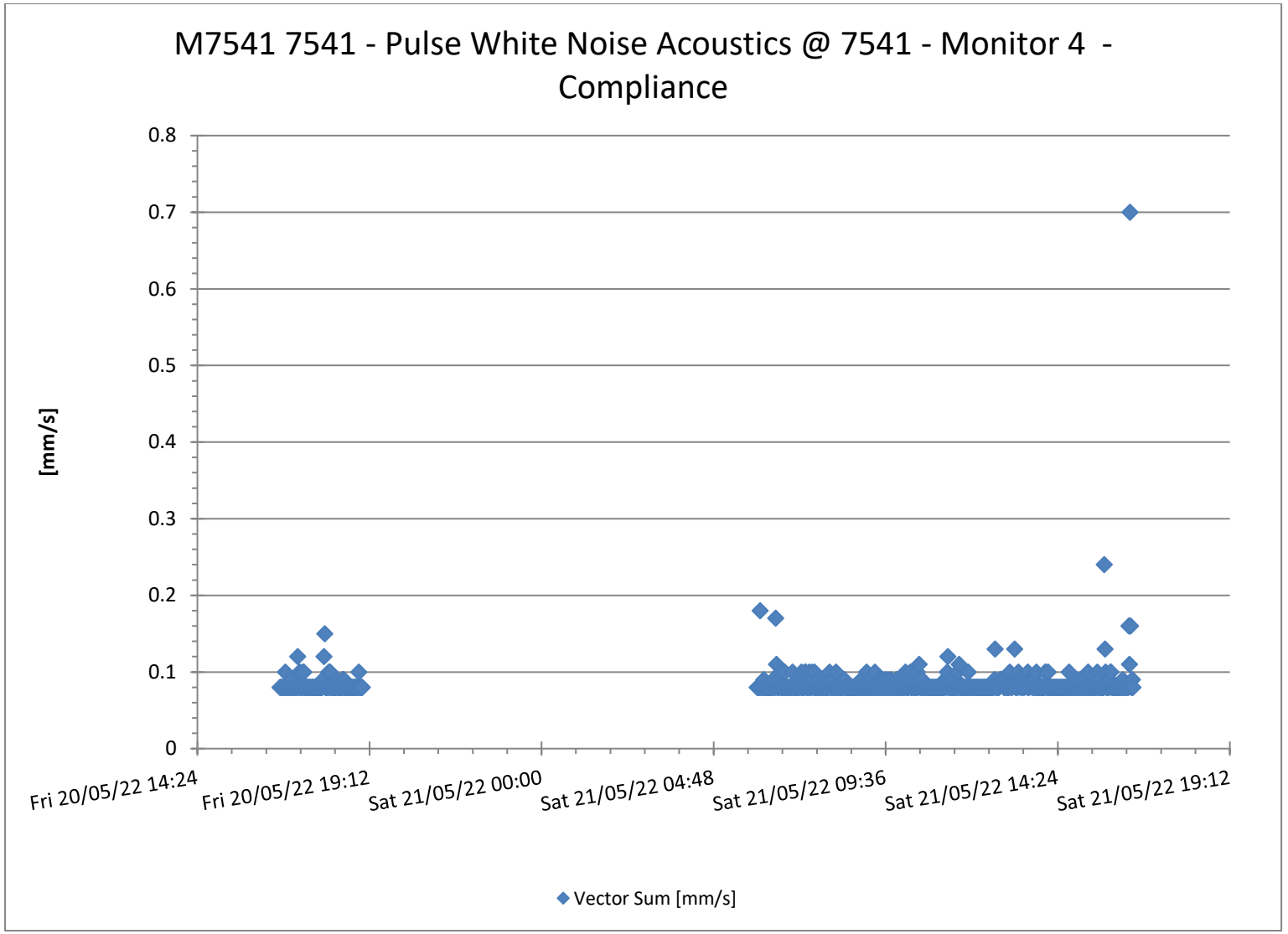

M7542 7542 - Pulse White Noise Acoustics @ 7542 - Monitor 5 - Compliance
[mm/s]
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Sat 28/05/22 14:24
Sat 28/05/22 19:12
Sun 29/05/22 00:00
Sun 29/05/22 04:48
Sun 29/05/22 09:36
Sun 29/05/22 14:24
Sun 29/05/22 19:12
Vector Sum [mm/s]

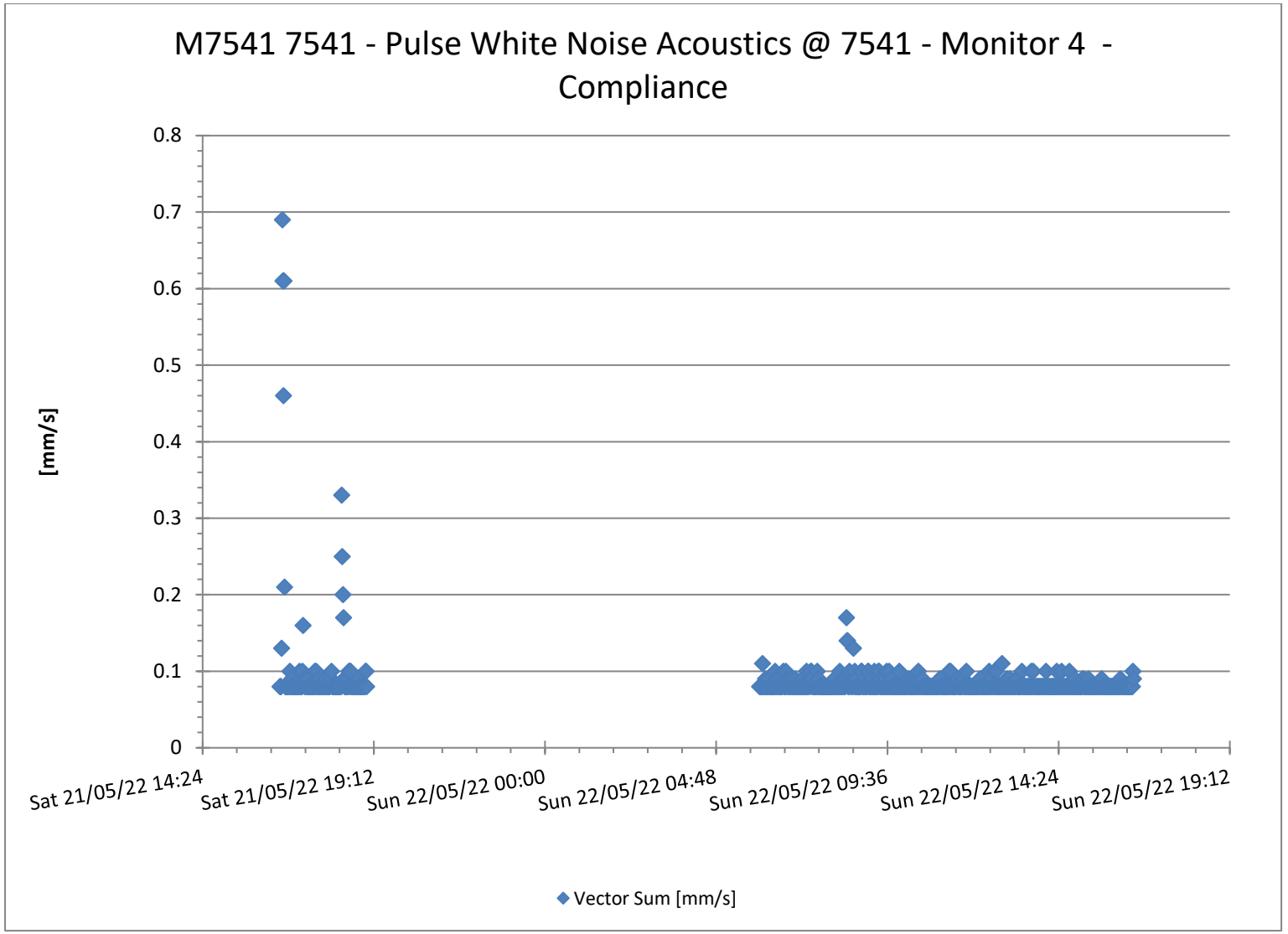

M7542 7542 - Pulse White Noise Acoustics @ 7542 - Monitor 5 - Compliance
[mm/s]
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Sun 29/05/22 14:24
Sun 29/05/22 19:12
Mon 30/05/22 00:00
Mon 30/05/22 04:48
Mon 30/05/22 09:36
Mon 30/05/22 14:24
Mon 30/05/22 19:12
Vector Sum [mm/s]

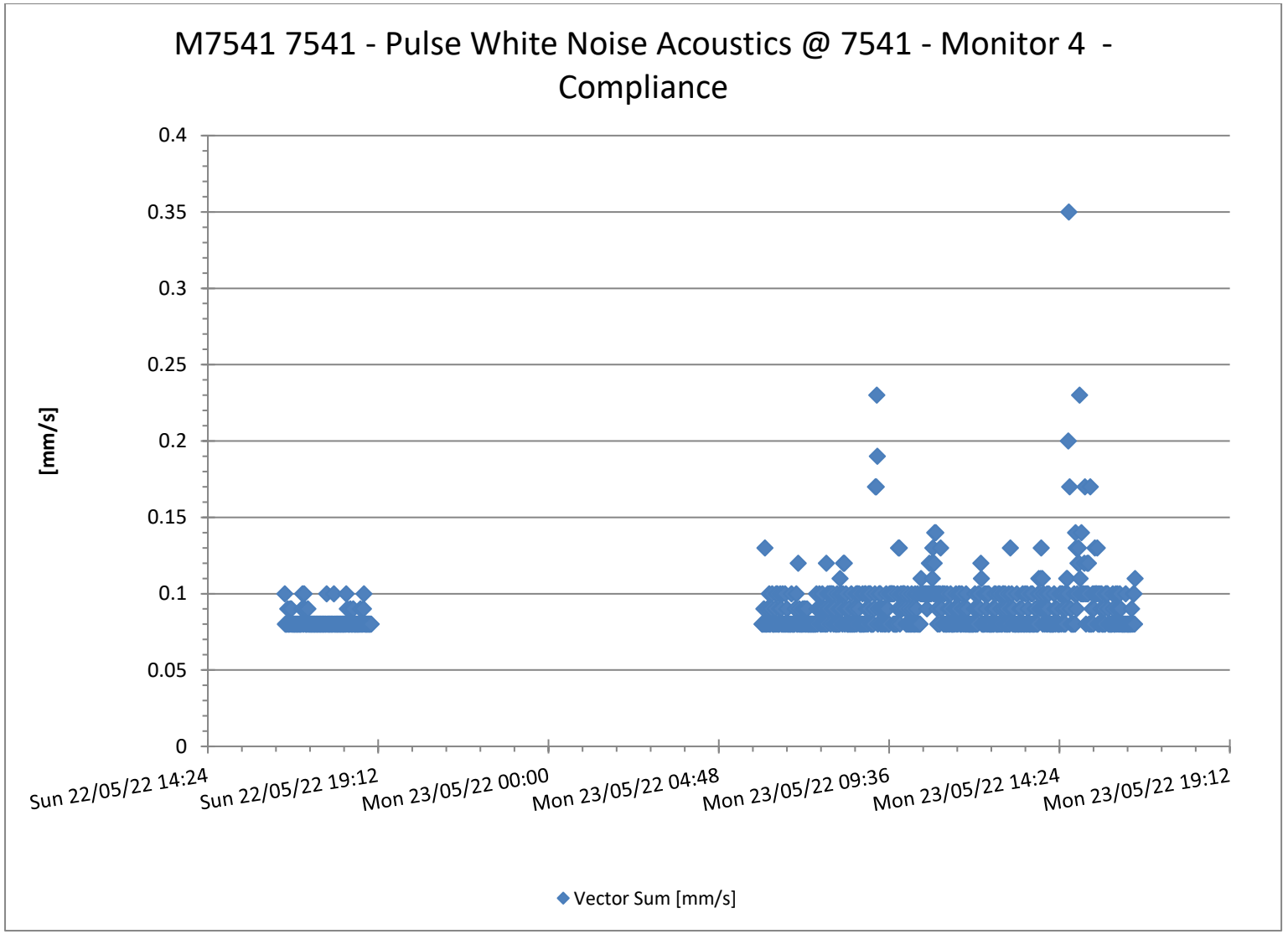

M7542 7542 - Pulse White Noise Acoustics @ 7542 - Monitor 5 - Compliance
[mm/s]
0.6
0.5
0.4
0.3
0.2
0.1
0
Mon 30/05/22 14:24
Mon 30/05/22 19:12
Tue 31/05/22 00:00
Tue 31/05/22 04:48
Tue 31/05/22 09:36
Tue 31/05/22 14:24
Tue 31/05/22 19:12
Vector Sum [mm/s]

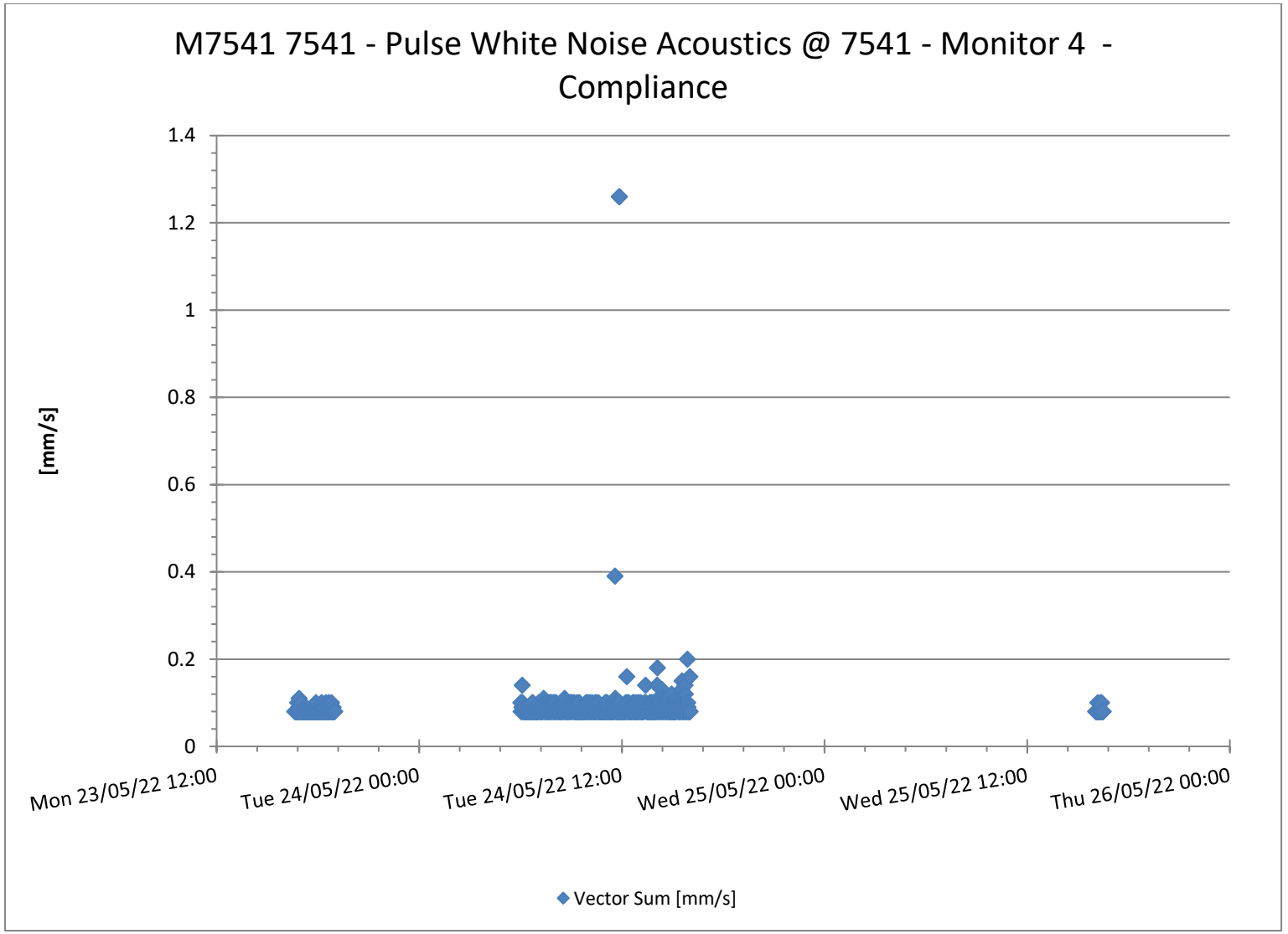

M7542 7542 - Pulse White Noise Acoustics @ 7542 - Monitor 5 - Compliance
[mm/s]
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Tue 31/05/22 14:24
Tue 31/05/22 19:12
Wed 01/06/22 00:00
Wed 01/06/22 04:48
Wed 01/06/22 09:36
Wed 01/06/22 14:24
Wed 01/06/22 19:12
Vector Sum [mm/s]

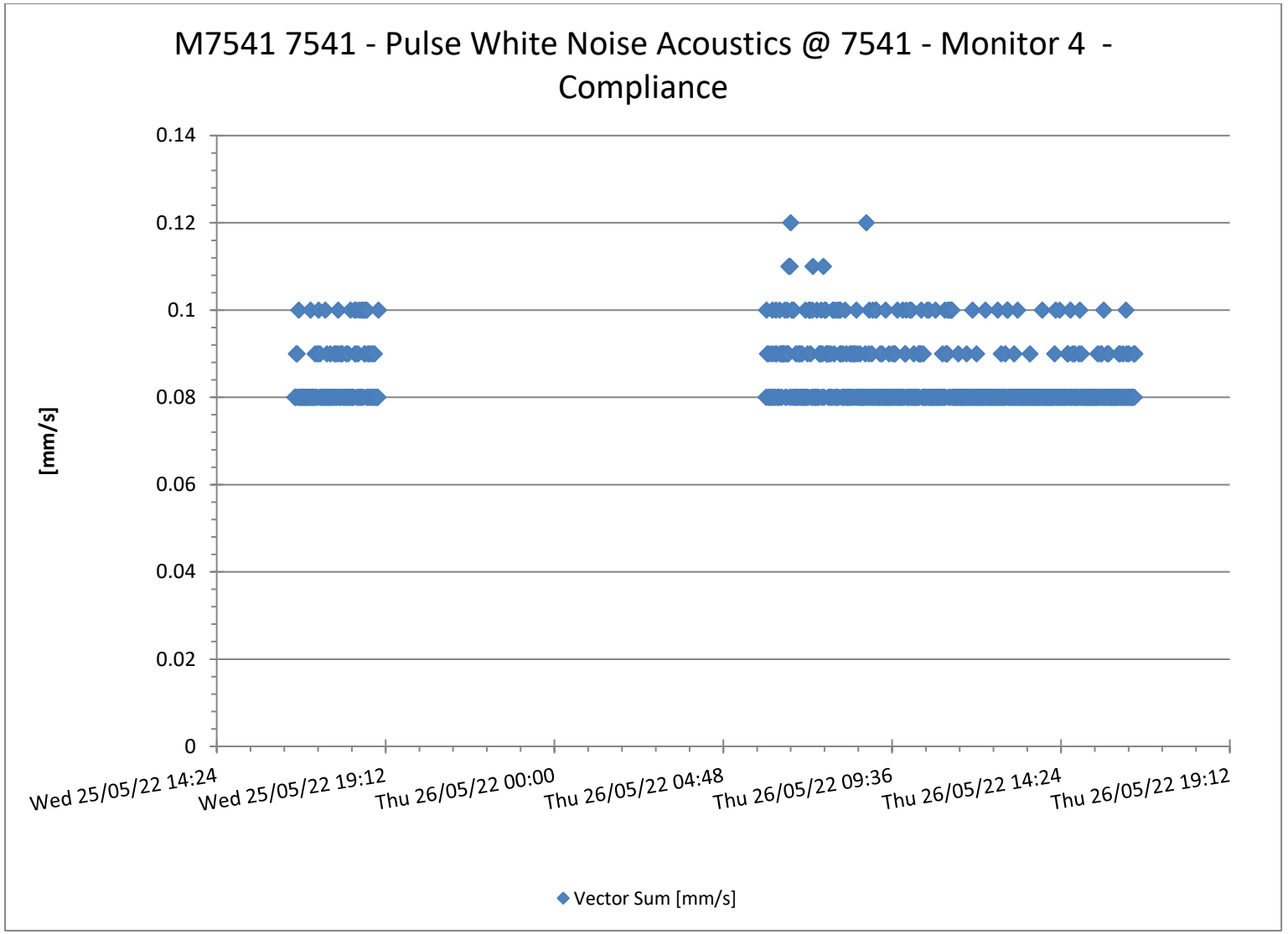
10 Appendix D –Logger Location 3 – Monitor M7541

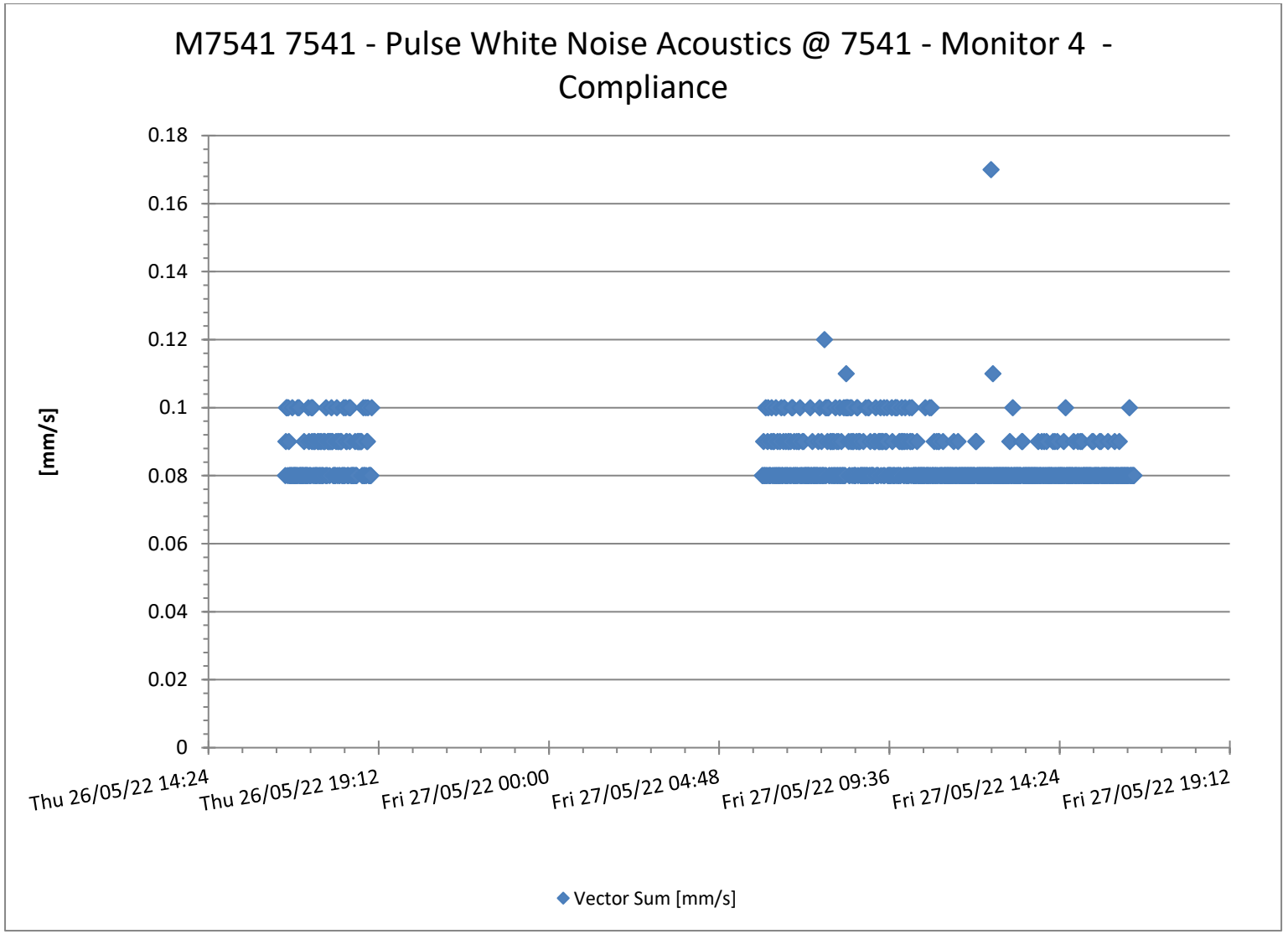

M7541 7541 - Pulse White Noise Acoustics @ 7541 - Monitor 4 - Compliance
[mm/s]
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Fri 20/05/22 14:24
Fri 20/05/22 19:12
Sat 21/05/22 00:00
Sat 21/05/22 04:48
Sat 21/05/22 09:36
Sat 21/05/22 14:24
Sat 21/05/22 19:12
Vector Sum [mm/s]

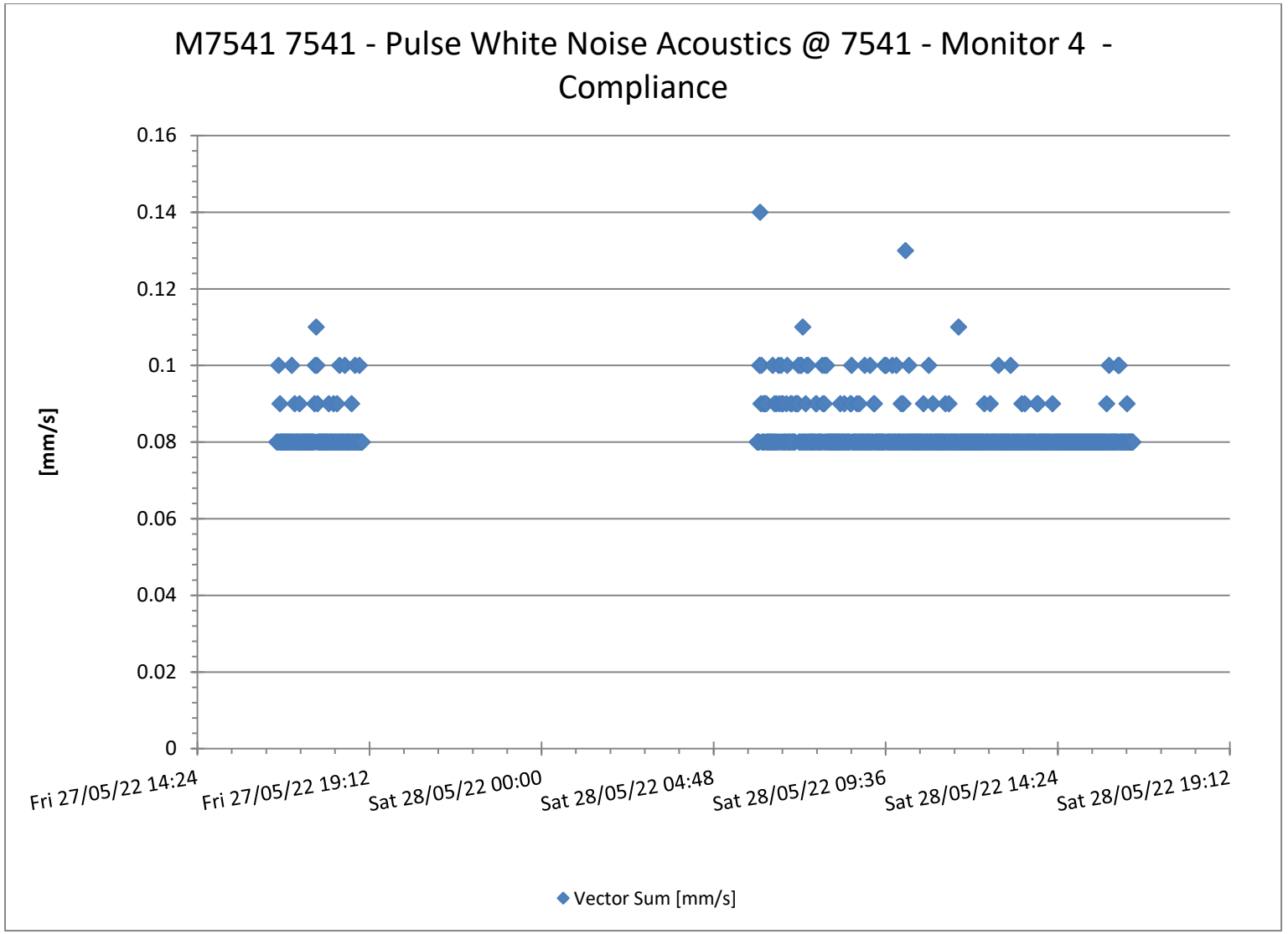

M7541 7541 - Pulse White Noise Acoustics @ 7541 - Monitor 4 - Compliance
[mm/s]
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Sat 21/05/22 14:24
Sat 21/05/22 19:12
Sun 22/05/22 00:00
Sun 22/05/22 04:48
Sun 22/05/22 09:36
Sun 22/05/22 14:24
Sun 22/05/22 19:12
Vector Sum [mm/s]

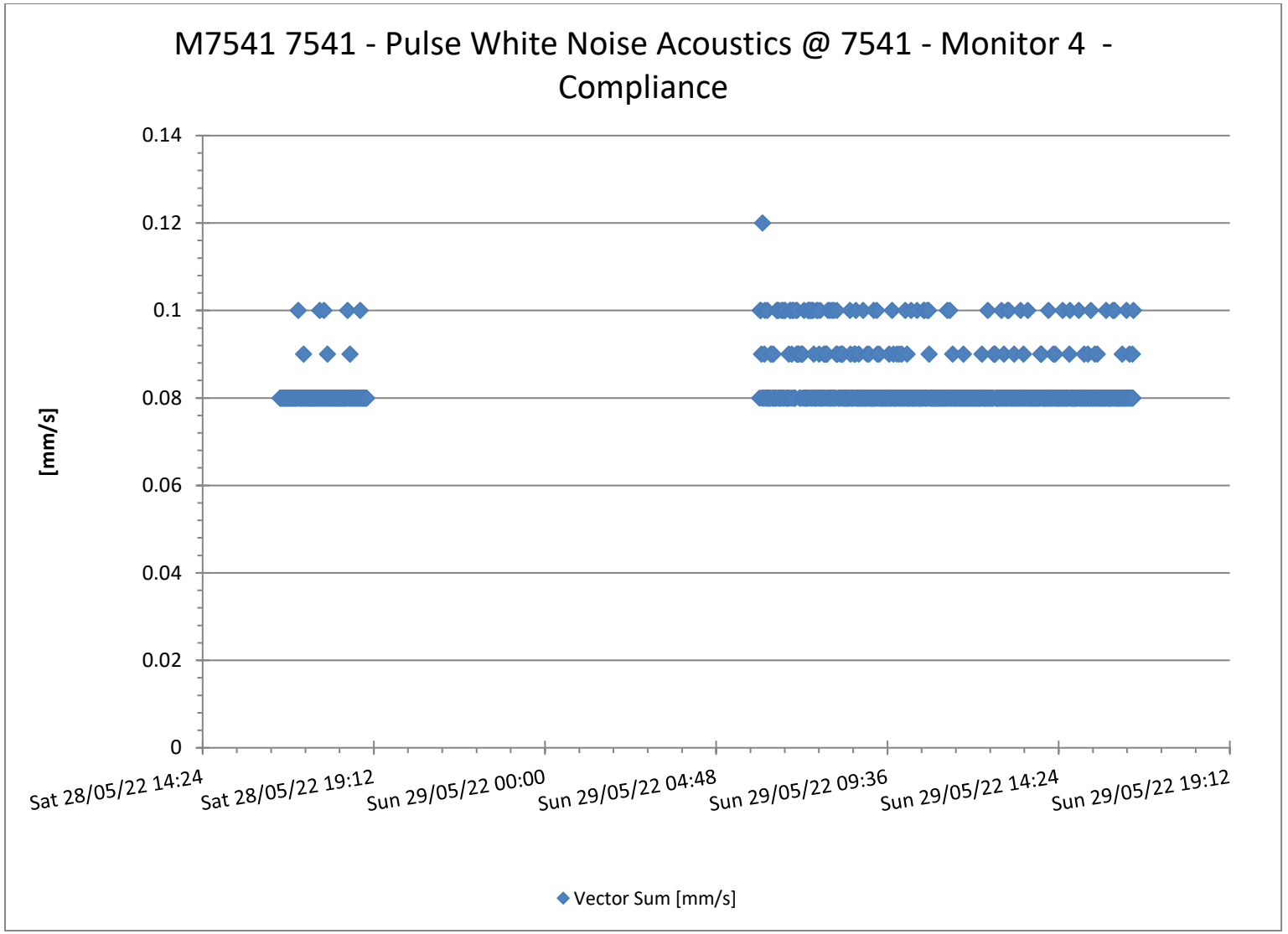

M7541 7541 - Pulse White Noise Acoustics @ 7541 - Monitor 4 - Compliance
[mm/s]
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Sun 22/05/22 14:24
Sun 22/05/22 19:12
Mon 23/05/22 00:00
Mon 23/05/22 04:48
Mon 23/05/22 09:36
Mon 23/05/22 14:24
Mon 23/05/22 19:12
Vector Sum [mm/s]

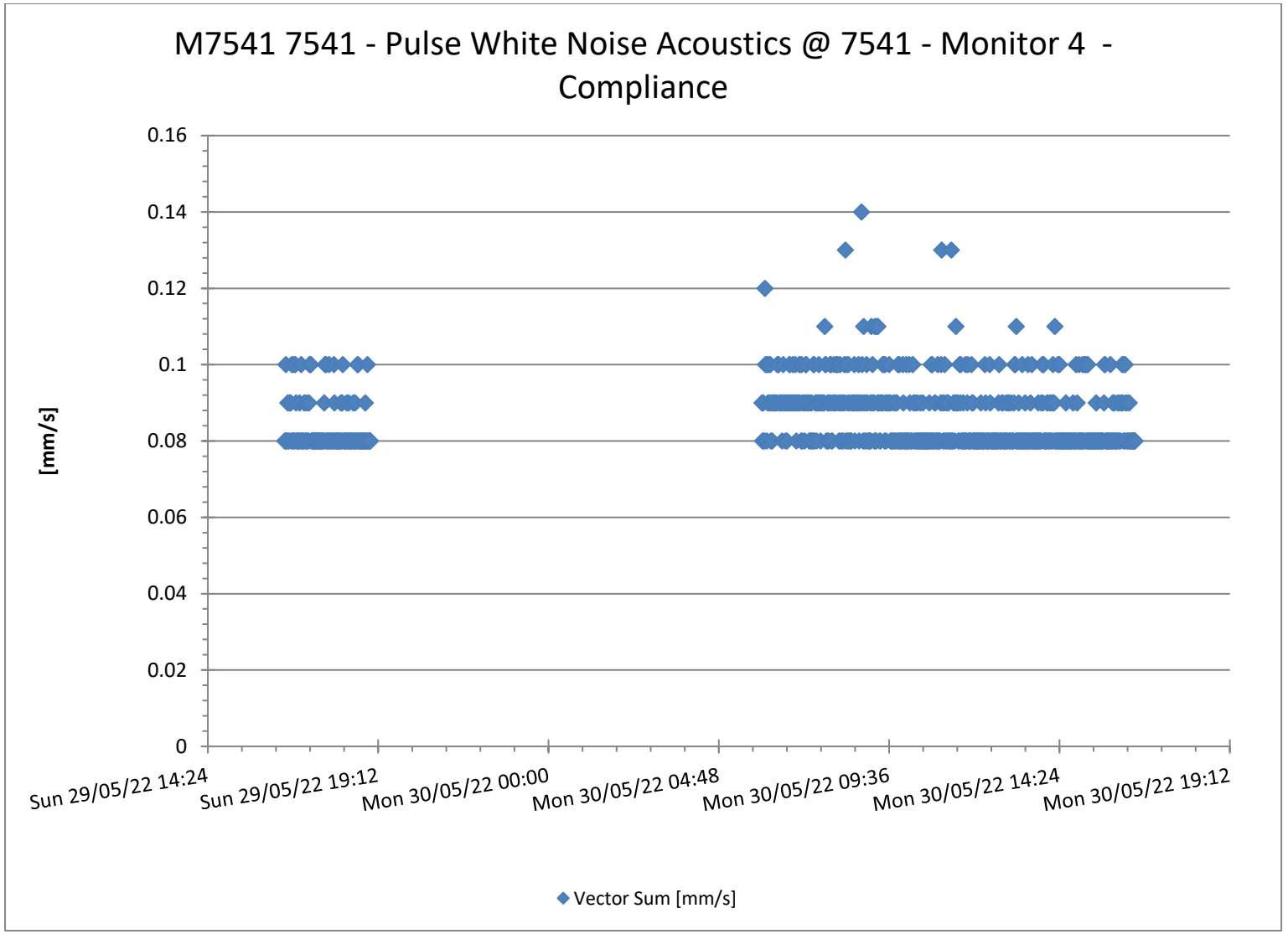

M7541 7541 - Pulse White Noise Acoustics @ 7541 - Monitor 4 - Compliance
[mm/s]
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Mon 23/05/22 12:00
Tue 24/05/22 00:00
Tue 24/05/22 12:00
Wed 25/05/22 00:00
Wed 25/05/22 12:00
Thu 26/05/22 00:00
Vector Sum [mm/s]

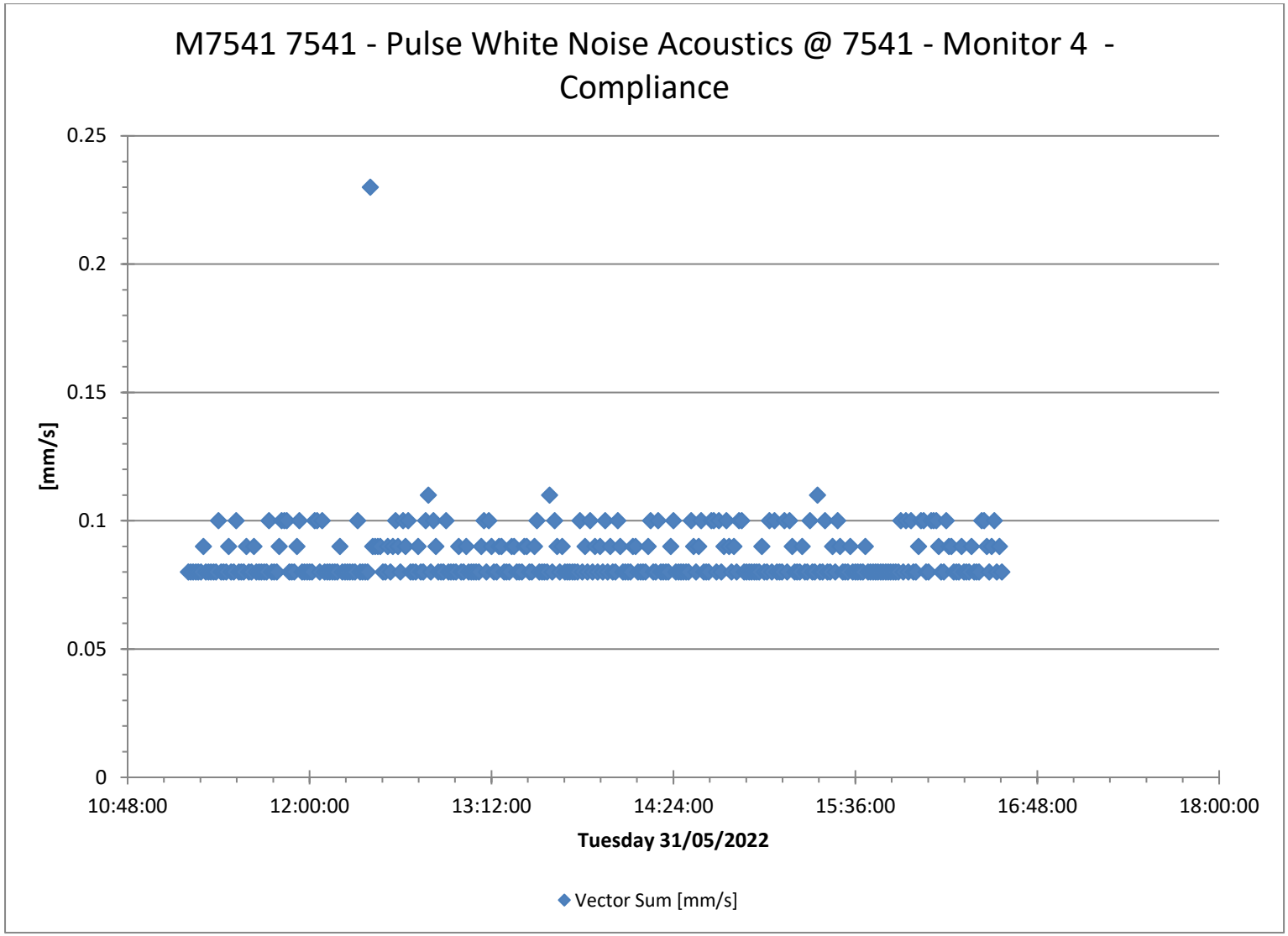

M7541 7541 - Pulse White Noise Acoustics @ 7541 - Monitor 4 - Compliance
[mm/s]
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Wed 25/05/22 14:24
Wed 25/05/22 19:12
Thu 26/05/22 00:00
Thu 26/05/22 04:48
Thu 26/05/22 09:36
Thu 26/05/22 14:24
Thu 26/05/22 19:12
Vector Sum [mm/s]


M7541 7541 - Pulse White Noise Acoustics @ 7541 - Monitor 4 - Compliance
[mm/s]
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Thu 26/05/22 14:24
Thu 26/05/22 19:12
Fri 27/05/22 00:00
Fri 27/05/22 04:48
Fri 27/05/22 09:36
Fri 27/05/22 14:24
Fri 27/05/22 19:12
Vector Sum [mm/s]

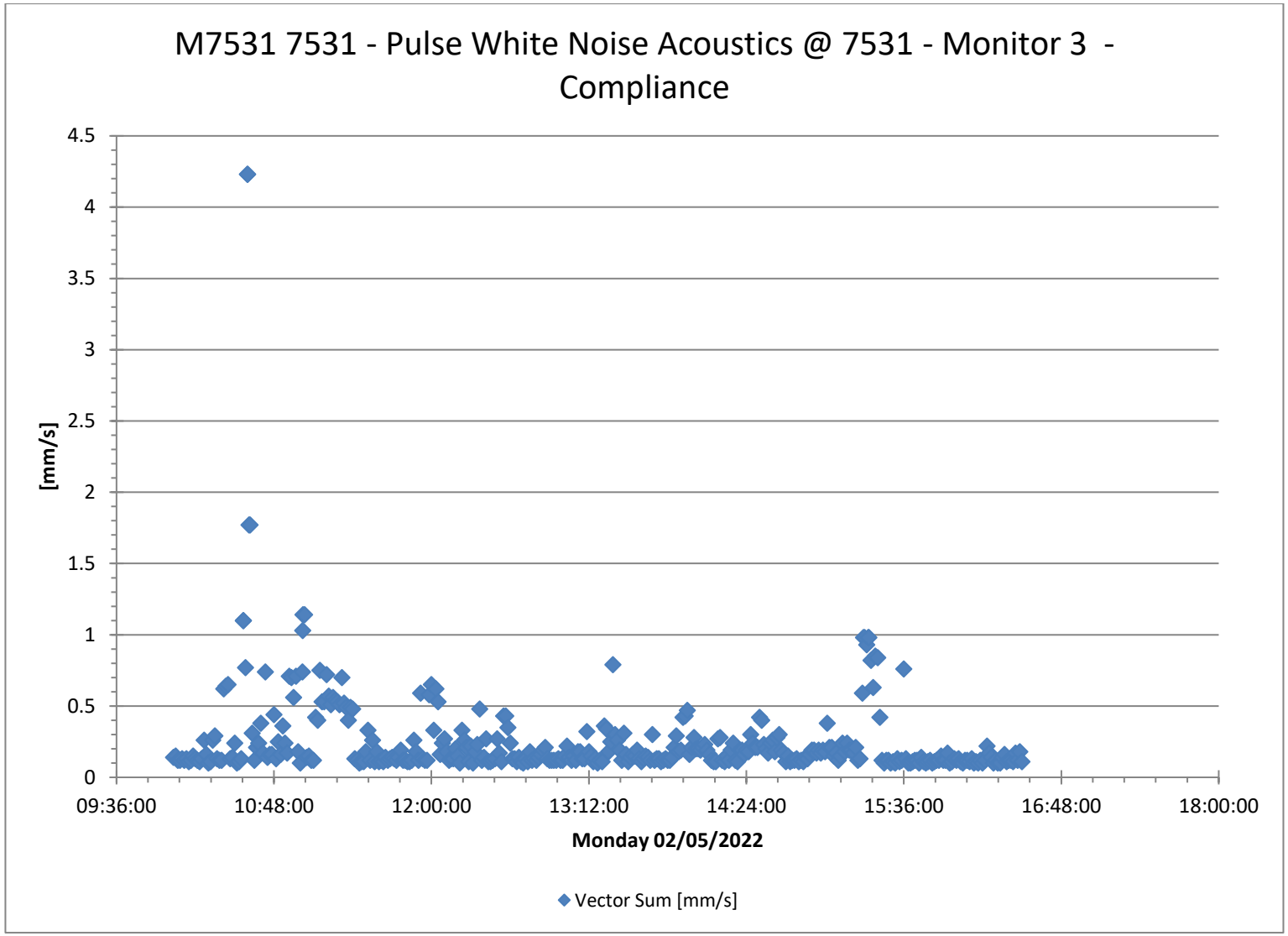

M7541 7541 - Pulse White Noise Acoustics @ 7541 - Monitor 4 - Compliance
[mm/s]
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Fri 27/05/22 14:24
Fri 27/05/22 19:12
Sat 28/05/22 00:00
Sat 28/05/22 04:48
Sat 28/05/22 09:36
Sat 28/05/22 14:24
Sat 28/05/22 19:12
Vector Sum [mm/s]

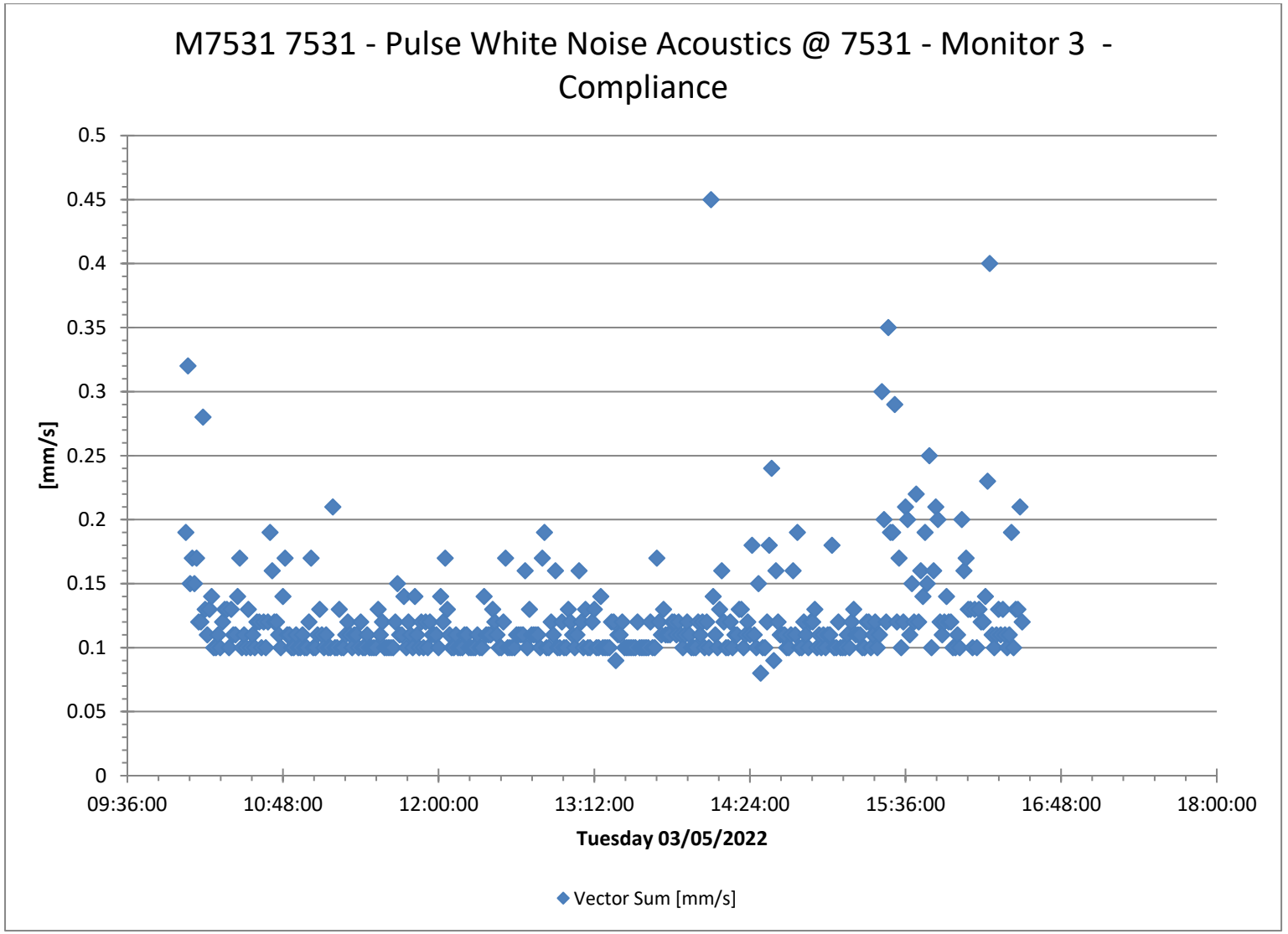

M7541 7541 - Pulse White Noise Acoustics @ 7541 - Monitor 4 - Compliance
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
[mm/s]
Sat 28/05/22 14:24
Sat 28/05/22 19:12
Sun 29/05/22 00:00
Sun 29/05/22 04:48
Sun 29/05/22 09:36
Sun 29/05/22 14:24
Sun 29/05/22 19:12
Vector Sum [mm/s]

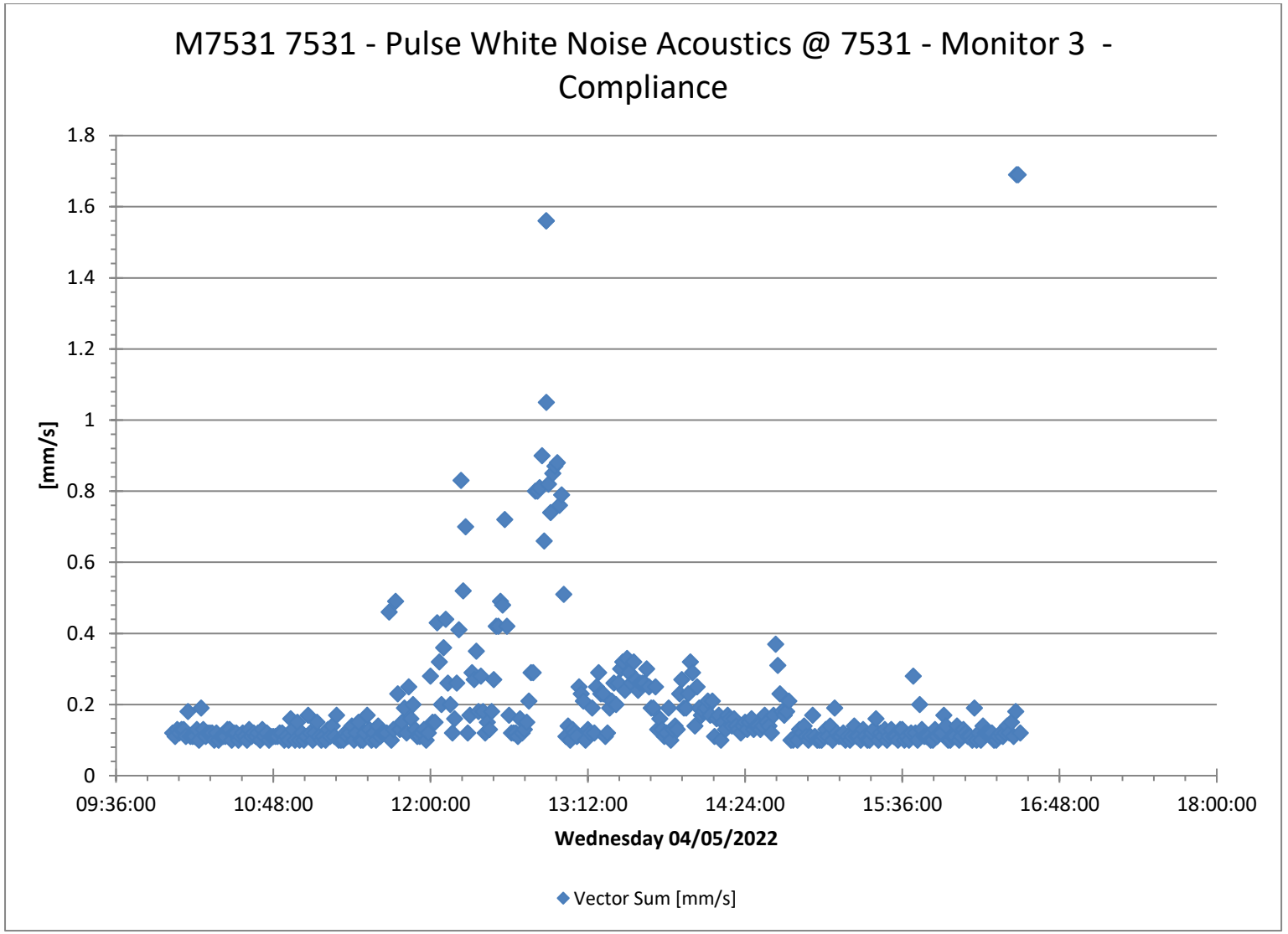

M7541 7541 - Pulse White Noise Acoustics @ 7541 - Monitor 4 - Compliance
[mm/s]
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Sun 29/05/22 14:24
Sun 29/05/22 19:12
Mon 30/05/22 00:00
Mon 30/05/22 04:48
Mon 30/05/22 09:36
Mon 30/05/22 14:24
Mon 30/05/22 19:12
Vector Sum [mm/s]

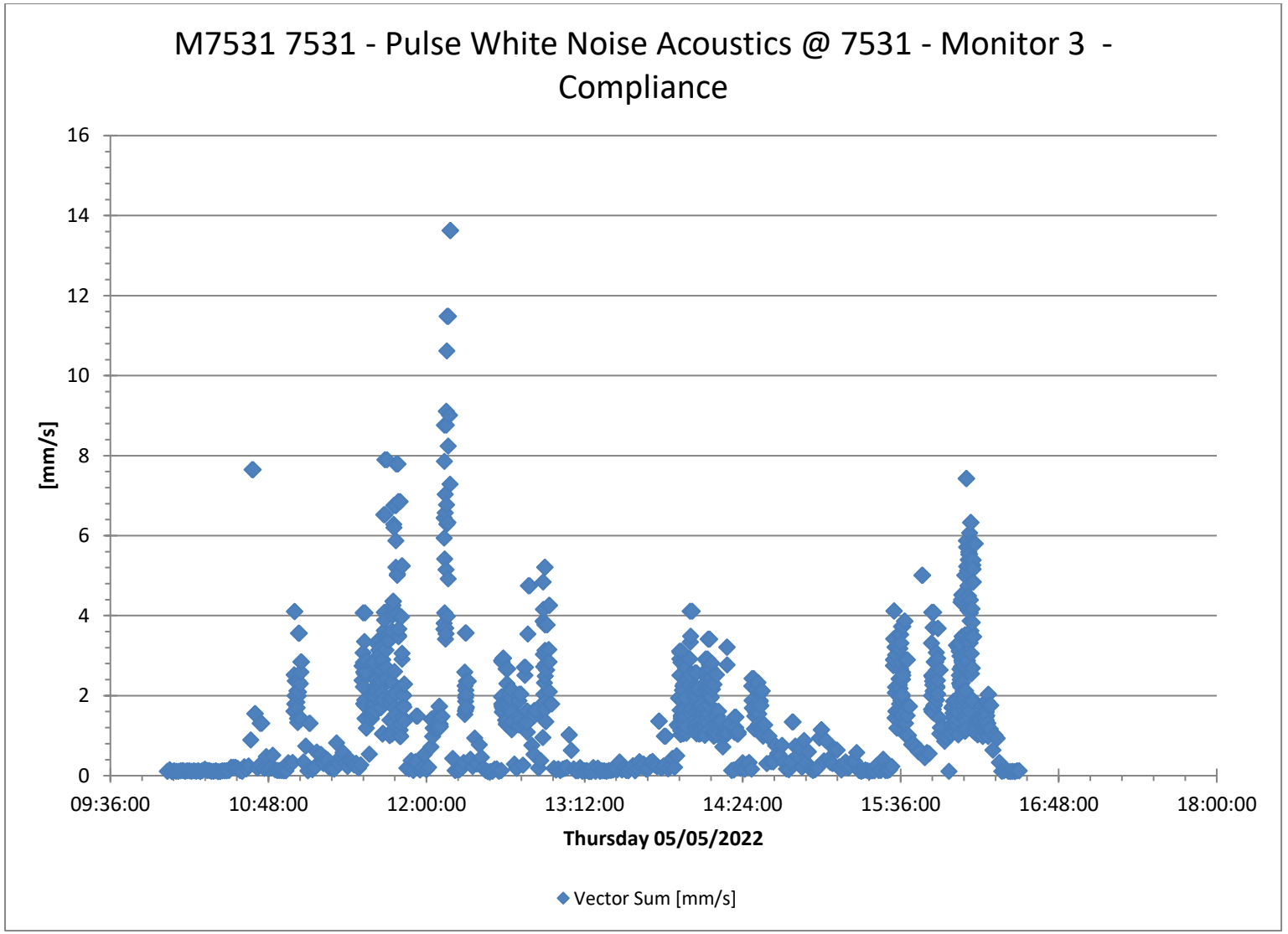

M7541 7541 - Pulse White Noise Acoustics @ 7541 - Monitor 4 - Compliance
0.25
0.2
0.15
0.1
0.05
0
[mm/s]
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Tuesday 31/05/2022
Vector Sum [mm/s]

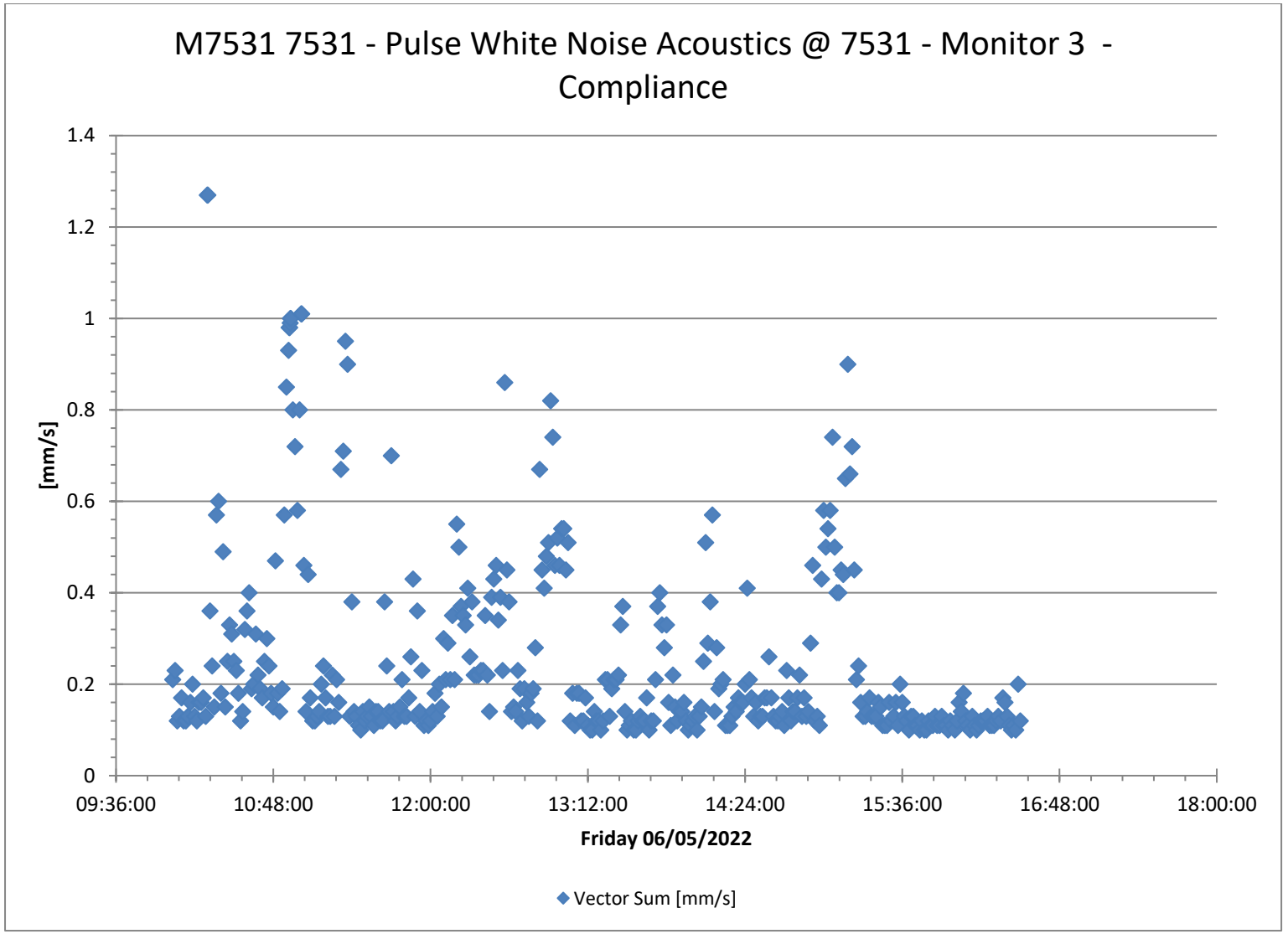
11 Appendix E –Logger Location 4 – Monitor M7517 and 7531

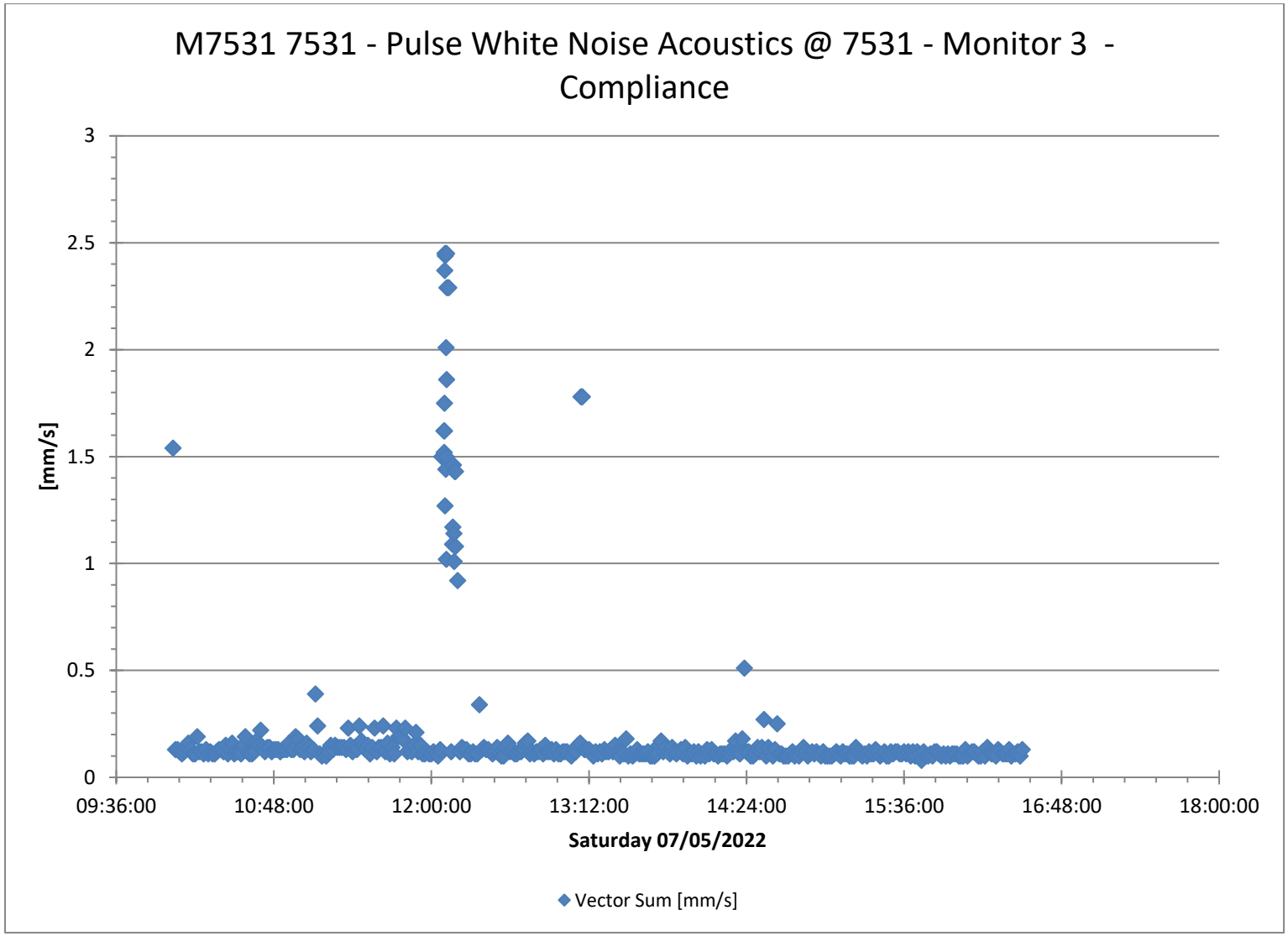

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Monday 02/05/2022
Vector Sum [mm/s]

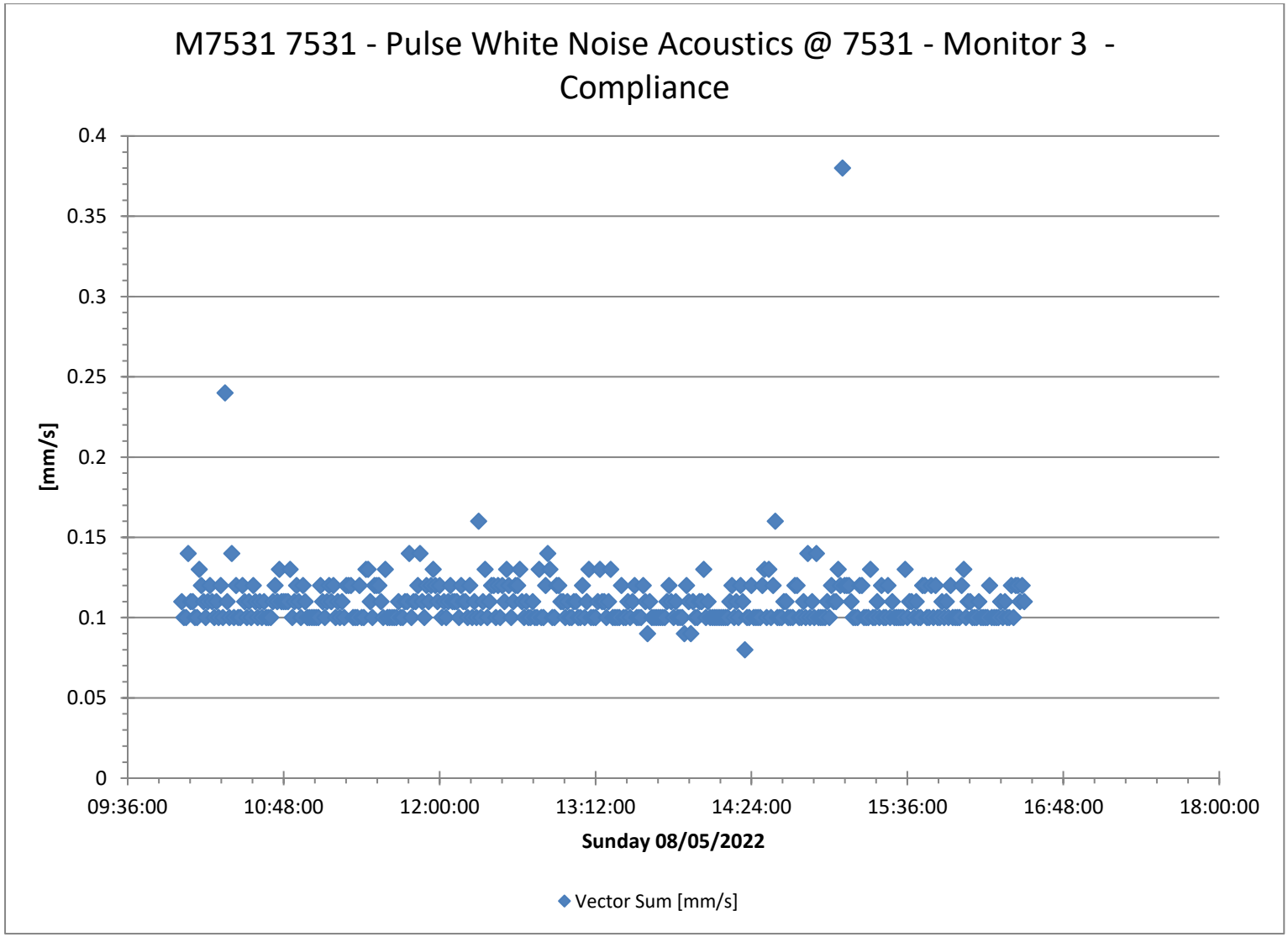

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
[mm/s]
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Tuesday 03/05/2022
Vector Sum [mm/s]

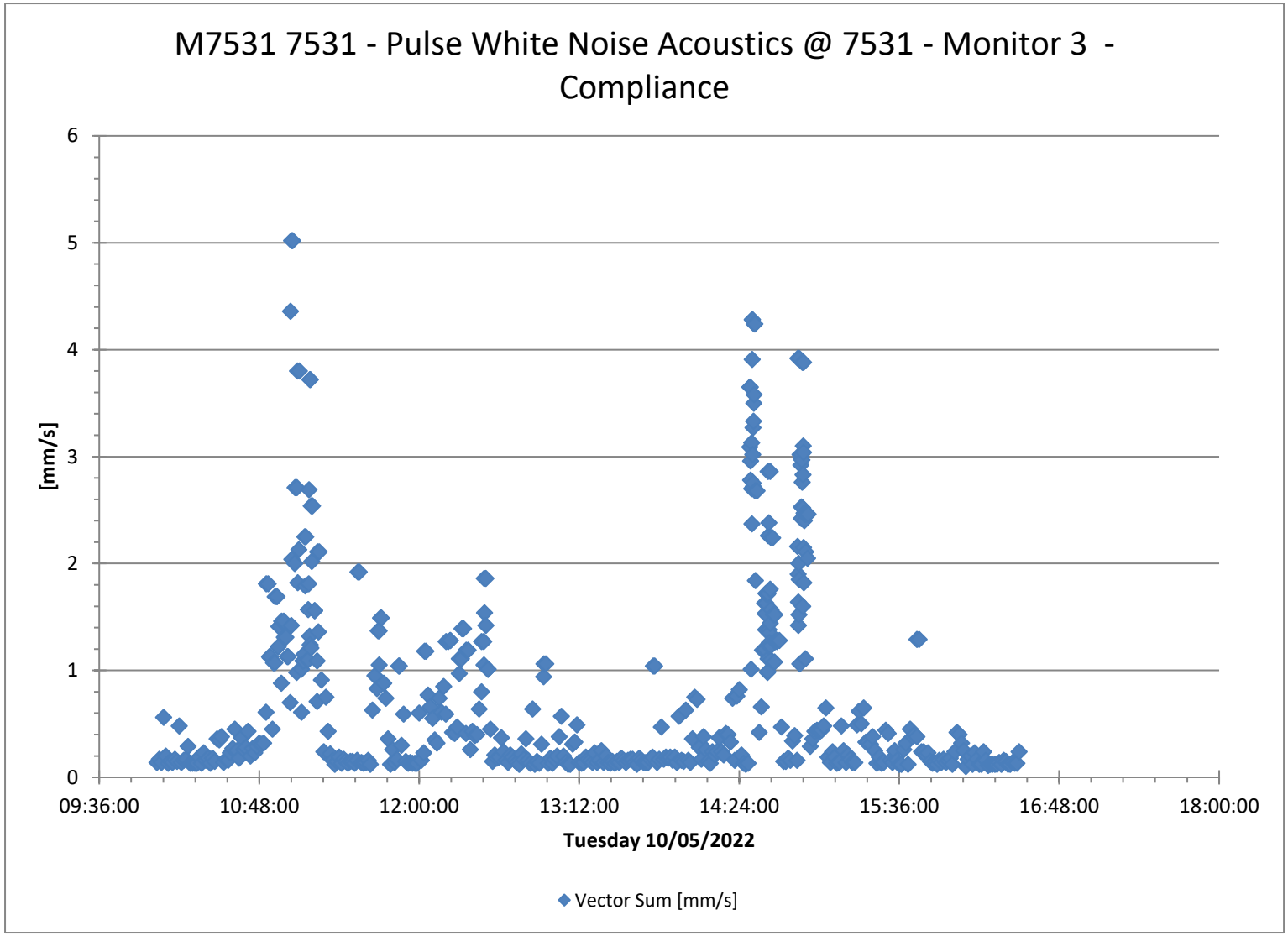

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Wednesday 04/05/2022
Vector Sum [mm/s]

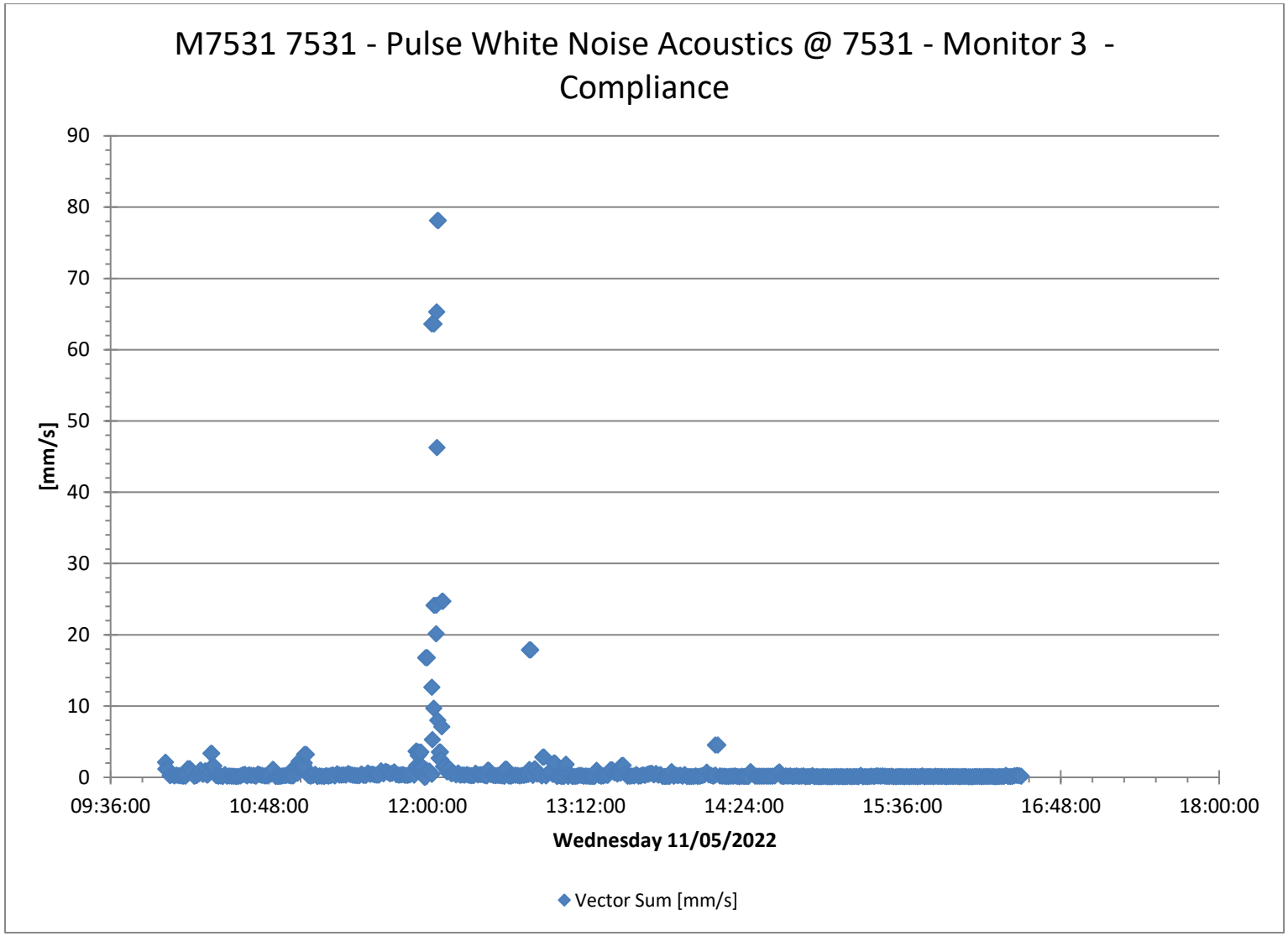

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
16
14
12
10
8
6
4
2
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Thursday 05/05/2022
Vector Sum [mm/s]

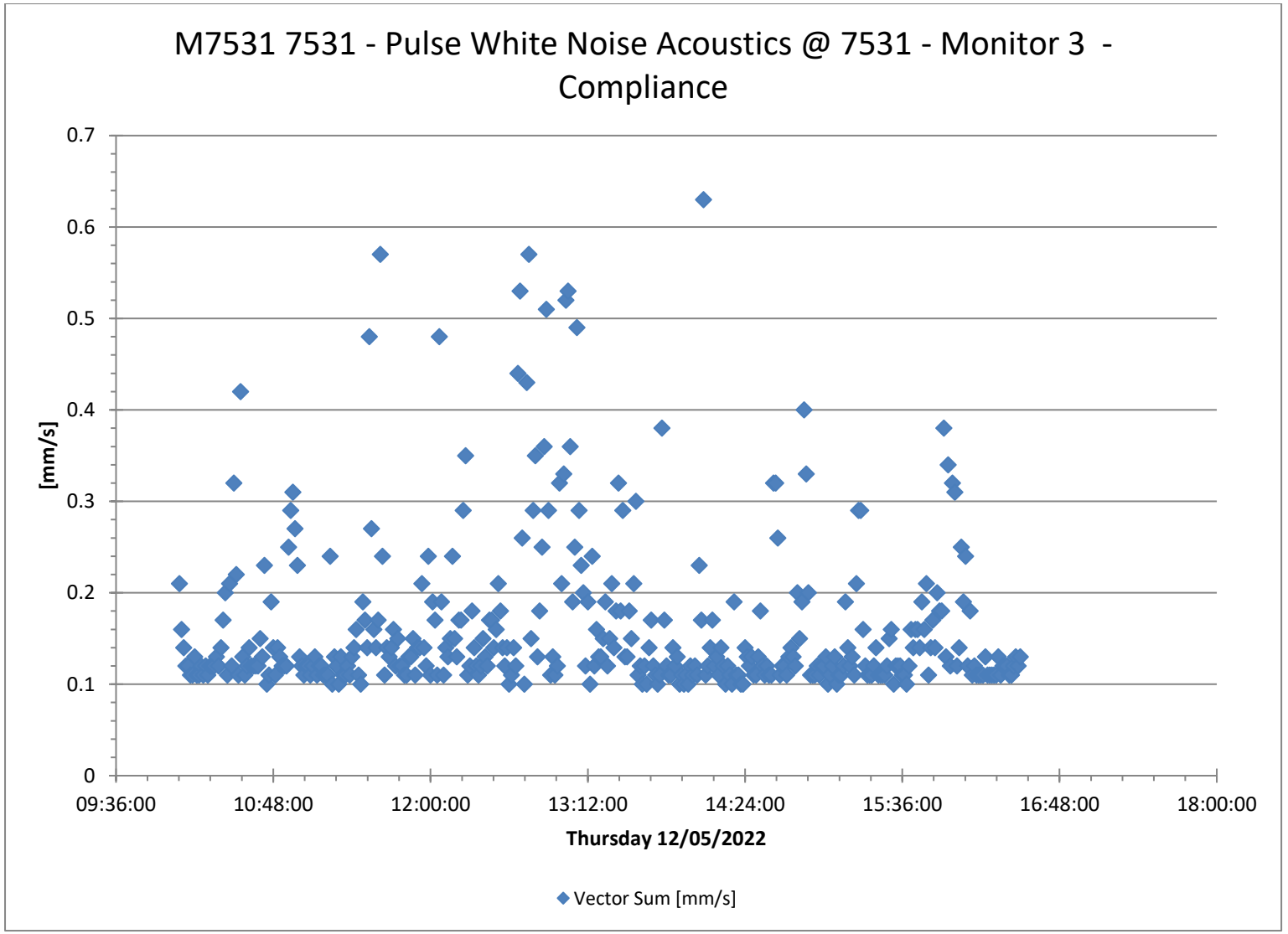

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
1.4
1.2
1
0.8
0.6
0.4
0.2
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Friday 06/05/2022
Vector Sum [mm/s]

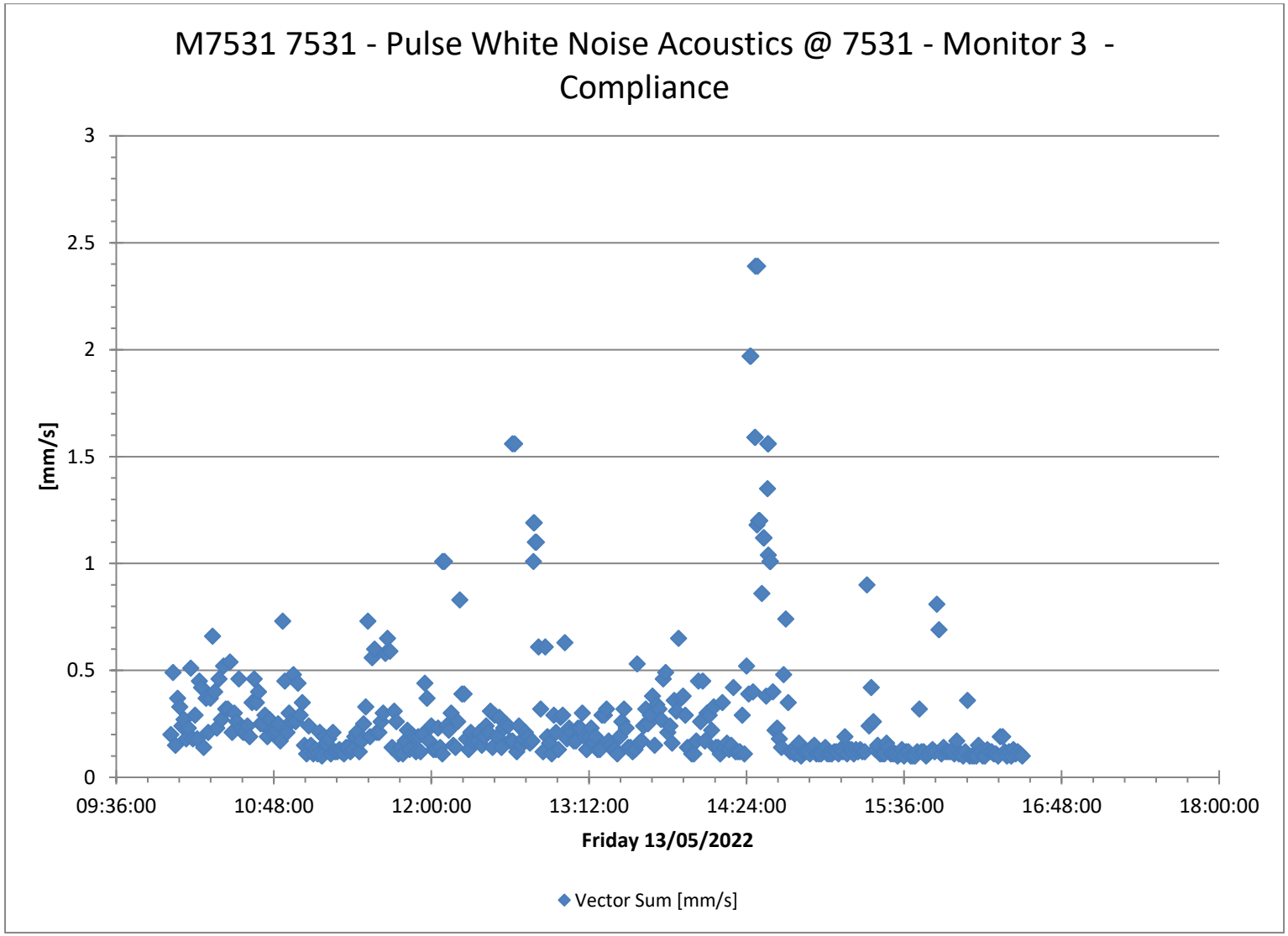

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
[mm/s]
3
2.5
2
1.5
1
0.5
0
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Saturday 07/05/2022
Vector Sum [mm/s]

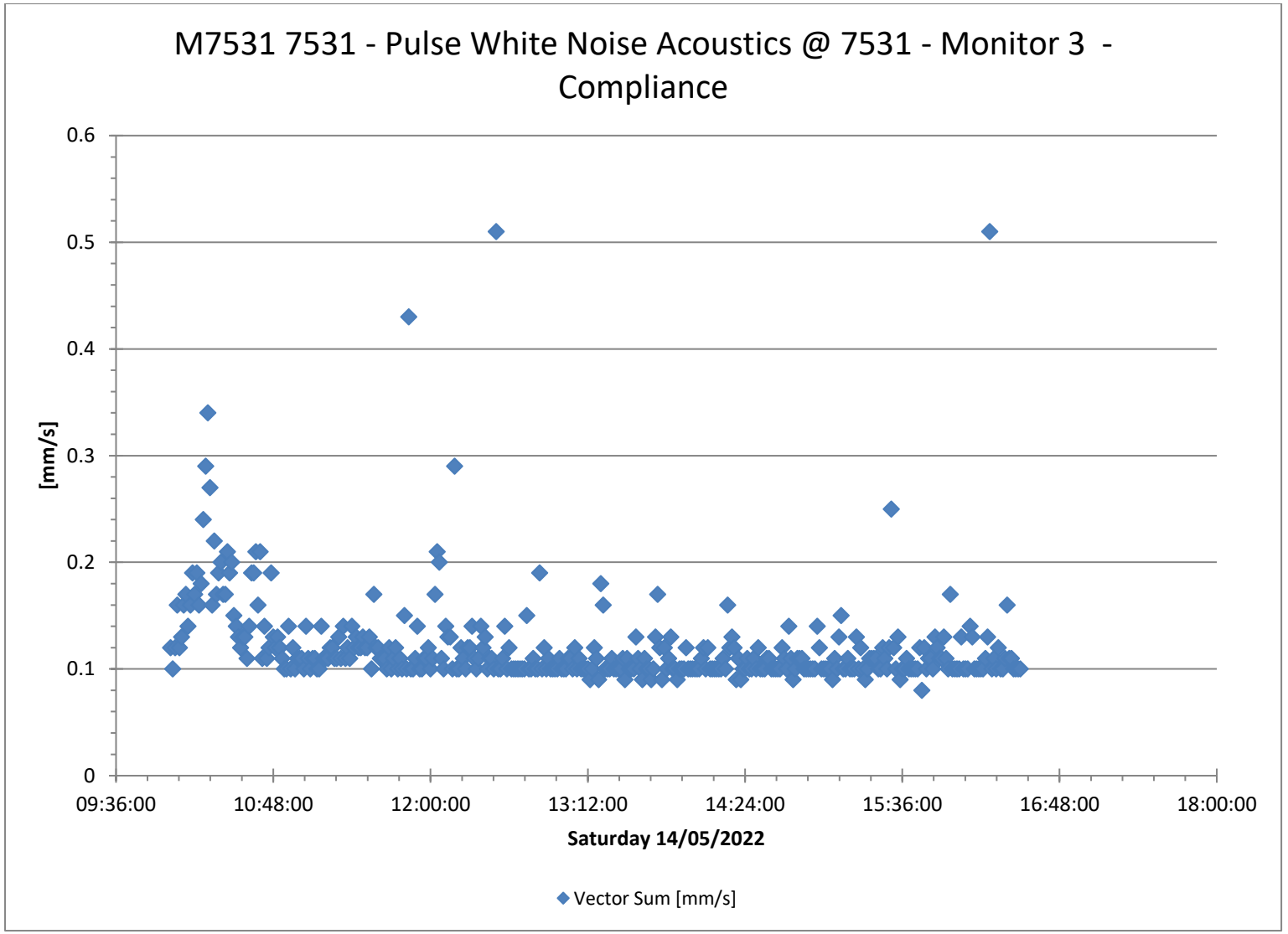

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Sunday 08/05/2022
Vector Sum [mm/s]

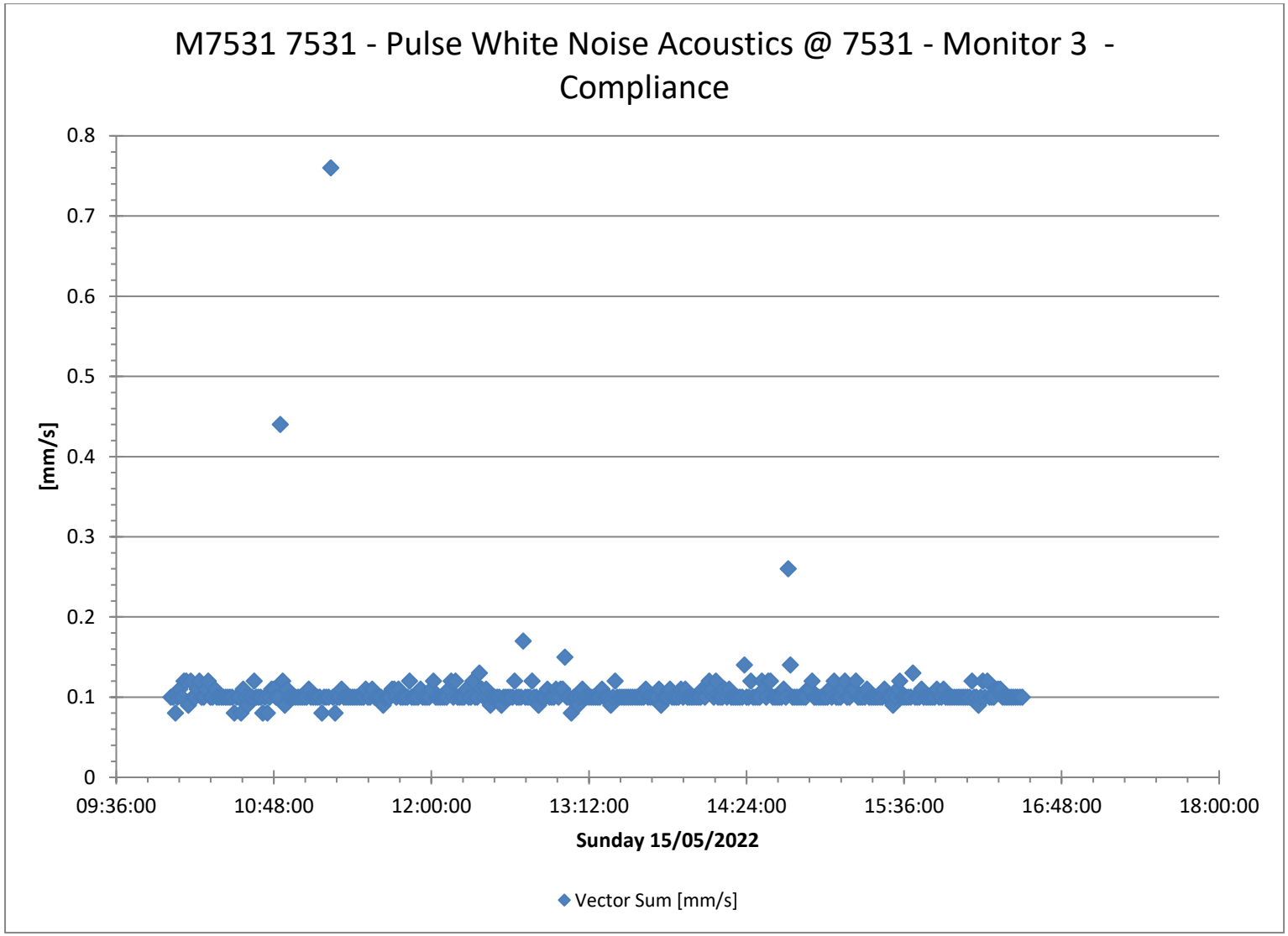

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
6
5
4
3
2
1
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Tuesday 10/05/2022
Vector Sum [mm/s]

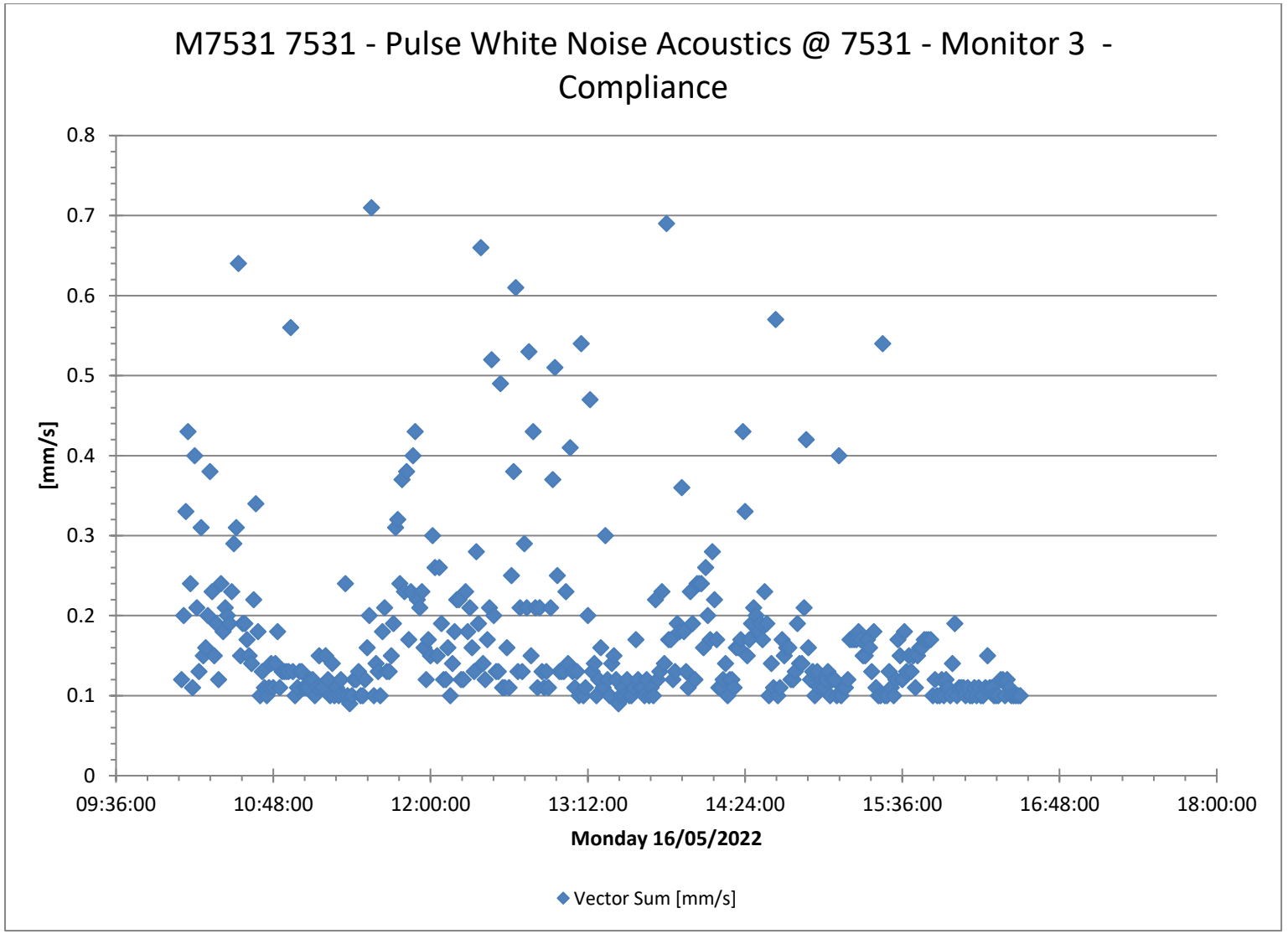

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
90
80
70
60
50
40
30
20
10
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Wednesday 11/05/2022
Vector Sum [mm/s]

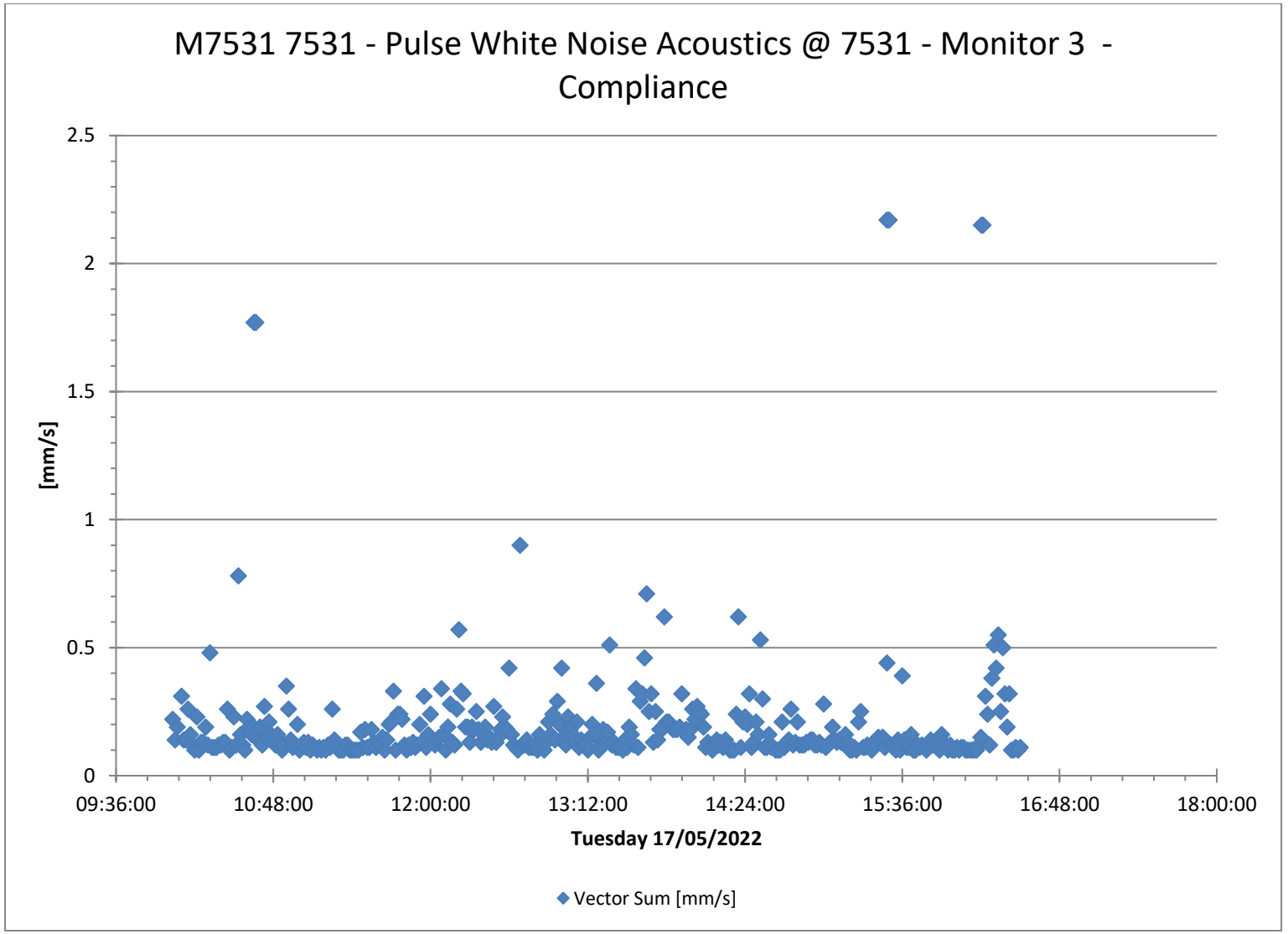

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Thursday 12/05/2022
Vector Sum [mm/s]

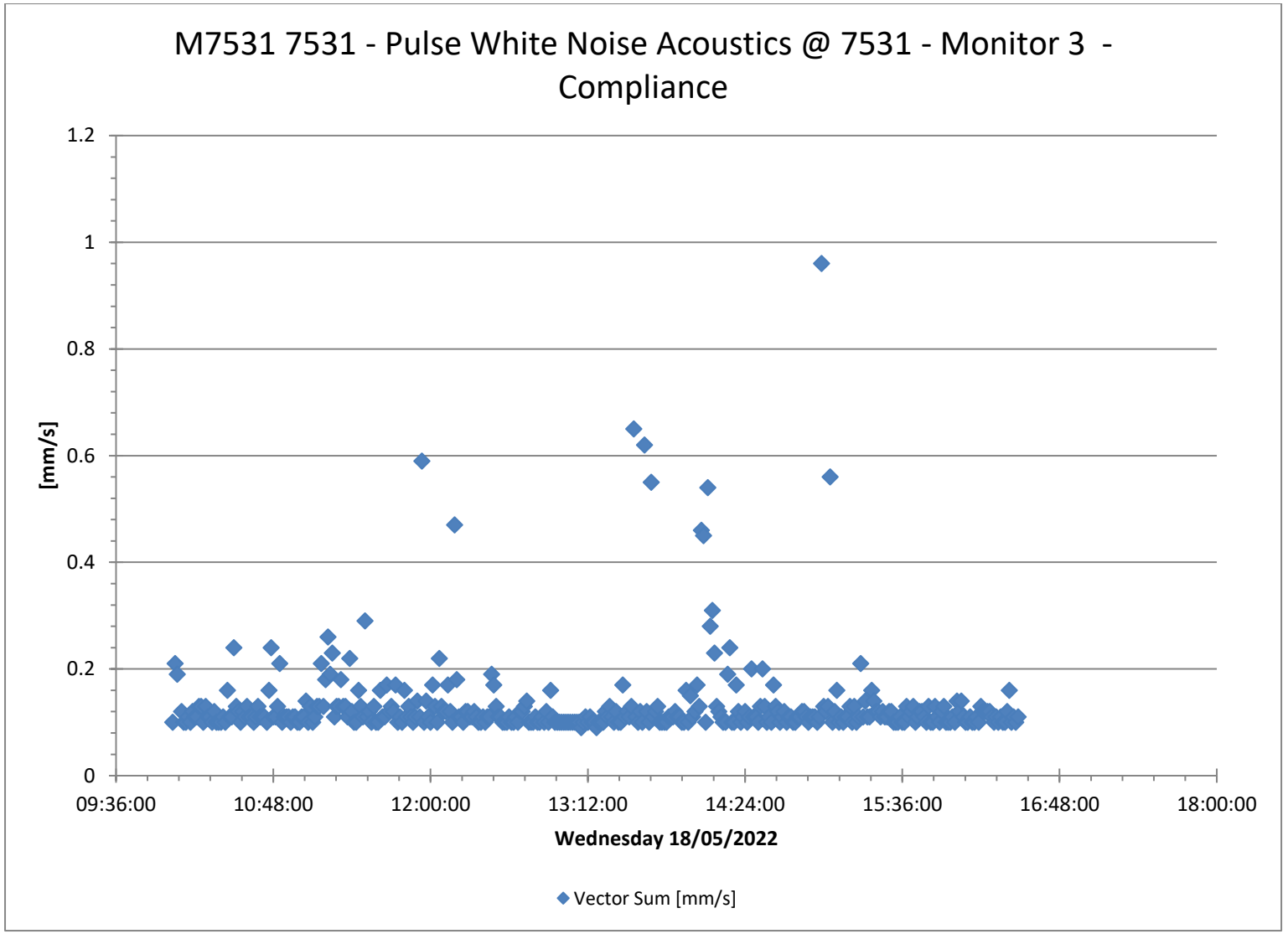

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
[mm/s]
3
2.5
2
1.5
1
0.5
0
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Friday 13/05/2022
Vector Sum [mm/s]

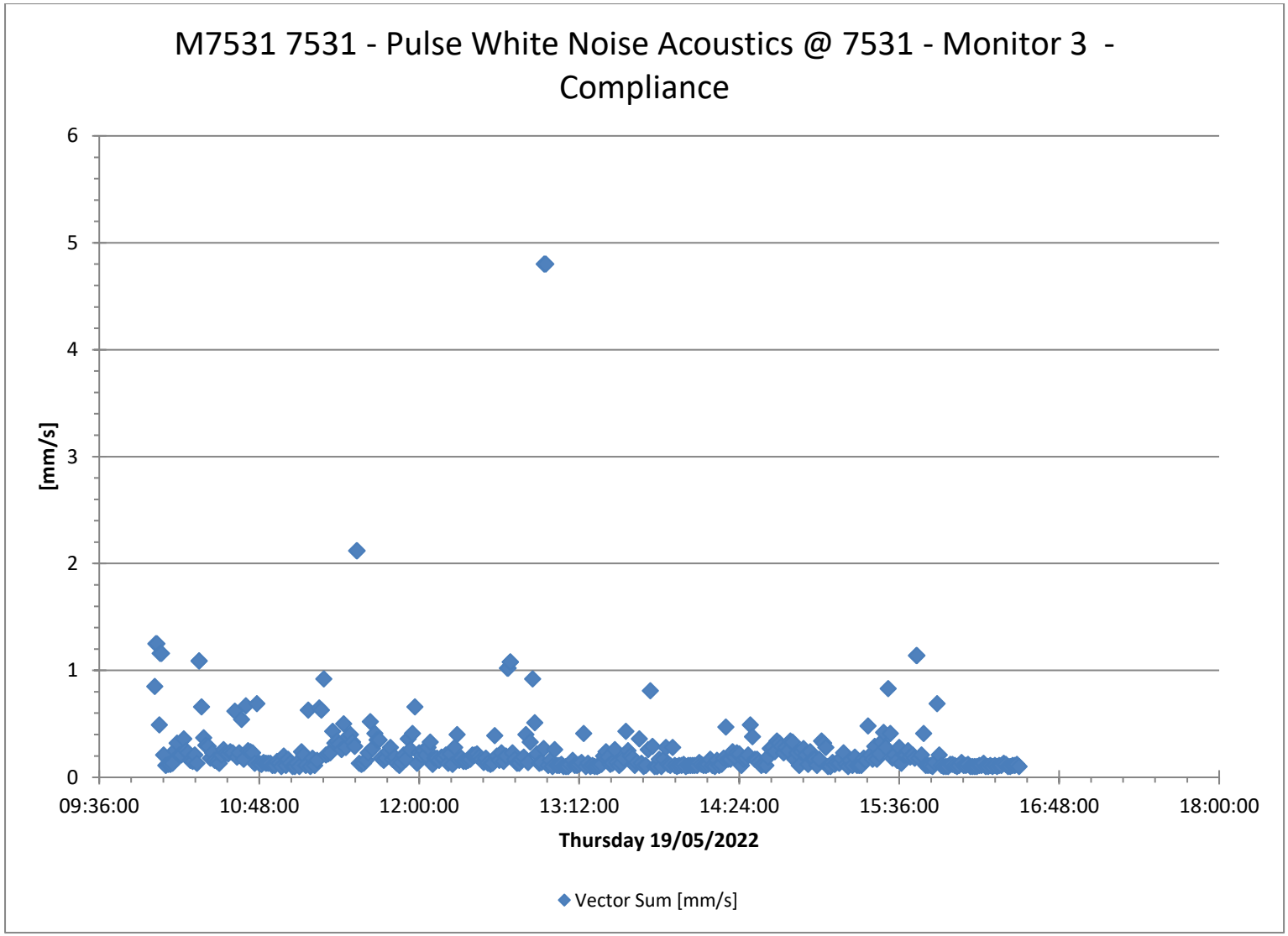

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
0.6
0.5
0.4
0.3
0.2
0.1
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Saturday 14/05/2022
Vector Sum [mm/s]

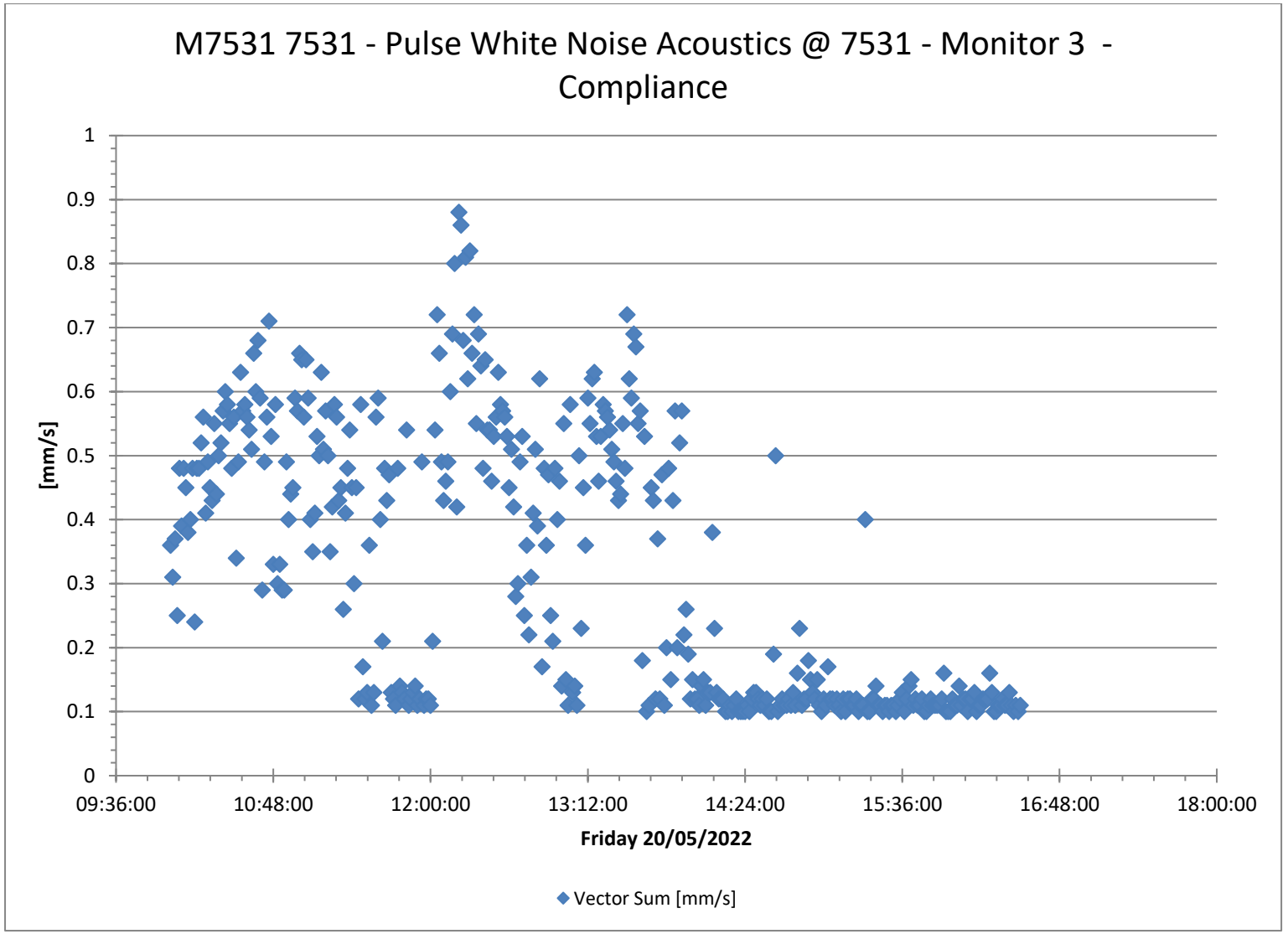

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Sunday 15/05/2022
Vector Sum [mm/s]

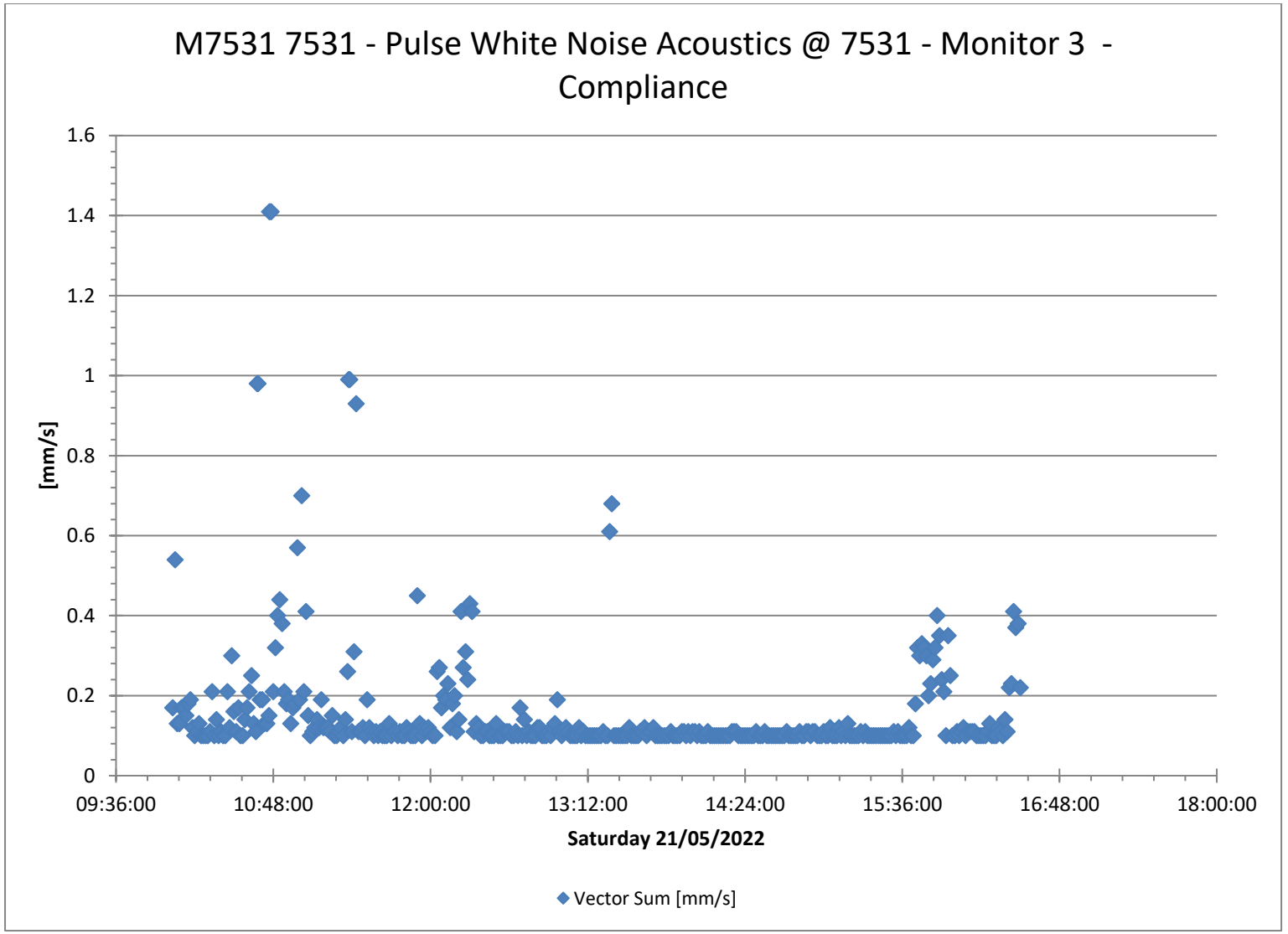

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
[mm/s]
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Monday 16/05/2022
Vector Sum [mm/s]

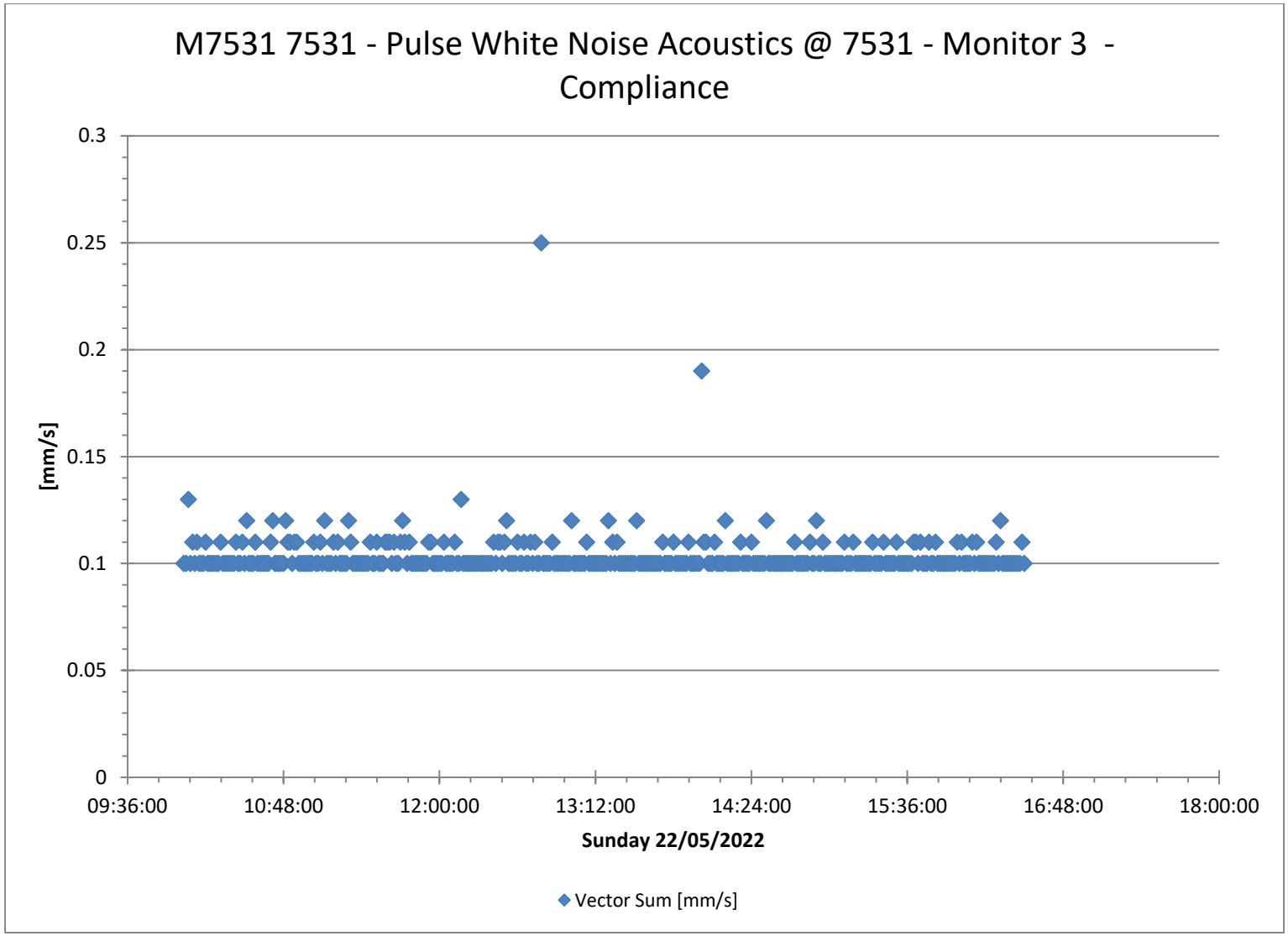

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
2.5
2
1.5
1
0.5
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Tuesday 17/05/2022
Vector Sum [mm/s]

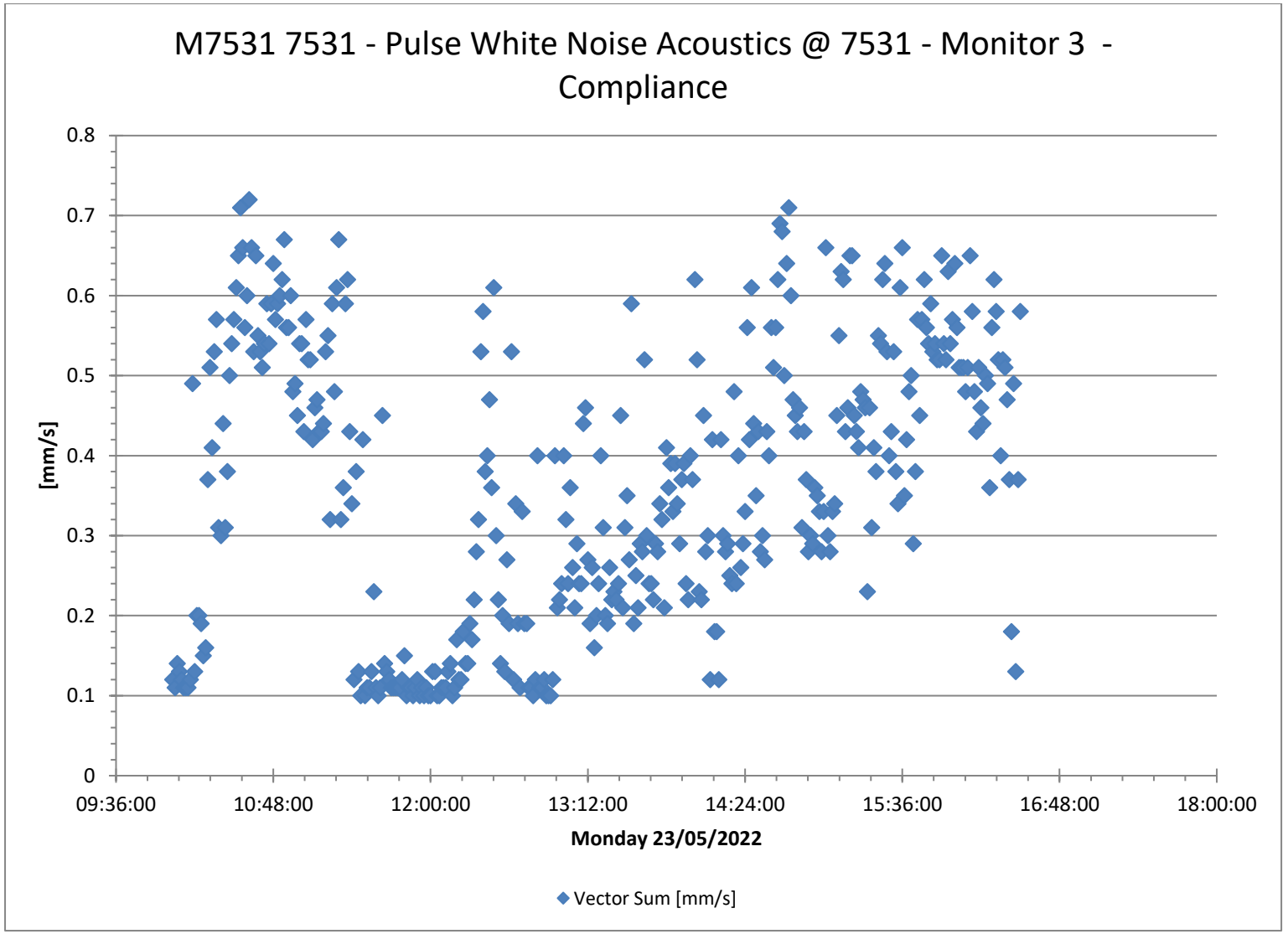

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
1.2
1
0.8
0.6
0.4
0.2
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Wednesday 18/05/2022
Vector Sum [mm/s]

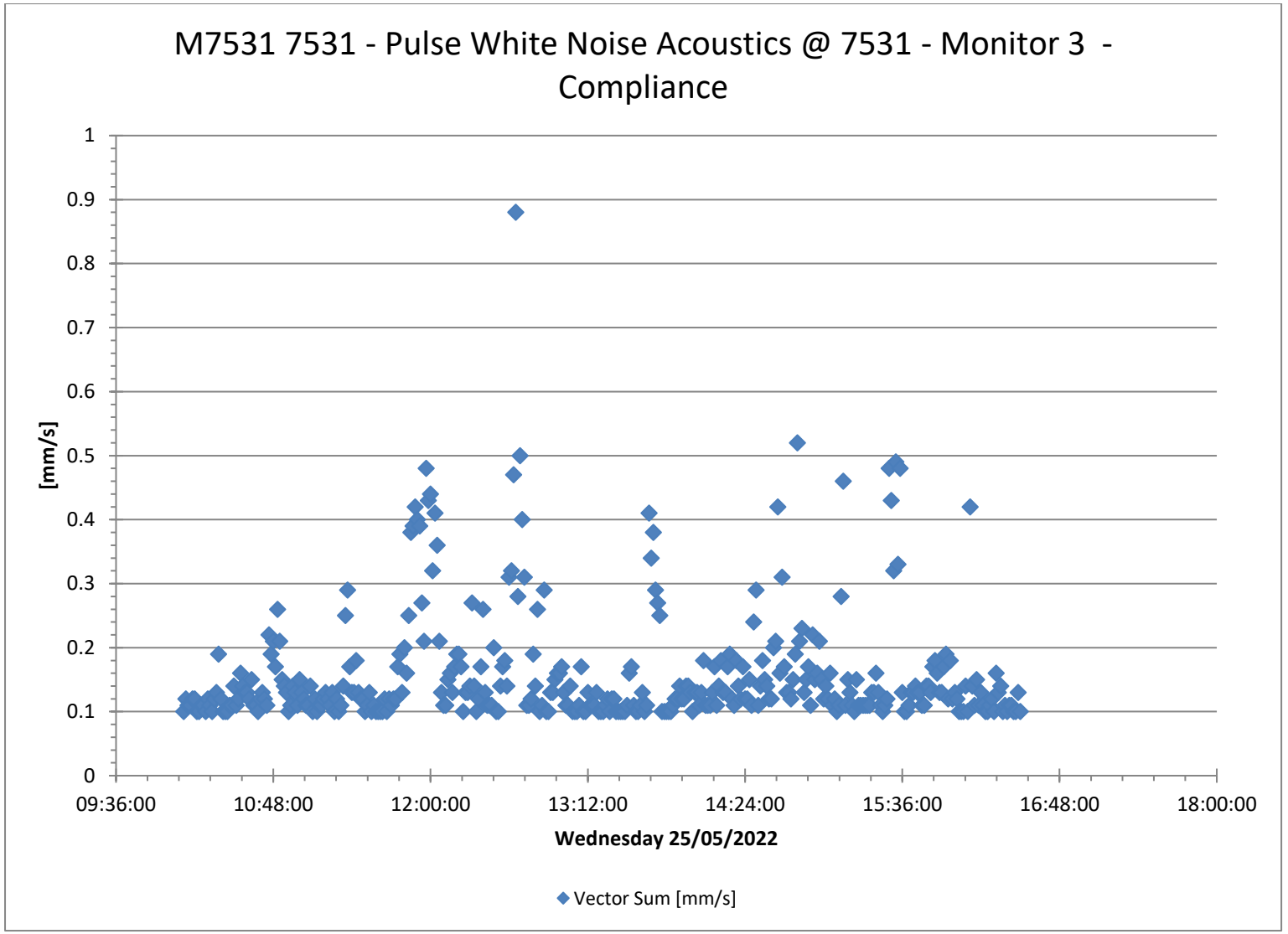

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
6
5
4
3
2
1
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Thursday 19/05/2022
Vector Sum [mm/s]

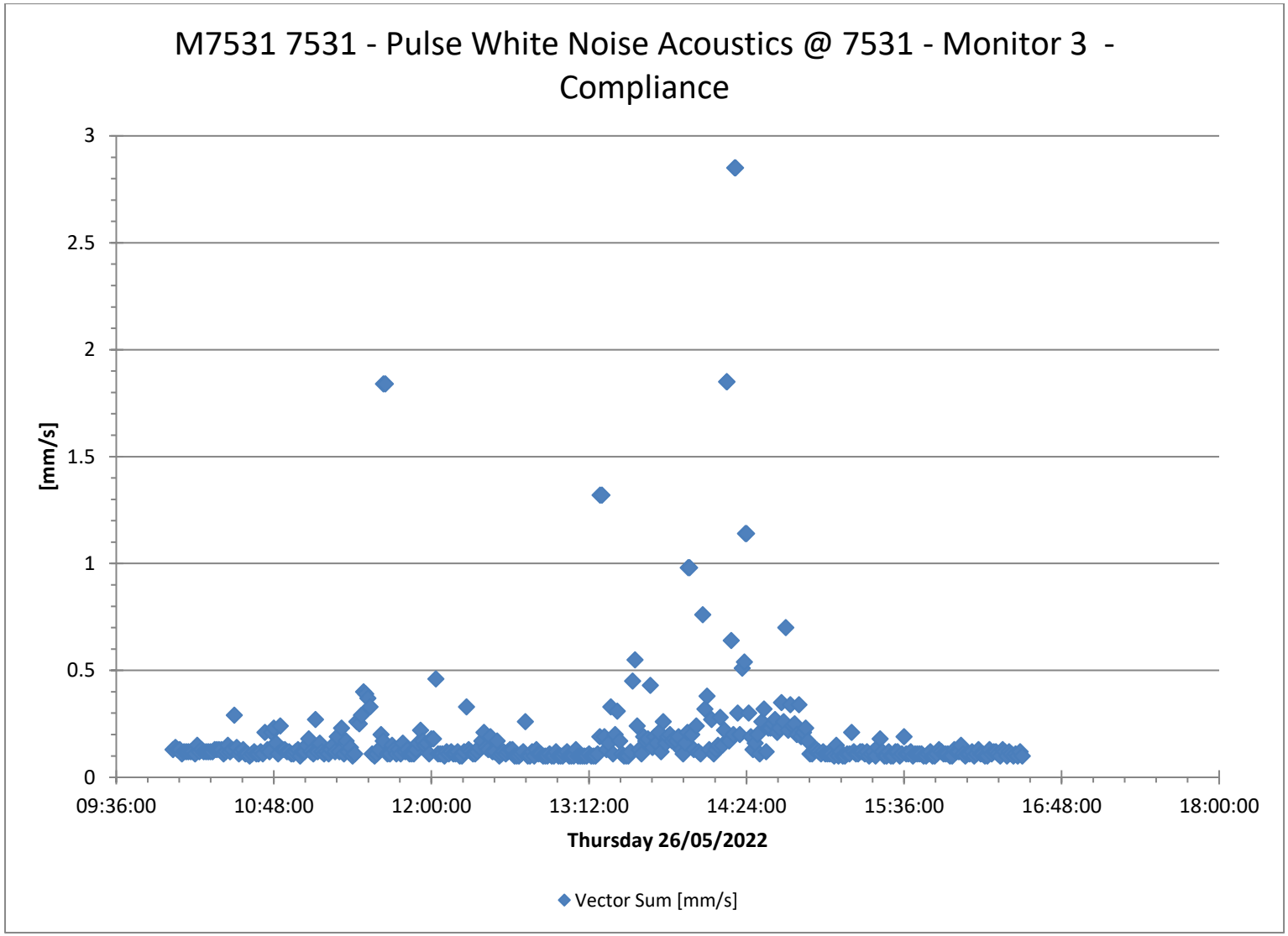

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
[mm/s]
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Friday 20/05/2022
Vector Sum [mm/s]

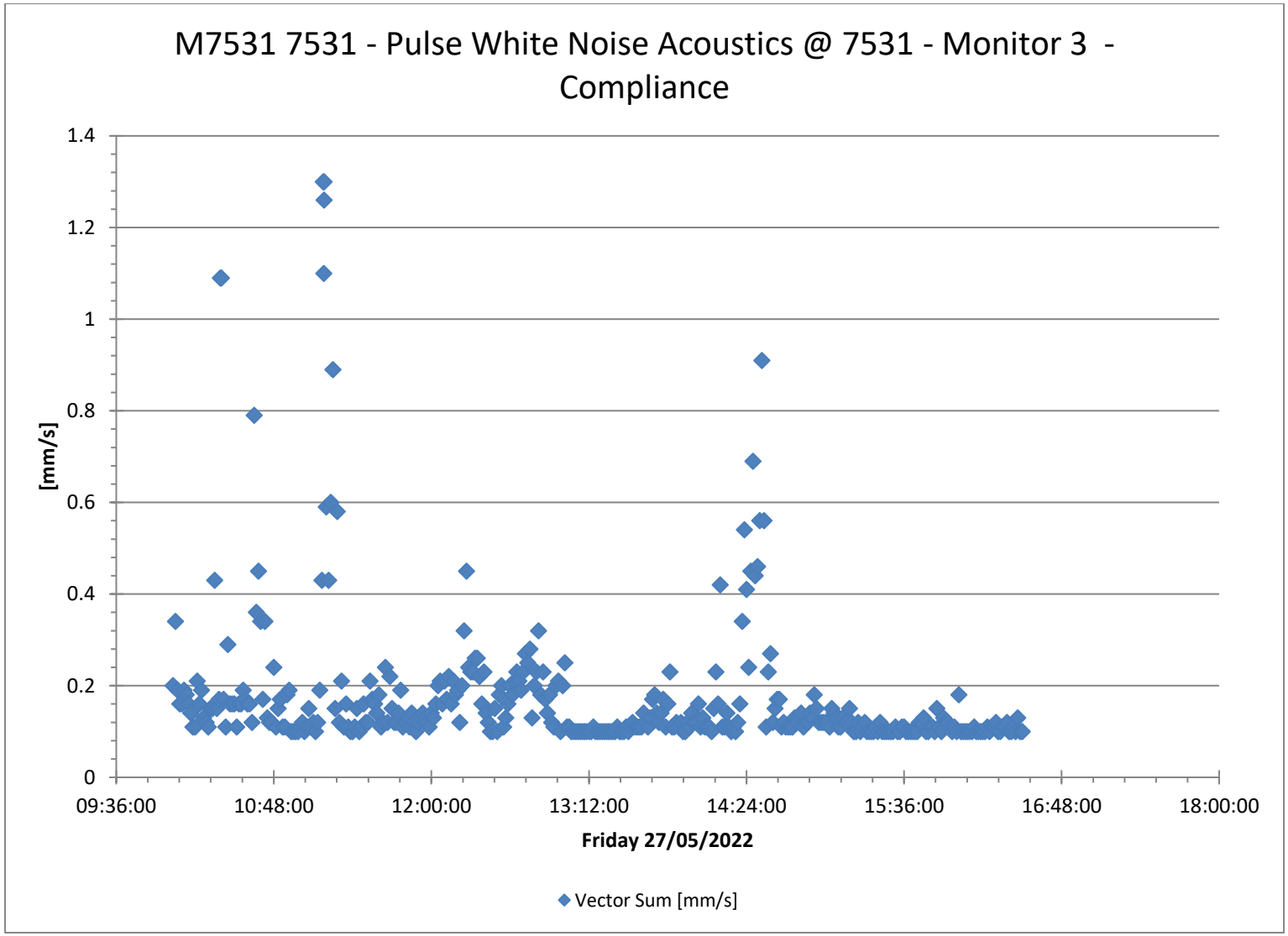

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
[mm/s]
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Saturday 21/05/2022
Vector Sum [mm/s]

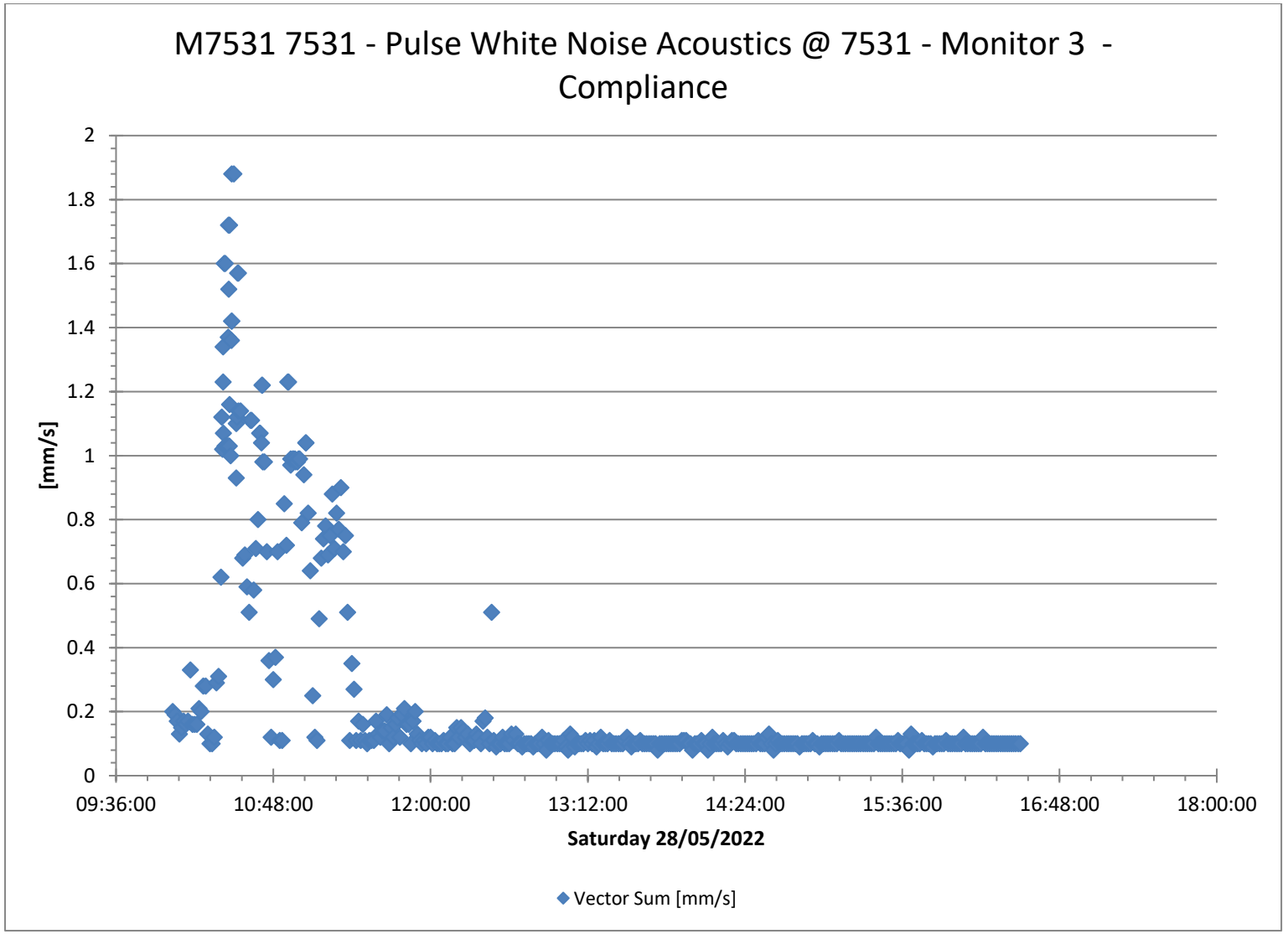

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
0.3
0.25
0.2
0.15
0.1
0.05
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Sunday 22/05/2022
Vector Sum [mm/s]

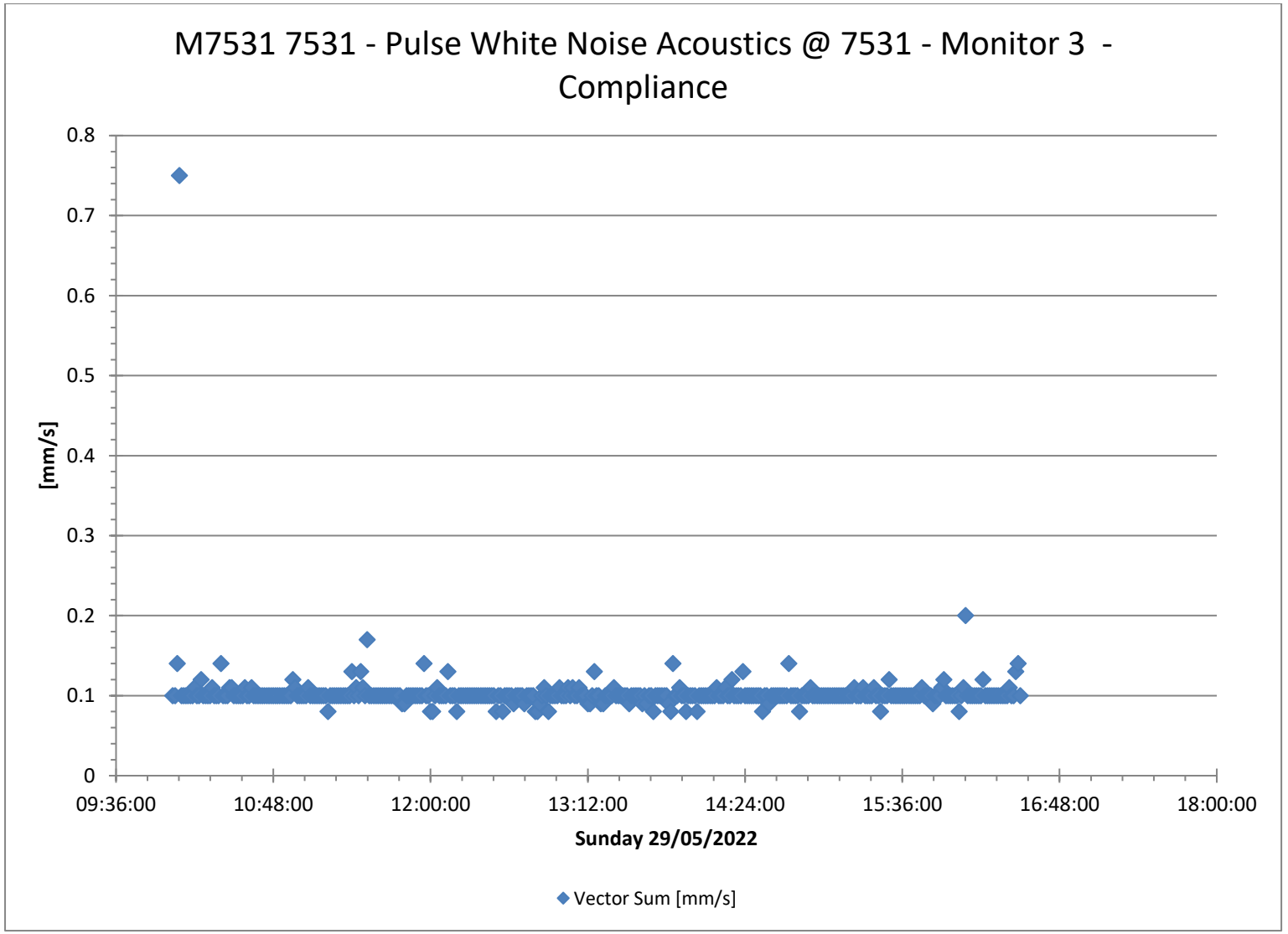

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Monday 23/05/2022
Vector Sum [mm/s]

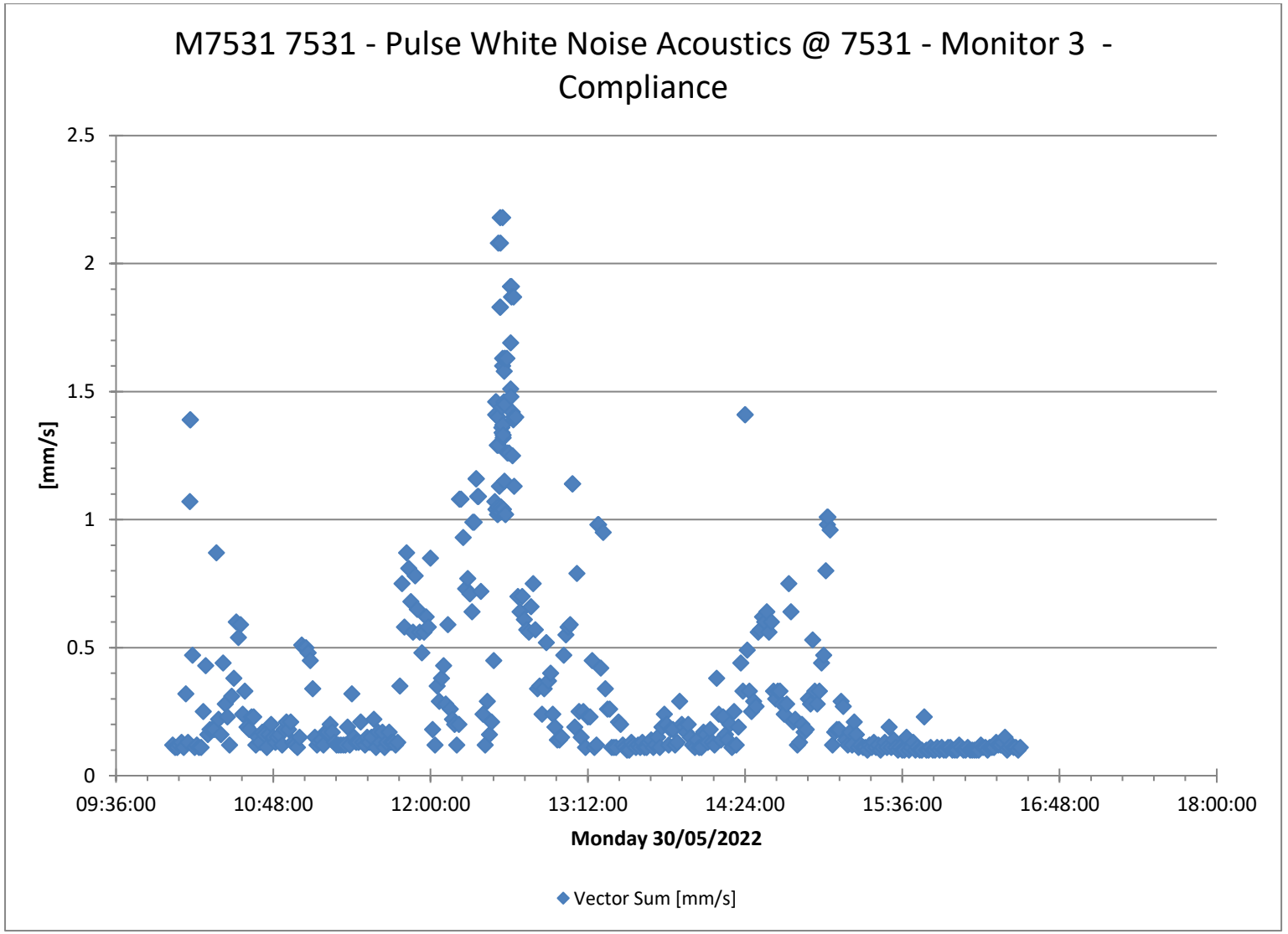

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
[mm/s]
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Wednesday 25/05/2022
Vector Sum [mm/s]

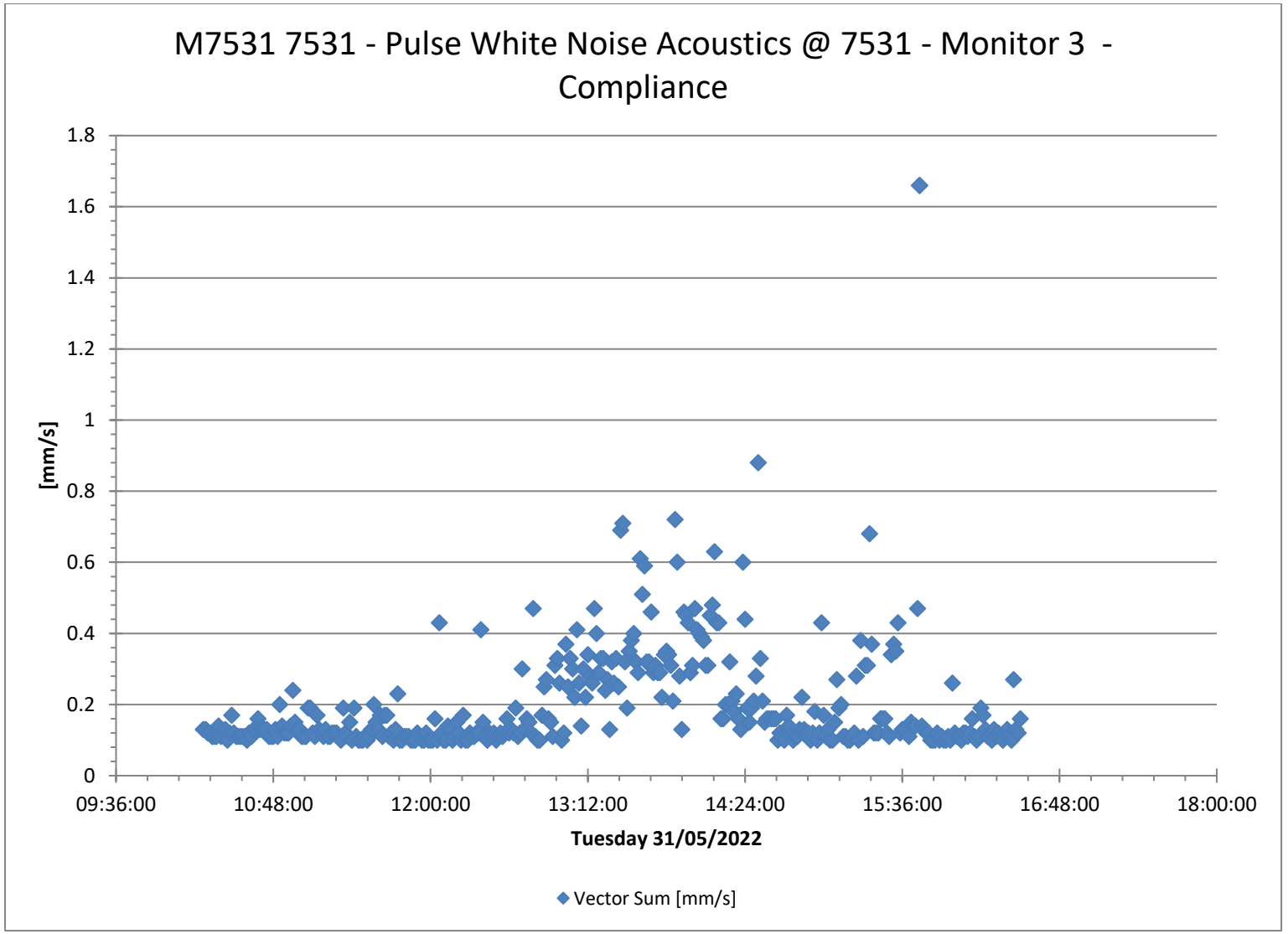

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
[mm/s]
3
2.5
2
1.5
1
0.5
0
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Thursday 26/05/2022
Vector Sum [mm/s]


M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
1.4
1.2
1
0.8
0.6
0.4
0.2
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Friday 27/05/2022
Vector Sum [mm/s]

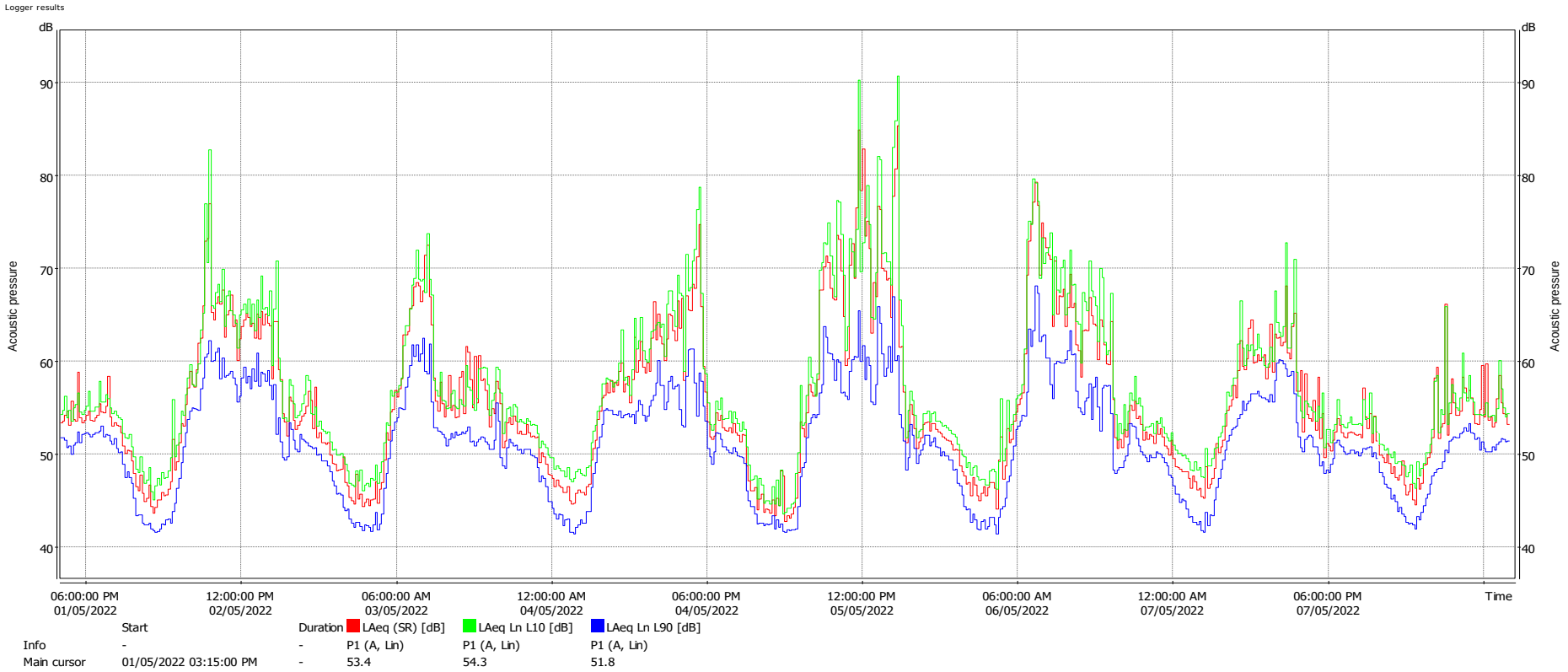

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
[mm/s]
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Saturday 28/05/2022
Vector Sum [mm/s]

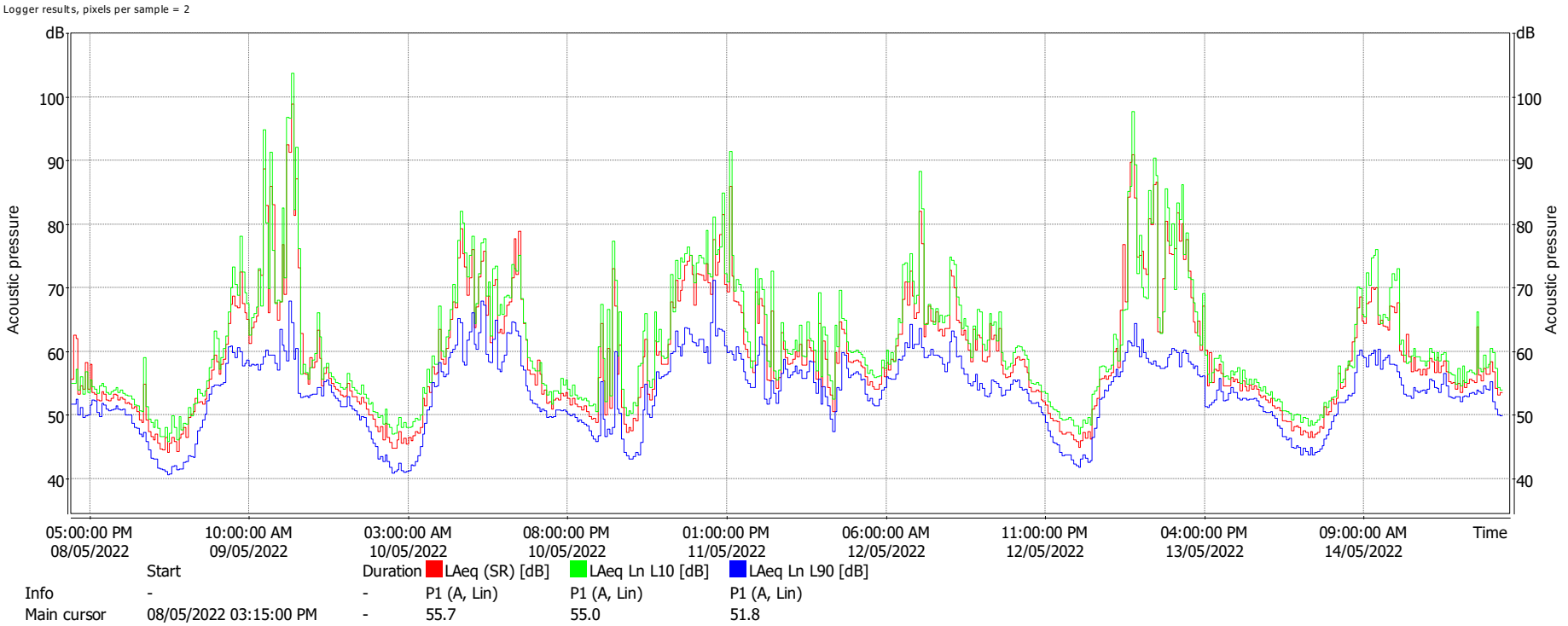

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Sunday 29/05/2022
Vector Sum [mm/s]

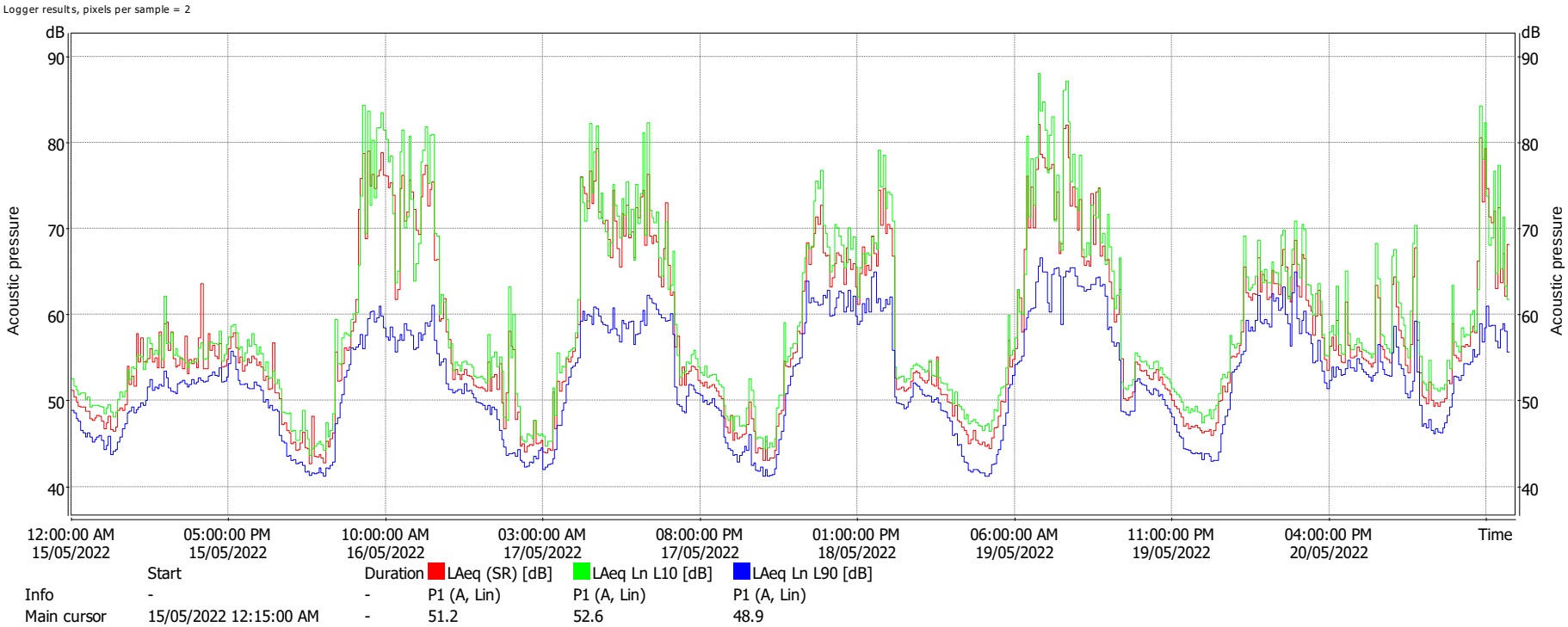

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
2.5
2
1.5
1
0.5
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Monday 30/05/2022
Vector Sum [mm/s]

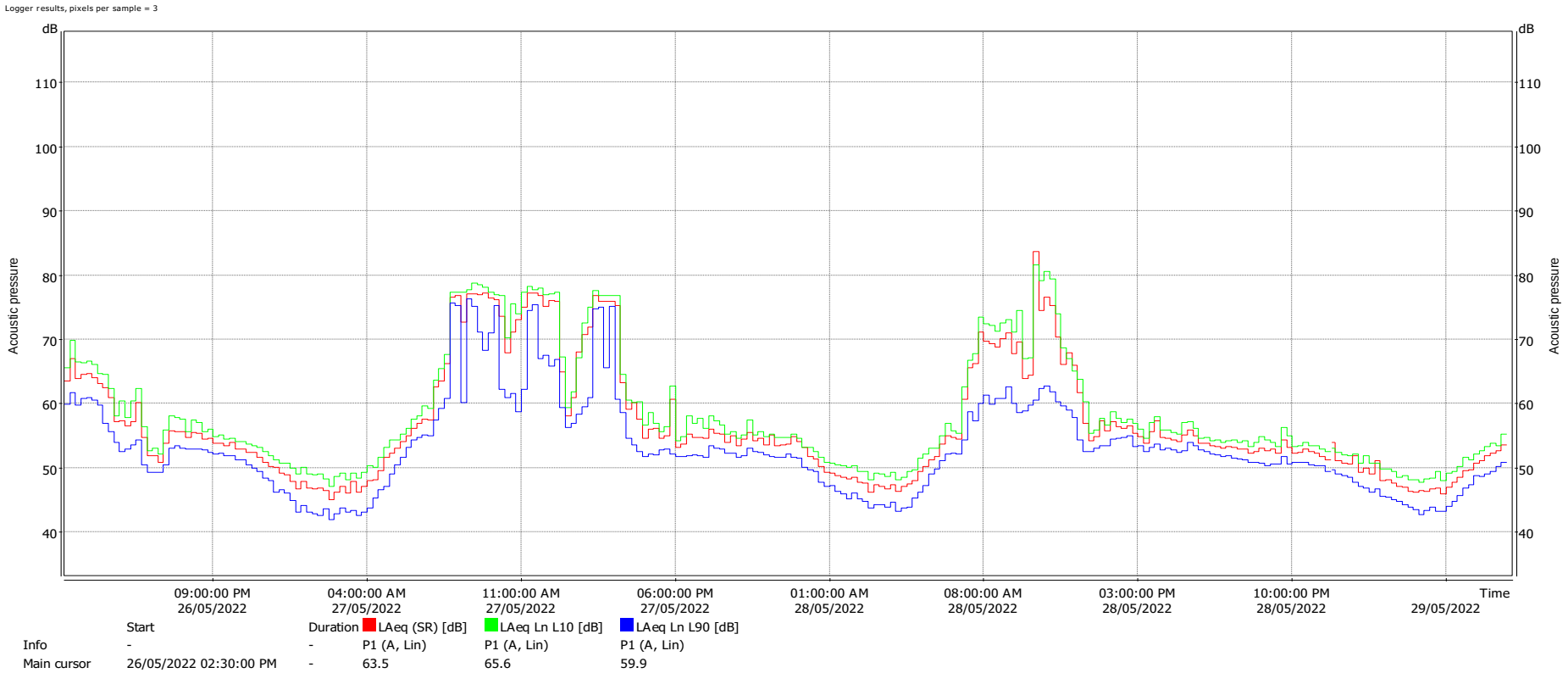

M7531 7531 - Pulse White Noise Acoustics @ 7531 - Monitor 3 - Compliance
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
[mm/s]
09:36:00
10:48:00
12:00:00
13:12:00
14:24:00
15:36:00
16:48:00
18:00:00
Tuesday 31/05/2022
Vector Sum [mm/s]

12 Appendix F – Noise Logger Location 1 – Art Gallery

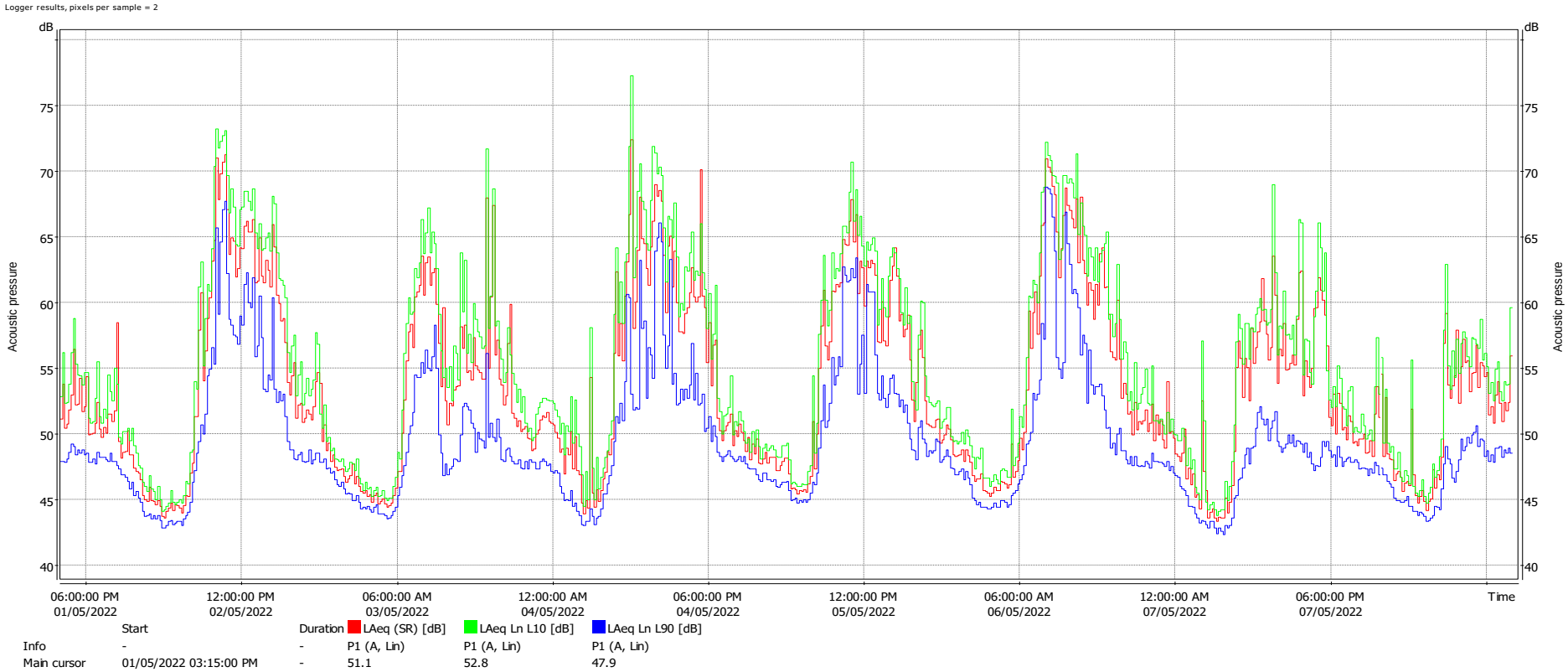

Logger results
dB
90
80
70
60
50
40
Acoustic pressure
06:00:00 PM 01/05/2022
12:00:00 PM 02/05/2022
06:00:00 AM 03/05/2022
12:00:00 AM 04/05/2022
06:00:00 PM 04/05/2022
12:00:00 PM 05/05/2022
06:00:00 AM 06/05/2022
12:00:00 AM 07/05/2022
06:00:00 PM 07/05/2022
Time
Start
Duration
LAeq (SR) [dB]
LAeq Ln L10 [dB]
LAeq Ln L90 [dB]
Info - - P1 (A, Lin) P1 (A, Lin) P1 (A, Lin)
Main cursor 01/05/2022 03:15:00 PM - 53.4 54.3 51.8

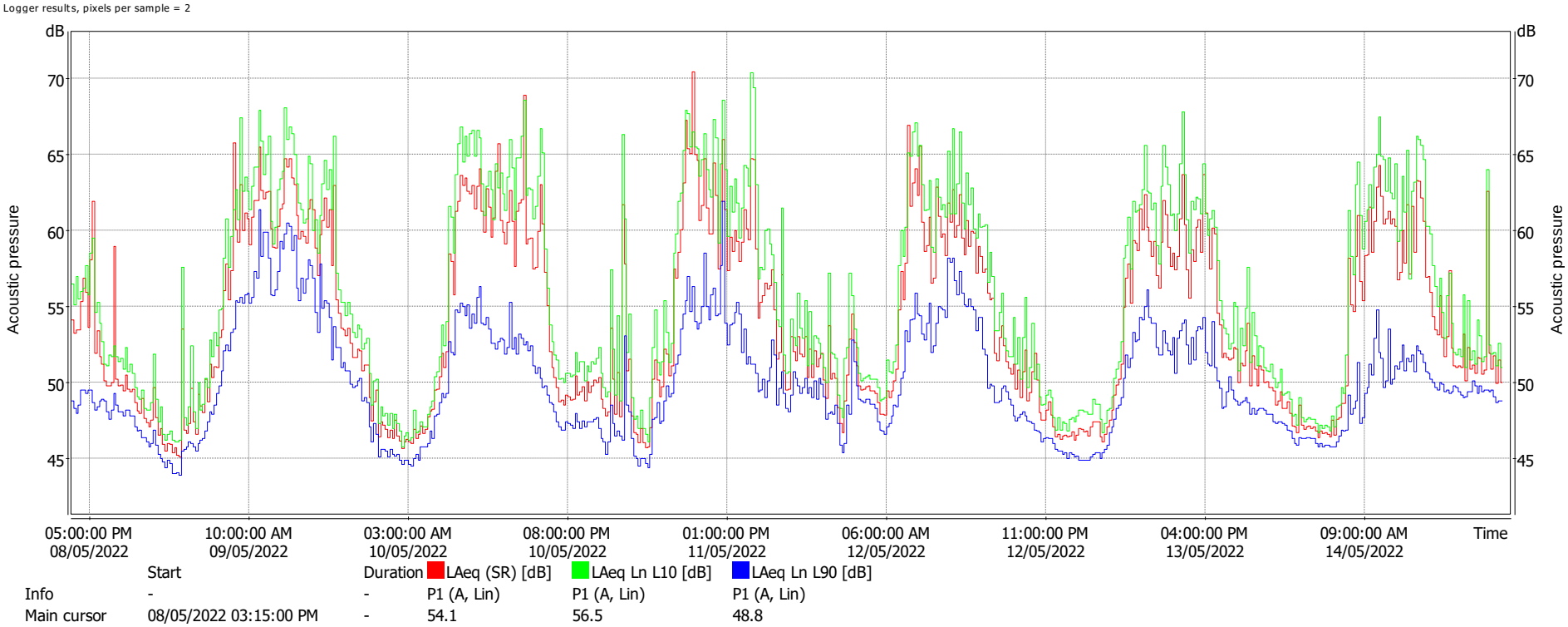

Logger results, pixels per sample = 2
dB
100
90
80
70
60
50
40
Acoustic pressure
05:00:00 PM 08/05/2022
10:00:00 AM 09/05/2022
03:00:00 AM 10/05/2022
08:00:00 PM 10/05/2022
01:00:00 PM 11/05/2022
06:00:00 AM 12/05/2022
11:00:00 PM 12/05/2022
04:00:00 PM 13/05/2022
09:00:00 AM 14/05/2022
Time
Start
Duration
LAeq (SR) [dB]
LAeq Ln L10 [dB]
LAeq Ln L90 [dB]
Info - - P1 (A, Lin) P1 (A, Lin) P1 (A, Lin)
Main cursor 08/05/2022 03:15:00 PM - 55.7 55.0 51.8

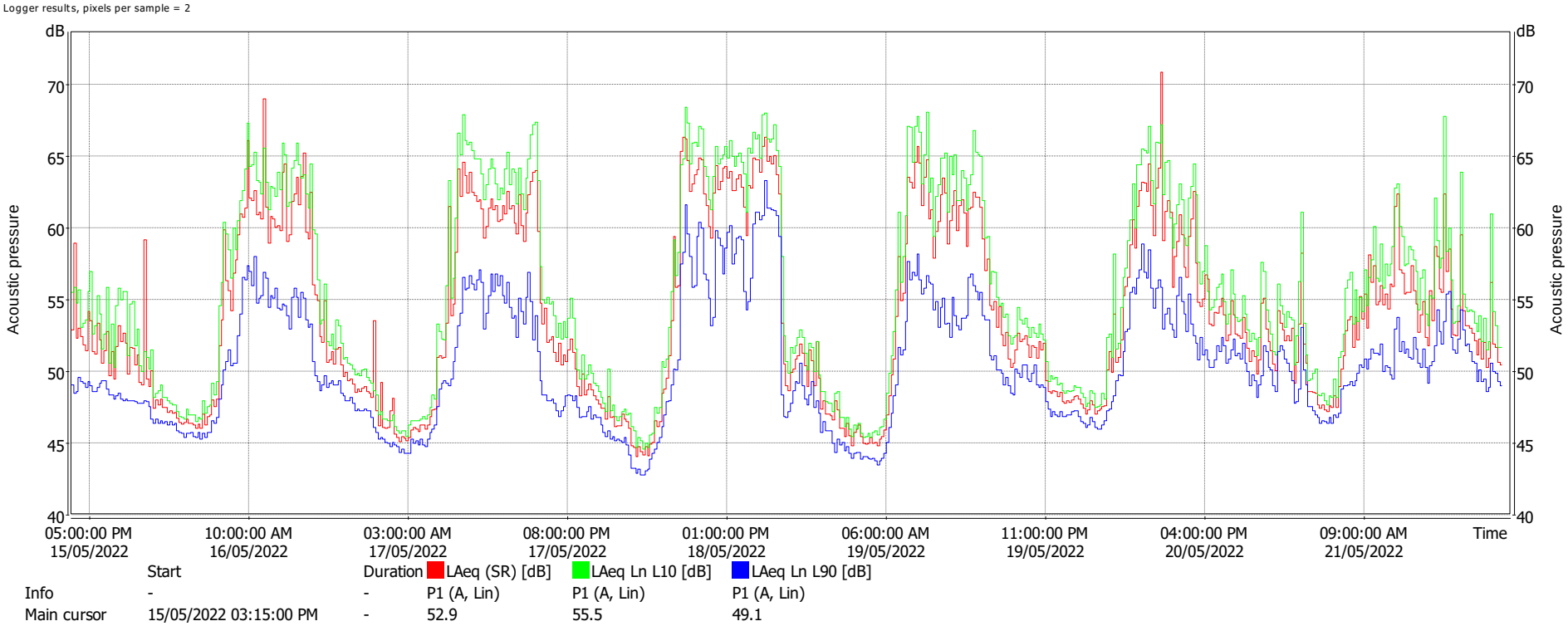

Logger results, pixels per sample = 2
dB
90
80
70
60
50
40
Acoustic pressure
12:00:00 AM 15/05/2022
05:00:00 PM 15/05/2022
10:00:00 AM 16/05/2022
03:00:00 AM 17/05/2022
08:00:00 PM 17/05/2022
01:00:00 PM 18/05/2022
06:00:00 AM 19/05/2022
11:00:00 PM 19/05/2022
04:00:00 PM 20/05/2022
Time
Start
Duration
LAeq (SR) [dB]
LAeq Ln L10 [dB]
LAeq Ln L90 [dB]
Info - - P1 (A, Lin) P1 (A, Lin) P1 (A, Lin)
Main cursor 15/05/2022 12:15:00 AM - 51.2 52.6 48.9

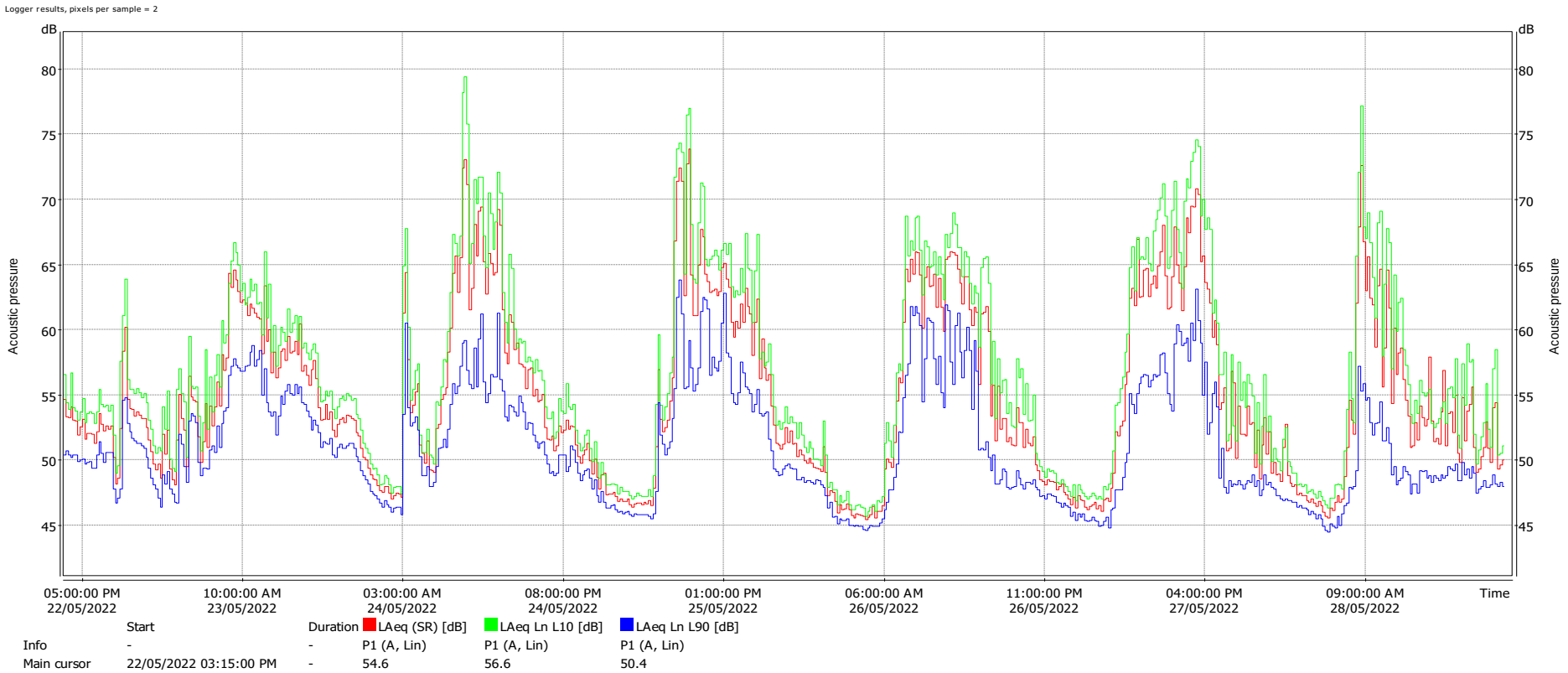

Logger results, pixels per sample = 3
dB
110
100
90
80
70
60
50
40
Acoustic pressure
09:00:00 PM 26/05/2022
04:00:00 AM 27/05/2022
11:00:00 AM 27/05/2022
06:00:00 PM 27/05/2022
01:00:00 AM 28/05/2022
08:00:00 AM 28/05/2022
03:00:00 PM 28/05/2022
10:00:00 PM 28/05/2022
Time
29/05/2022
Start
Duration
LAeq (SR) [dB]
LAeq Ln L10 [dB]
LAeq Ln L90 [dB]
Info - - P1 (A, Lin) P1 (A, Lin) P1 (A, Lin)
Main cursor 26/05/2022 02:30:00 PM - 63.5 65.6 59.9

13 Appendix G – Noise Logger Location 2 – To the North East


Logger results, pixels per sample = 2
dB
75
70
65
60
55
50
45
40
Acoustic pressure
06:00:00 PM 01/05/2022
12:00:00 PM 02/05/2022
06:00:00 AM 03/05/2022
12:00:00 AM 04/05/2022
06:00:00 PM 04/05/2022
12:00:00 PM 05/05/2022
06:00:00 AM 06/05/2022
12:00:00 AM 07/05/2022
06:00:00 PM 07/05/2022
Time
Start
Duration
LAeq (SR) [dB]
LAeq Ln L10 [dB]
LAeq Ln L90 [dB]
Info - - P1 (A, Lin) P1 (A, Lin) P1 (A, Lin)
Main cursor 01/05/2022 03:15:00 PM - 51.1 52.8 47.9


Logger results, pixels per sample = 2
dB
70
65
60
55
50
45
Acoustic pressure
05:00:00 PM 08/05/2022
10:00:00 AM 09/05/2022
03:00:00 AM 10/05/2022
08:00:00 PM 10/05/2022
01:00:00 PM 11/05/2022
06:00:00 AM 12/05/2022
11:00:00 PM 12/05/2022
04:00:00 PM 13/05/2022
09:00:00 AM 14/05/2022
Time
Start
Duration
LAeq (SR) [dB]
LAeq Ln L10 [dB]
LAeq Ln L90 [dB]
Info - - P1 (A, Lin) P1 (A, Lin) P1 (A, Lin)
Main cursor 08/05/2022 03:15:00 PM - 54.1 56.5 48.8


Logger results, pixels per sample = 2
dB
70
65
60
55
50
45
40
Acoustic pressure
05:00:00 PM 15/05/2022
10:00:00 AM 16/05/2022
03:00:00 AM 17/05/2022
08:00:00 PM 17/05/2022
01:00:00 PM 18/05/2022
06:00:00 AM 19/05/2022
11:00:00 PM 19/05/2022
04:00:00 PM 20/05/2022
09:00:00 AM 21/05/2022
Time
Start
Duration
LAeq (SR) [dB]
LAeq Ln L10 [dB]
LAeq Ln L90 [dB]
Info - - P1 (A, Lin) P1 (A, Lin) P1 (A, Lin)
Main cursor 15/05/2022 03:15:00 PM - 52.9 55.5 49.1


Logger results, pixels per sample = 2
dB
80
75
70
65
60
55
50
45
Acoustic pressure
05:00:00 PM 22/05/2022
10:00:00 AM 23/05/2022
03:00:00 AM 24/05/2022
08:00:00 PM 24/05/2022
01:00:00 PM 25/05/2022
06:00:00 AM 26/05/2022
11:00:00 PM 26/05/2022
04:00:00 PM 27/05/2022
09:00:00 AM 28/05/2022
Time
Start
Duration
LAeq (SR) [dB]
LAeq Ln L10 [dB]
LAeq Ln L90 [dB]
Info - - P1 (A, Lin) P1 (A, Lin) P1 (A, Lin)
Main cursor 22/05/2022 03:15:00 PM - 54.6 56.6 50.4

14 Appendix H – Landscaping Vibration Monitoring, North (XOVITE)

15 Appendix I – Landscaping Vibration Monitoring, South (HIHAWA)