Baseline Sound Survey Report

Hemerdon Mine

Drakelands Restoration Ltd

Hemerdon Mine
Drakelands
Plympton
Plymouth
Devon
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Basis of Report

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Acronyms and Abbreviations

dB (Decibel)	The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure ($2x10^{-5}$ Pa).
dBA	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
L_{Aeq}	L_{Aeq} is defined as the notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.
L_{10} and L_{90}	If a non-steady noise is to be described, it is necessary to know both its level and the degree of fluctuation. The L_n indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the L_{10} index to describe traffic noise.
$L_{Amax(F)}$	$L_{Amax(F)}$ is the maximum A-weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.

1.0 Introduction

Drakelands Restoration Limited (DRL) has appointed SLR Consulting Limited (SLR) to update and amend a noise assessment of their proposed processing plant at Hemerdon Mine, Devon (the Site), to support the permit variation application (pre-application reference EPR/AP3203ML/P001).

As part of this assessment, baseline sound surveys have been carried out at the surrounding noise-sensitive receptors to determine the existing sound environment. The details of the baseline sound surveys are contained herein.

A survey was initially undertaken between Wednesday 18th March and Thursday 02nd April 2026; however, during the survey there were short periods of inclement weather and due to equipment availability, the noise monitoring was not continuous at all the identified Noise Sensitive Receptors (NSRs). The results of this survey are included in an SLR report (403.066596.00001.001, dated 11th August 2026) which is available on request.

Further to the above, in conjunction with the ongoing Low Frequency Noise (LFN) investigations at the Site, Class 1 Sound Level Meters have been installed at all the identified NSRs and are providing continuous baseline sound measurements during a period of settled weather conditions which are suitable for undertaking environmental sound measurements.

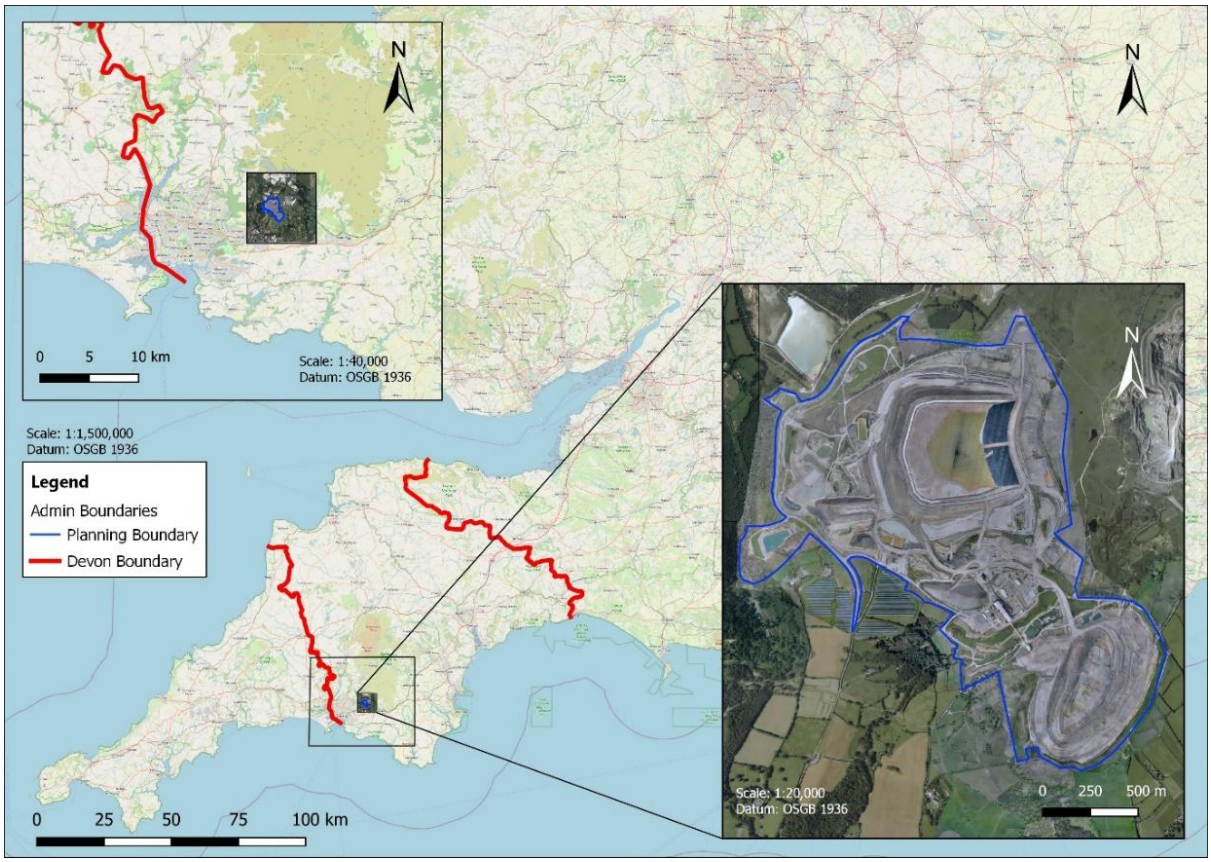
Therefore, this report details methodology and results of the baseline monitoring period between Thursday 13th and Thursday 20th August 2026.

Whilst reasonable effort has been made to ensure that this report is easy to understand, it is necessarily technical in nature. To assist the reader, a glossary of terminology is included in **Appendix A.**

2.0 Site Description

The Hemerdon Deposit is situated six miles northeast of the city of Plymouth in Devon, England as shown in Figure A. It is readily accessible via sealed roads and between August 2015 and October 2018 was acting as an operational mine site under previous ownership.

Figure A: Location of Hemerdon Mine



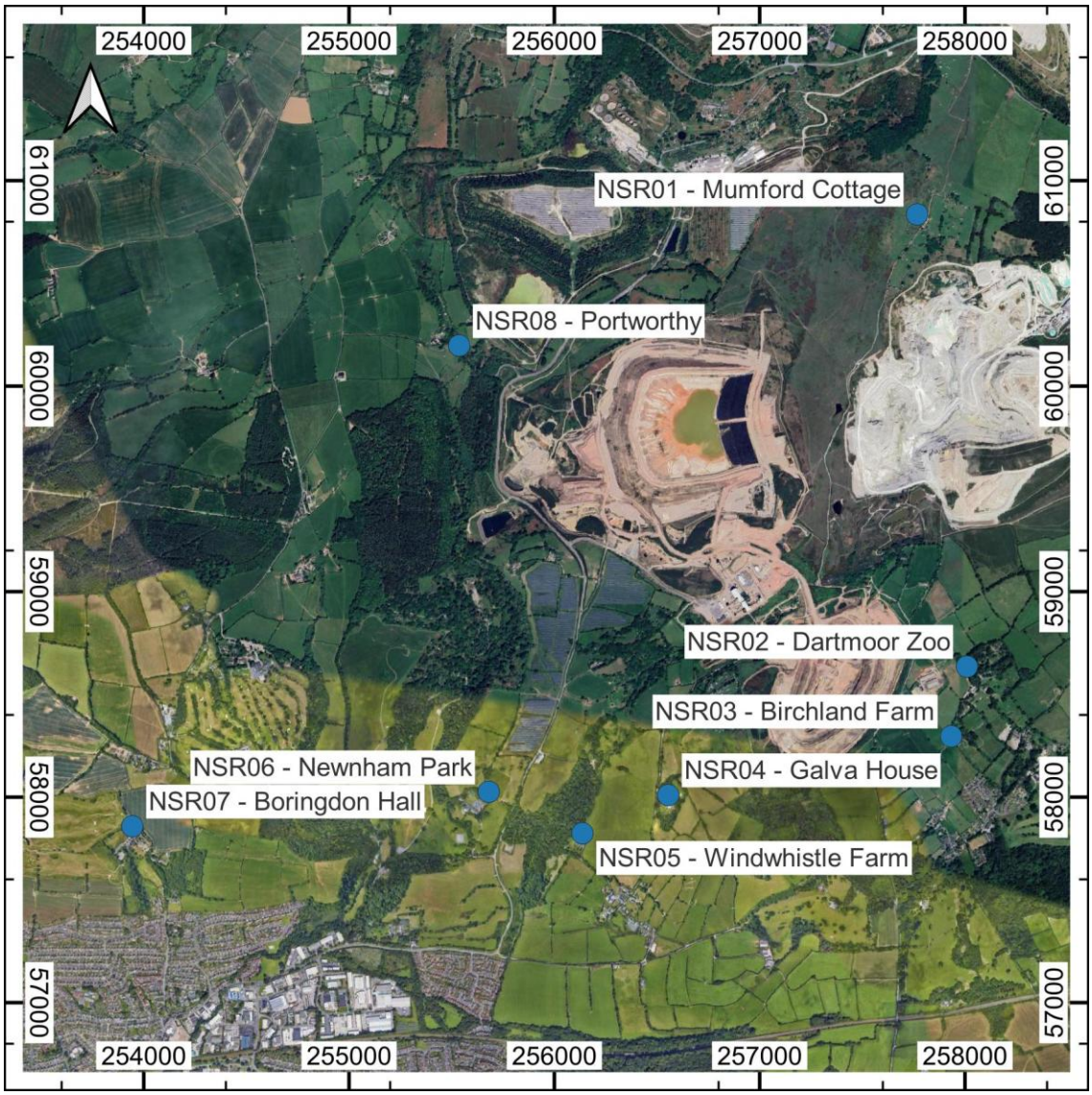
2.1 Noise Sensitive Receptors

The nearest noise-sensitive receptors (NSRs) to the Site have been identified as those in Table A and shown in Figure B.

Table A: Noise-Sensitive Receptors

Receptor	Description	Coordinates (BNG)	
		X	Y
NSR01	Mumford Cottage to the north-east of the Site.	257806	60743
NSR02	Dartmoor Zoo to the south-east of the Site.	258009	58636
NSR03	Birchland Farm to the south-east of the Site.	257925	58309
NSR04	Galva House to the south-west of the Site.	256559	57971
NSR05	Windwhistle Farm to the south-west of the Site.	256136	57825
NSR06	Newnham Park to the south-west of the Site.	255681	58027
NSR07	Boringdon Hall to the west of the Site.	253944	57859
NSR08	Portworthy to the north-west of the Site.	255536	60198

Figure B: Noise-Sensitive Receptors



3.0 Standards and Guidance

The noise impact assessment that will be carried out will be undertaken in accordance with British Standard 4142:2014+A1:2019 *Methods for rating and assessing industrial and commercial sound* and the Environment Agency's (EA) guidance document *Noise and vibration management: environmental permits* (NVM) including the Method Implementation Document (MID) for BS 4142.

3.1 British Standard 4142:2014 +A1:2019

The British Standard BS 4142:2014 +A1:2019 *Methods for Rating and Assessing Industrial and Commercial Sound* (BS 4142) notably describes methods for rating and assessing sound of an industrial or commercial nature. It has been referenced where required in policy and guidance documents to assess the potential impact of sound of an industrial and/or commercial nature, at existing and proposed noise-sensitive receptor locations within the context of the existing sound environment.

Certain acoustic features can increase the significance of impact from a comparison of the specific sound level to the background sound level where these features are likely to affect perception and response. Where such features are present at the assessment location, a character correction (or penalty) to the specific sound level is made to obtain the rating level. This can be approached from subjective, objective and reference methods.

- Tonality: A correction of 0 dB to +6 dB for sound ranging from not tonal to prominently tonal.
- Impulsivity: A correction of up to +9 dB can be applied for sound that is impulsive.
- Intermittency: A penalty of +3 dB can be applied if on/off conditions are readily distinctive within the reference time interval over the period of the greatest amount of on-time.
- Other characteristics: A penalty of +3 dB can be applied in the absence of all other defined characteristics, where the specific sound contains a distinctive feature in the residual acoustic environment.

The rating sound level is equal to the specific sound level if there are no acoustic features present or expected to be present.

The significance of sound depends upon both the margin by which the rating level exceeds the background sound level and the context in which the sound occurs. An initial estimate of the impact of the specific sound is made by subtracting the measured background sound level from the rating level.

- Typically, the greater the difference, the greater the magnitude of the impact;
- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context;
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context; and
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background level, this is an indication that the specific sound source will have a low impact, depending on the context.

BS 4142 has stipulated that context is important when assessing the impact of sound of a commercial and/or industrial nature. Amongst a range of advocated considerations, this can

include mitigation, residual sound levels, location and absolute sound levels in the consideration of context.

The scope of BS 4142 recognises that human response to sound can be subjective as affected by many factors, both acoustic and non-acoustic. The significance of its impact can depend on various factors such as the exceedance to the background level, its absolute level, time of day and change in environment, as well as local attitudes to the source of sound and character of the neighbourhood.

Additionally, BS 4142 states that it is *"unlikely to be the appropriate methodology on its own to assess low frequency noise*".

3.2 Noise and Vibration Management: Environmental Permits

The Environment Agency (EA) released the guidance document *Noise and vibration management: environmental permits* (NVM) in July 2021, replacing the previous guidance presented in *Horizontal Guidance for Noise (H3) parts 1 and 2*. The NVM details when a noise assessment is required, the competency required to undertake an assessment and how to carry out a noise impact assessment. The NVM references BS 4142:2014+A1:2019 as the appropriate assessment methodology.

The NVM outlines how context should be taken into account in the assessment and notes that *"Whilst context allows you to interpret impact thresholds (to a degree), there are practical limits to the extent of the interpretation. It is unlikely you could adjust the assessment outcome beyond the next band (for example, modifying a BS 4142 outcome of more than 10 dB to be less than an 'adverse impact')."*

Determining the outcome of the assessment the following should be considered:

- weekdays rather than weekends;
- what the sound 'means' – meaningful sound is one that conveys an unpleasant meaning beyond its mere acoustic content, for example noise from an abattoir;
- time of day;
- the absolute sound level;
- where the sound occurs;
- new industry or new residences;
- intrinsic links between the source and receptor, for example the source is the resident's place of work;
- local attitudes;
- the residual acoustic environment;
- the land use at the receptor (for example, gardens rather than yards);
- the exceedance (traditional BS 4142); and
- whatever else might be particular to that individual situation.

Based on the results of the BS 4142:2014+A1:2019 assessment the NVM has three distinct requirements as detailed in Table B.

Table B: NVM Assessment Outcomes

NVM Result	BS4142 Descriptor	Next Stage
Unacceptable level of audible or detectable noise	The closest corresponding BS 4142 descriptor is 'significant adverse impact'	You must take further action or you may have to reduce or stop operations. The environment agencies will not issue a permit if you are likely to be operating at this level.
Audible or detectable noise	The closest corresponding BS 4142 descriptor is 'adverse impact'	Your duty is to use appropriate measures to prevent or, where that is not practicable, minimise noise. You are not in breach if you are using appropriate measures. But you will need to rigorously demonstrate that you are using appropriate measures.
No noise, or barely audible or detectable noise	The closest corresponding BS 4142 descriptor is 'low impact or no impact'	Low impact does not mean there is no pollution. However, if you have correctly assessed it as low impact under BS 4142, the environment agencies may decide that taking action to minimise noise is a low priority.

3.3 Method Implementation Document for BS 4142

The environment agency published a Method Implementation Document (MID) in March 2023 (updated in December 2023) for BS 4142.

MIDs explain how to use the standards and guidance for regulatory monitoring when applying for a permit or complying with permit conditions.

The Environment Agency, Natural Resources Wales and Northern Ireland Environment Agency have produced this guidance to help holders and potential holders of permits.

The MID must be followed if you are:

- Applying to the environment agencies for a new environmental permit or applying to vary an existing permit.
- Sending sound monitoring and assessments to the environment agencies – you must also follow the requirements of BS 4142 and the NVM.

Guidance contained in the MID document will be followed for the noise impact assessment.

4.0 Baseline Sound Survey

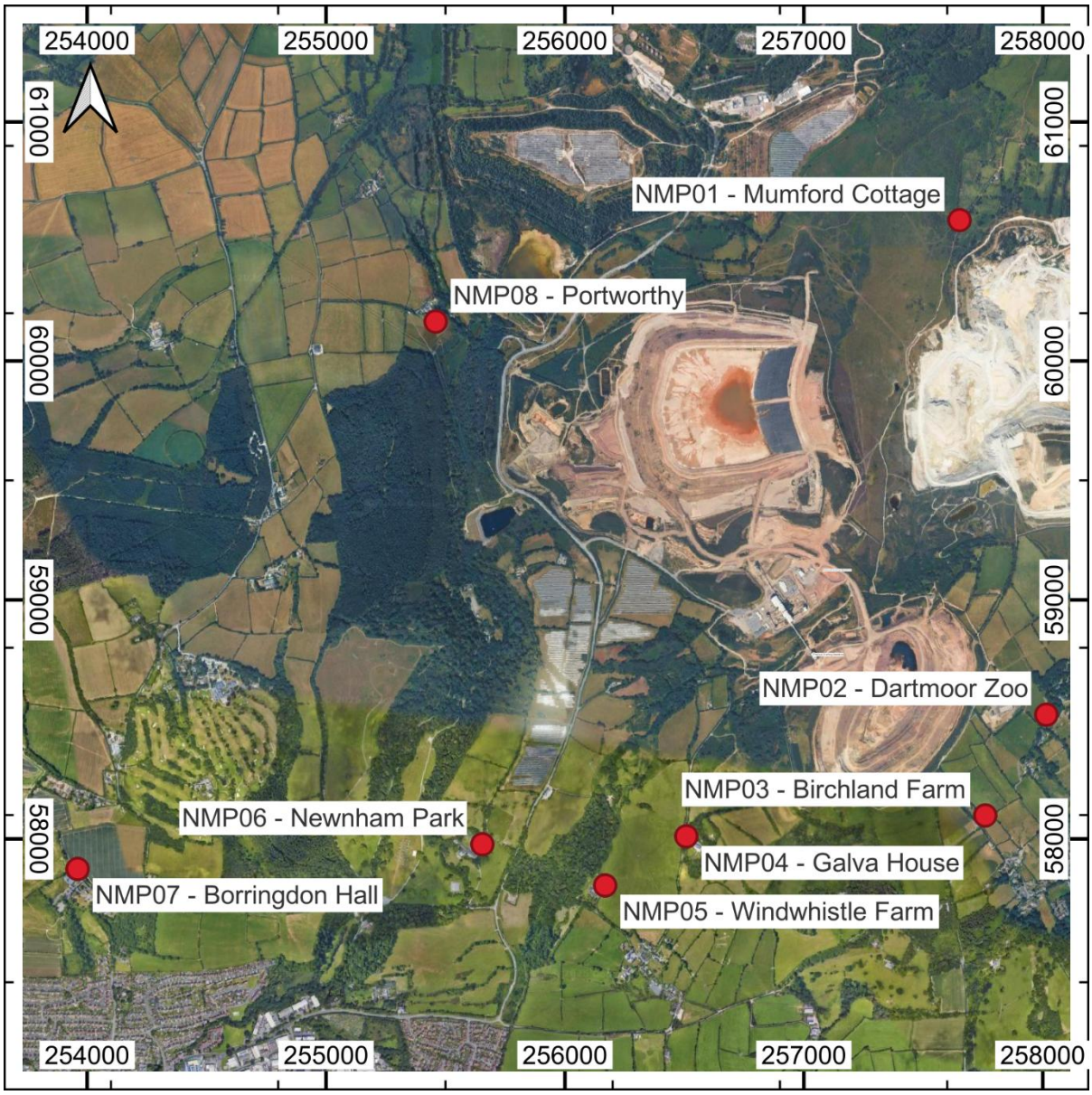
To establish the prevailing sound climate at the nearest NSRs to the Site, environmental sound surveys were undertaken between Thursday 13th and Thursday 20th August 2026.

The locations of the environmental baseline sound survey locations are presented in Table C and shown in Figure C. Photographs of the survey locations can be seen in **Appendix B.**

Table C: Baseline Sound Survey Locations

Location	Description	OS Coordinates		Approximate Distance to Centre of Processing Plant
		X	Y	
NMP01	Representative of Mumford Cottage	257654.00	60587.00	1.7 km
NMP02	Representative of Dartmoor Zoo	258017.00	58526.00	1.15 km
NMP03	Representative of Birchland Farm	257758.00	58099.00	1.2 km
NMP04	Representative of Galva House	256504.70	58011.95	1.1 km
NMP05	Representative of Windwhistle Farm	256168.36	57805.56	1.45 km
NMP06	Representative of Newnham Park	255653.00	57975.00	1.65 km
NMP07	Representative of Boringdon Hall	253965.00	57869.00	3.2 km
NMP08	Representative of Portworthy	255458.00	60166.00	1.3 km

Figure C: Baseline Sound Survey Locations



4.1 Equipment and Measurements

Sound pressure level measurements were carried out using the following equipment listed in Table D, confirming to Class 1 acoustic accuracy for sound level meters and matched calibrators.

Table D: Baseline Sound Monitoring Equipment

Location	Description	Manufacturer	Type	Serial Number	Laboratory Calibration Date	Certificate Number
NMP01	Sound Level Meter	ACOEM	CUBE	14846	30/03/2026	DTE-L-26-PVE-97200
	Pre-Amplifier	ACOEM	PRE22	2504390		
	½" Pre-Polarised Microphone	GRAS	40CD	646996		
	Calibrator	01dB	CAL31	82830	10/02/2026	CE-REP-11076
NMP02	Sound Level Meter	ACOEM	CUBE	10692	23/10/2024	TR-REP-10867
	Pre-Amplifier	ACOEM	PRE22	1805178		
	½" Pre-Polarised Microphone	GRAS	40CD	224253		
	Calibrator	01dB	CAL31	82830	10/02/2026	CE-REP-11076
NMP03	Sound Level Meter	ACOEM	FUSION	14149	28/08/2025	TR-REP-11008
	½" Pre-Polarised Microphone	GRAS	40CD	331890		
	Calibrator	01dB	CAL31	82830	10/02/2026	CE-REP-11076
NMP04	Sound Level Meter	ACOEM	FUSION	10919	19/05/2026	TR-REP-11111
	½" Pre-Polarised Microphone	GRAS	40CD	144851		
	Calibrator	01dB	CAL31	82830	10/02/2026	CE-REP-11076
NMP05	Sound Level Meter	ACOEM	CUBE	10694	01/11/2024	TR-REP-10877
	Pre-Amplifier	ACOEM	PRE22	11118		
	½" Pre-Polarised Microphone	GRAS	40CD	224223		
	Calibrator	01dB	CAL31	82830	10/02/2026	CE-REP-11076
NMP06	Sound Level Meter	ACOEM	FUSION	14155	28/08/2025	TR-REP-11009
	½" Pre-Polarised Microphone	GRAS	40CD	428368		
	Calibrator	01dB	CAL31	82830	10/02/2026	CE-REP-11076

Location	Description	Manufacturer	Type	Serial Number	Laboratory Calibration Date	Certificate Number
NMP07	Sound Level Meter	ACOEM	FUSION	14144	21/04/2026	TR-REP-11095
	½" Pre-Polarised Microphone	GRAS	40CD	330671		
	Calibrator	01dB	CAL31	82830	10/02/2026	CE-REP-11076
NMP08	Sound Level Meter	ACOEM	CUBE	11110	03/07/2025	TR-REP-10968
	Pre-Amplifier	ACOEM	PRE22	2302013		
	½" Pre-Polarised Microphone	GRAS	40CD	562223		
	Calibrator	01dB	CAL31	82830	10/02/2026	CE-REP-11076

The L_{Aeq}, L_{A90}, L_{A10} and $L_{Amax,F}$ levels were measured over 15-minute periods, however the time history was captured to allow resampling of these values. Measurements started and ended at the times shown in Table E.

The sound level meters were calibrated before the measurements using the handheld acoustic calibrator and the calibration was checked upon completion of the survey. Calibration offsets from before and after the measurements and the resulting drift are shown in Table E below. The calibration chain of equipment has been maintained to traceably to national standards, no greater than one year for sound calibrators and two years for sound level meters and the relevant calibration certificates are shown in **Appendix C.**

Table E: Baseline Sound Survey Field Calibrations

Location	Time Period		Calibration Offset		
	Start	End	Before	After	Drift
NMP01	13/08/2026	20/08/2026	+0.15	+0.18	+0.03
NMP02	13/08/2026	20/08/2026	-0.37	-0.08	+0.29
NMP03	13/08/2026	20/08/2026	+0.38	0.00	-0.38
NMP04	13/08/2026	20/08/2026	-0.18	+0.10	+0.28
NMP05	13/08/2026	20/08/2026	-0.08	-0.52	-0.44
NMP06	13/08/2026	20/08/2026	+0.55	+0.39	-0.16
NMP07	13/08/2026	20/08/2026	+0.01	-0.36	-0.37
NMP08	13/08/2026	20/08/2026	-0.15	-0.40	+0.25

4.2 Measurement Positions

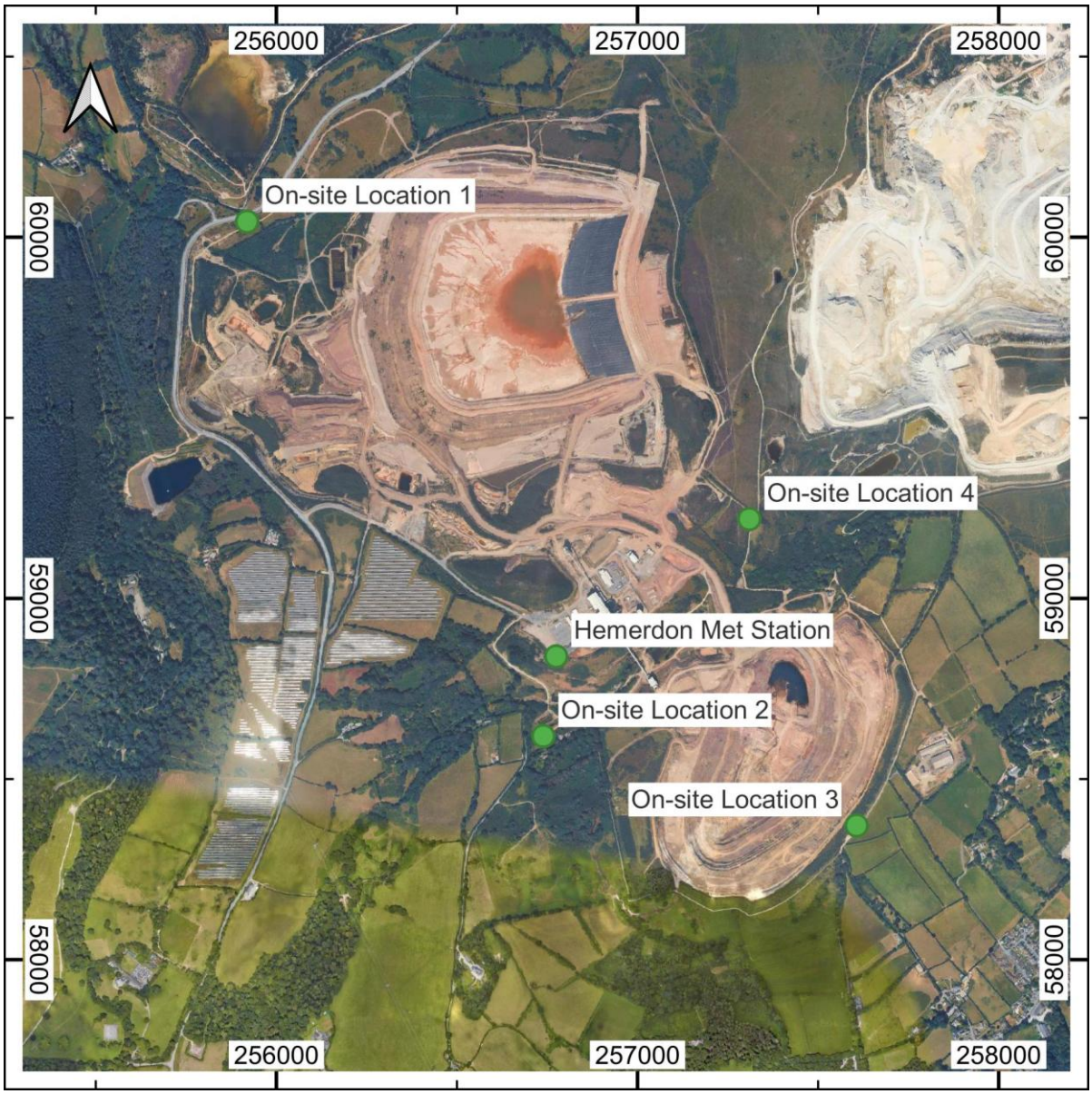
At all the survey locations with the exception of NMP04 the microphone was placed 1.5m above the local ground level in free-field conditions, i.e. at least 3.5m from the nearest vertical, reflecting surface.

At NMP04 the microphone was within 3.5m of the property façade as it could not be located further away due to the fact it would be on the access road to the property; however, it is considered that due to the quiet nature of the soundscape at this receptor there would not be significant reflections off the property façade and therefore no corrections have been made to the measured baseline levels.

4.3 Meteorological Conditions

Meteorological conditions were monitored over the entire baseline survey period at four boundary locations and on the mine itself, these locations are shown on **Figure D.**

Figure D: Meteorological Boundary Monitoring Locations



Measurements were made at the boundary locations using Cirrus MaxiMet GMX600weather stations, taking samples over 15-minute periods. Graphs of the weather data are shown in **Appendix D.**

The boundary locations were considered representative of the relevant NSR as shown in Table F.

Table F: Weather Stations and Representative NSRs

Weather Station Location	Representative NSR(s)
On-site Location 1	NSR08
On-site Location 2	NSR04, NSR05, NSR06 and NSR07
On-site Location 3	NSR02, NSR03
On-site Location 4	NSR01

4.3.1 Analysis of Weather Data

4.3.1.1 On-site Location 1

The weather conditions at on-site location 1 were generally suitable for undertaking environmental sound measurements, with wind speeds below 5 m/s from a predominantly WNW direction, predominately dry and temperatures ranging from 12.2 to 30.1°C.

However, there were periods of precipitation between 18th August at 05:45-11:00, 19th August 01:00-12:00 and 20th August at 10:15-13:30. Therefore, these periods have been removed from the baseline sound survey data at NSR08.

4.3.1.2 On-site Location 2

The weather conditions at on-site location 2 were generally suitable for undertaking environmental sound measurements, with wind speeds below 5 m/s from a predominantly ESE direction, predominately dry and temperatures ranging from 12.5 to 30.3°C.

However, there were periods of precipitation between 18th August at 05:45-11:30, 19th August 01:00-12:00 and 20th August at 10:15-13:45. Therefore, these periods have been removed from the baseline sound survey data at NSRs 04, 05, 06 and 07.

4.3.1.3 On-site Location 3

The weather conditions at on-site location 3 were generally suitable for undertaking environmental sound measurements, with wind speeds below 5 m/s from a predominantly SSW direction, predominately dry and temperatures ranging from 12.3 to 32.0°C.

However, there were periods of precipitation between 18th August at 05:45-09:15, 19th August 01:00-12:00 and 20th August at 10:15-13:30. Therefore, these periods have been removed from the baseline sound survey data at NSR02 and NSR03.

4.3.1.4 On-site Location 4

The weather conditions at on-site location 4 were generally suitable for undertaking environmental sound measurements, with wind speeds below 5 m/s from a predominantly W to SW direction, predominately dry and temperatures ranging from 12.2 to 29.9°C.

However, there were periods of precipitation between 18th August at 05:45-11:45, 19th August 01:00-12:30 and 20th August at 10:15-13:30. Additionally, given this location was more exposed, wind speeds in excess of 5m/s were noted between 13th August at 19:00-23:45, 14th August at 00:15-02:45 and 06:45, 15th August at 18:30 and 16th August at 19:30-20:00. Therefore, these periods have been removed from the baseline sound survey data at NSR01.

4.3.1.5 Mine Location

The location of the met station on the Site is considered to be more exposed to the elements than the receptor locations, i.e., it is located at a geographically higher than all but one (Mumford Cottage) of the receptor locations and therefore it is considered that would be more susceptible to high wind speeds. Given the boundary on-site locations are more representative of the surrounding receptor locations, weather data from the mine location has not been used.

4.4 Survey Duration at Each NSR

As previously stated, the survey was undertaken between Thursday 13th and Thursday 20th August 2026; however, baseline sound levels were not measured for the entirety of this period at each NSR.

In view of the above Table G details the duration of the baseline survey at each NSR.

Table G: Survey Duration at Each NSR

Location	Survey Start		Survey End		Total Duration		
	Date	Time	Date	Time	Days	Hours	Mins
NMP01	13/08	20:00	20/08	23:45	7	3	45
NMP02	13/08	16:15	20/08	23:45	7	7	30
NMP03	13/08	16:15	20/08	23:45	7	7	30
NMP04	13/08	16:15	20/08	23:45	7	7	30
NMP05	13/08	16:15	20/08	23:45	7	7	30
NMP06	13/08	16:15	20/08	23:45	7	7	30
NMP07	13/08	16:15	20/08	23:45	7	7	30
NMP08	13/08	17:00	20/08	23:45	7	6	45

4.4.1 Further Discussion regarding Survey Durations

With regards to the survey duration, it was proposed that baseline sound levels would be measured at each NSR for a continuous period including both weekday and weekend periods whilst suitable weather conditions prevailed and if adverse weather conditions were experienced then this period would be extended.

With reference to Section 4.2 though there were small periods of inclement weather identified, which have been removed from the baseline sound data set, it is considered that there was sufficient baseline data measured which was not influenced by the weather.

Given that all monitoring locations have over one full week of data including a weekend period, the survey period is considered representative.

4.4.2 Operational Periods and Baseline Levels

As stated in Section 2.3 of the NIA, the operations at the mine are divided into the following periods;

- 07:00 to 19:00 – All crushing and processing activities operational, including the MFE with the exception of the loading shovel on the ROM pad. Haul trucks from the pit to the ROM and directly tipping in Primary Crusher.
- 19:00 to 22:00 - All crushing and processing activities operational including the MFE and the loading shovel on the ROM pad including the movement of dump trucks from the extraction area.
- 22:00 to 07:00 – All processing activities operational, including the MFE but no primary and secondary crushing activities or mobile plant movements.

In view of this, the baseline survey results reflect the operational times described above for both weekday and weekend periods.

5.0 Results

5.1 Summary of Results

A summary of the single figure free-field sound indices for all measurements is shown in Table H, and are presented along with histograms of the background sound levels in **Appendix D.** The full data set will be provided as a separate document.

With regards to the weekend period this is defined as from 23:00 on a Friday until 23:00 on a Sunday.

Table H: Summary of Measured Residual and Background Sound Levels, dB

Measurement Details				Residual Sound Level, dB $L_{Aeq,T}$		Background Sound Level, dB $L_{A90,T}$	
Date Range	**Location**	**Period**	**Time HH:MM**	**Range**	**Typical***	**Range**	**Typical***
Thu 13/08/2026 - Thu 20/08/2026	NMP01	Weekday - Day	07:00 - 19:00	24 - 54	35	21 - 37	30
		Weekday - Evening	19:00 - 22:00	23 - 44	30	20 - 34	27
		Weekday - Night	22:00 - 07:00	22 - 58	25	20 - 36	23
		Weekend - Day	07:00 - 19:00	25 - 43	33	23 - 39	26
		Weekend - Evening	19:00 - 22:00	26 - 46	37	24 - 36	33
		Weekend - Night	22:00 - 07:00	26 - 47	34	23 - 37	34
Thu 13/08/2026 - Thu 20/08/2026	NMP02	Weekday - Day	07:00 - 19:00	35 - 69	44	27 - 49	38
		Weekday - Evening	19:00 - 22:00	27 - 45	37	24 - 42	34
		Weekday - Night	22:00 - 07:00	24 - 44	29	21 - 39	26
		Weekend - Day	07:00 - 19:00	33 - 55	39	27 - 38	35
		Weekend - Evening	19:00 - 22:00	32 - 43	38	29 - 41	33
		Weekend - Night	22:00 - 07:00	23 - 59	29	21 - 37	26
Thu 13/08/2026 - Thu 20/08/2026	NMP03	Weekday - Day	07:00 - 19:00	29 - 53	35	25 - 42	31
		Weekday - Evening	19:00 - 22:00	25 - 42	32	22 - 38	29

Measurement Details				Residual Sound Level, dB $L_{Aeq,T}$		Background Sound Level, dB $L_{A90,T}$	
		Weekday - Night	22:00 - 07:00	22 - 46	27	21 - 35	24
		Weekend - Day	07:00 - 19:00	28 - 40	30	23 - 34	26
		Weekend - Evening	19:00 - 22:00	26 - 40	37	23 - 36	33
		Weekend - Night	22:00 - 07:00	24 - 41	31	21 - 37	26
Thu 13/08/2026 - Thu 20/08/2026	NMP04	Weekday - Day	07:00 - 19:00	30 - 57	38	26 - 44	34
		Weekday - Evening	19:00 - 22:00	26 - 53	36	24 - 43	31
		Weekday - Night	22:00 - 07:00	23 - 49	27	22 - 39	24
		Weekend - Day	07:00 - 19:00	28 - 49	31	23 - 39	25
		Weekend - Evening	19:00 - 22:00	28 – 48	34	25 - 38	30
		Weekend - Night	22:00 - 07:00	24 - 45	28	20 - 36	23
Thu 13/08/2026 - Thu 20/08/2026	NMP05	Weekday - Day	07:00 - 19:00	31 - 57	35	29 - 39	32
		Weekday - Evening	19:00 - 22:00	29 - 43	33	26 - 38	31
		Weekday - Night	22:00 - 07:00	25 - 55	28	23 - 39	26
		Weekend - Day	07:00 - 19:00	29 - 46	32	25 - 33	27
		Weekend - Evening	19:00 - 22:00	28 - 40	33	25 - 32	29
		Weekend - Night	22:00 - 07:00	24 - 39	26	22 - 33	24
Thu 13/08/2026 - Thu 20/08/2026	NMP06	Weekday - Day	07:00 - 19:00	31 - 57	37	29 - 39	33
		Weekday - Evening	19:00 - 22:00	29 - 43	34	26 - 38	29
		Weekday - Night	22:00 - 07:00	25 - 55	28	23 - 39	24
		Weekend - Day	07:00 - 19:00	29 - 46	35	25 - 33	29
		Weekend - Evening	19:00 - 22:00	28 - 40	32	25 - 32	29
		Weekend - Night	22:00 - 07:00	24 - 39	27	22 - 33	22
	NMP07	Weekday - Day	07:00 - 19:00	34 - 51	40	30 - 46	36

Measurement Details				Residual Sound Level, dB $L_{Aeq,T}$		Background Sound Level, dB $L_{A90,T}$	
Thu 13/08/2026 - Thu 20/08/2026		Weekday - Evening	19:00 - 22:00	33 - 46	38	30 - 40	34
		Weekday - Night	22:00 - 07:00	27 - 50	31	26 - 39	28
		Weekend - Day	07:00 - 19:00	33 - 49	36	31 - 40	33
		Weekend - Evening	19:00 - 22:00	31 - 46	35	28 - 41	31
		Weekend - Night	22:00 - 07:00	30 - 52	34	28 - 46	33
Thu 13/08/2026 - Thu 20/08/2026	NMP08	Weekday - Day	07:00 - 19:00	34 - 51	39	30 - 40	34
		Weekday - Evening	19:00 - 22:00	30 - 46	35	28 - 39	30
		Weekday - Night	22:00 - 07:00	30 - 47	33	27 - 39	30
		Weekend - Day	07:00 - 19:00	32 - 50	35	28 - 36	32
		Weekend - Evening	19:00 - 22:00	32 - 50	34	29 - 36	31
		Weekend - Night	22:00 - 07:00	32 - 42	35	39 - 35	32
*Values determined from histograms.							

5.2 Baseline Sound Environment

Table I sets out the perceived sound environment at each monitoring location, using observations during the setup and demounting of the surveys as well as evening and night-time attended observations which were made on the 15th and 16th of August which was a Saturday evening and night-time i.e. during a weekend period.

It also should be noted that during the evening and night-time access could not be gained to NMP02 Dartmoor Zoo; however, it is considered that during these periods the perceived sound environment would be similar to what was experienced at NMP03 Birchland Farm.

Table I: Summary of Baseline Sound Environment

Location	Period	Perceived Sound Environment
NMP01 Mumford Cottage	Day	Sheep bleating dominant, movement of plant at the Sibleco audible i.e., reversing alarms, crashing sounds. Natural sounds such as the breeze in vegetation.
	Evening	Imerys Site faintly audible, in addition the Sibelco site is also operating and audible. No mobile plant was audible, but a number of buildings were visible with chimneys clearly expelling smoke/vapours and a low to mid frequency 'hum' at this location. In addition, natural sounds were audible such as the breeze in the trees and sheep bleating.
	Night	Sibelco site is also operating and audible as per the evening period; however, Imerys Site now not audible.
NMP02 Dartmoor Zoo	Day	Noise from people visiting the Zoo, staff vehicles using the access road, plant noise from nearby farm buildings. In addition, natural sounds such as birdsong and the breeze in vegetation.
	Evening	N/A
	Night	N/A
NMP03 Birchland Farm	Day	Distant mobile plant dominant from a west direction. Distant train pass audible. Natural sounds such as the breeze in vegetation.
	Evening	Imerys site just audible at this location in addition natural sounds such as the breeze in the trees and cows mooing were also audible.
	Night	Very distant road traffic noise (A38 Devon Expressway), no other audible sources.
NMP04 Galva House	Day	Vehicle passes close to property dominant. With no vehicle passes, natural noise sources such as birdsong are dominant. Distant road traffic noise also audible.
	Evening	Distant plant noise audible (mid to high frequency whine from some drying plant or similar) possibly from the Imerys site. In addition, natural sounds were audible such as the breeze in the trees and sheep bleating. Occasional road traffic using the B3417.
	Night	Distant plant noise still audible. No other audible sources.
NMP05 Windwhistle Farm	Day	Distant road traffic noise dominant at this location.
	Evening	Motorcycles passing up and down the B3417, some distant road traffic noise. Livestock audible intermittently (sheep bleating in fields adjacent).
	Night	Very distant road traffic noise, very faint commercial sound, thought to be a boiler in a residential property to the south-east.

Location	Period	Perceived Sound Environment
NMP06 Newnham Park	Day	An audible hum from the substation within the caravan store is dominant.
	Evening	Vehicle movements along the B3417 audible, trees rustling in the breeze. It should be noted that when a loud vehicle passes along the B3417 it is audible up into Wotter and along the lanes.
	Night	Distant plant noise - a ‘pump’ emanating from the south-east. Essentially no other sound sources audible.
NMP07 Boringdon Hall	Day	Hotel activities dominant, including some background music at low level and hotel guests talking.
	Evening	Leaves rustling in the breeze, plant associated with the Spa audible. Other sources include pigeons cooing in the trees, and guests at the hotel talking to one another.
	Night	The plant associated with the Spa prominent, occasional distant vehicle and road traffic noise
NMP08 Portworthy	Day	Road traffic noise along B3147 is dominant. Natural sources such as birdsong also audible.
	Evening	Distant plant noise from the Imerys site, geese honking, probably from the Tory Brook pond, and motorcyclists on the B3417.
	Night	Noise from the Imerys site is now the dominant sound source influencing the sound climate at this location. The geese at the Tory Brook Pond occasionally audible (honking) as well as some smaller birds very quietly chirping.

5.3 Representative Baseline Sound Levels

With reference to Sections 5.1 and 5.2, the baseline sound levels ($L_{A90,T}$) which have been utilised within the assessment are shown in Table J.

Table J: Representative Baseline Sound Levels, dB

Location	Period	Background Sound Level, dB $L_{A90,Tr}$
NSR01 – Mumford Cottage	Weekday - Day	30
	Weekday - Evening	27
	Weekday - Night	23
	Weekend - Day	26
	Weekend - Evening	33
	Weekend - Night	34
NSR02 - Dartmoor Zoo	Weekday - Day	38
	Weekday - Evening	34
	Weekday - Night	26
	Weekend - Day	35
	Weekend - Evening	33
	Weekend - Night	26
NSR03 – Birchland Farm	Weekday - Day	31
	Weekday - Evening	29
	Weekday - Night	24
	Weekend - Day	26
	Weekend - Evening	33
	Weekend - Night	26
NSR04 – Galva House	Weekday - Day	34
	Weekday - Evening	31
	Weekday - Night	24
	Weekend – Day	25
	Weekend - Evening	30
	Weekend - Night	23
NSR05 – Windwhistle Farm	Weekday - Day	32
	Weekday - Evening	31
	Weekday - Night	26
	Weekend - Day	27
	Weekend - Evening	29
	Weekend - Night	24
NSR06 – Newnham Park	Weekday - Day	33
	Weekday - Evening	29

Location	Period	Background Sound Level, dB $L_{A90,Tr}$
	Weekday - Night	24
	Weekend - Day	29
	Weekend - Evening	29
	Weekend - Night	22
NSR07 – Boringdon Hall	Weekday - Day	36
	Weekday - Evening	34
	Weekday - Night	28
	Weekend - Day	33
	Weekend - Evening	31
	Weekend - Night	33
NSR08 - Portworthy	Weekday - Day	34
	Weekday - Evening	30
	Weekday - Night	30
	Weekend - Day	32
	Weekend - Evening	31
	Weekend - Night	32

5.4 Discussion of Baseline Sound Levels

5.4.1 NSR01 - Mumford Cottage

At NSR01, the measured weekend evening and night-time background sound level (33 dB $L_{A90,T,}$ and 34 dB $L_{A90,T}$) level was higher than the corresponding weekend daytime background sound level (26 dB $L_{A90,T}$). Whilst daytime periods often present with higher background sound levels due to increased road traffic movements, elevated evening background sound levels can occur within rural environments as a result of local environmental influences. Soundscape observations referenced in Table I were undertaken during the weekend period and noted that operational noise from the Imerys and Sibelco sites were audible, which may have influenced the background sound levels during this period.

Additionally, given the higher elevation of this receptor, there is potential for low-level wind-induced noise affecting vegetation and topography, even during periods when wind speeds remain below the 5 m/s limit. It should also be noted that at this receptor, a proportion of the weekend evening dataset was excluded due to periods of elevated wind speeds. Consequently, the representative background sound level for this period have been derived from a reduced sample size, which may have increased the influence of local environmental sound sources on the reported value. Nevertheless, the reported level is considered representative of the prevailing soundscape during the monitoring period.

5.4.2 NSR03 – Birchland Farm

At NSR03, the measured weekend evening background sound level (33 dB $L_{A90,T}$) was higher than the corresponding weekend daytime background sound level (26 dB $L_{A90,T}$). Similar to NSR01, attended observations noted that the Imerys site was audible during the weekend

evening period. The reported background sound level is therefore considered representative of the prevailing soundscape during the monitoring period.

5.4.3 NSR04 – Galva House

At NSR04, the measured weekend evening background sound level (30 dB $L_{A90,T}$) was higher than the corresponding weekend daytime background sound level (25 dB $L_{A90,T}$). Similar to NSR01 and NSR03, noise from the Imerys site was audible during the weekend evening period. The occurrence of elevated weekend evening background sound levels at several receptors across the survey area indicates that the results are representative of the prevailing acoustic environment during the monitoring period, rather than isolated local events associated with an individual monitoring location.

5.4.4 NSR05 – Windwhistle Farm

At NSR05, the measured weekend evening background sound level (29 dB $L_{A90,T}$) was higher than the corresponding weekend daytime background sound level (27 dB $L_{A90,T}$). Observations undertaken during the attended survey indicated that motorcycles travelling along the B3417 were audible. Whilst such events were generally intermittent in nature, the frequency of motorcycle movements during the survey period is considered likely to have influenced the measured background sound level during the shortened evening period. The reported background sound level is therefore considered representative of the prevailing soundscape during the monitoring period.

5.4.5 NSR02, NSR06, NSR07 and NSR08

The measured background sound levels at the remaining monitoring locations generally exhibited the expected diurnal pattern, with higher background sound levels during the daytime period and lower levels during the evening and night-time periods. This is consistent with typical rural sound environments, where background sound levels are influenced by daytime road traffic and other environmental sound sources, which generally reduce outside normal daytime hours. Whilst NSR07 and NSR08 recorded marginally higher background sound levels during the night-time period than during the evening period on weekends, the differences were small and are considered likely to reflect normal variations in local environmental conditions and background sound sources during the survey period. Overall, the measured background sound levels are considered representative of the prevailing soundscape at these locations.

6.0 Baseline Sound Survey - Uncertainties

As advised in BS 4142:2014+A1:2019, areas of uncertainty associated with measurements of sound include:

- the complexity and level of variability of the residual acoustic environment;
- the location(s) selected for taking the measurements;
- the distance between sources of sound and the measurement location and intervening ground conditions;
- the number of measurements taken;
- the measurement time intervals;
- the range of times when the measurements have been taken;
- the range of suitable weather conditions during which measurements have been taken;
- the measurement method and variability between different practitioners in the way the method is applied;
- the level of rounding of each measurement recorded; and
- the instrumentation used.

With reference to the above, the measurement uncertainty was minimised during the baseline sound survey as follows:

- baseline sound measurements were taken at positions representative of the noise-sensitive receptors to the proposed processing plant;
- the measurement positions were located away from reflecting surfaces and as far as reasonably practicable leafy vegetation;
- the long-term measurements included daytime, evening and night-time periods for typical midweek and weekend periods;
- the prevailing weather conditions were recorded for the entirety of the baseline survey utilising a number of weather stations located at different locations on the Site boundary and the weather station located on the Site itself.
- Daytime, evening and night-time subjective observations on the baseline sound climate at each receptor were made by the qualified acoustician[1]
- all baseline survey results have been rounded to the nearest decibel; and
- the instrumentation was suitable according to BS E 61672-1.

[1] The acoustician has over 12 years of relevant experience and holds the I.o.A Diploma in Acoustics and Noise Control.

Appendix A Glossary of Terminology

Baseline Sound Survey Report

Hemerdon Mine

Drakelands Restoration Ltd

SLR Project No.: 403.066596.00001.001

11 September 2026

In order to assist the understanding of acoustic terminology and the relative change in noise, the following background information is provided.

The human ear can detect a very wide range of pressure fluctuations, which are perceived as sound. In order to express these fluctuations in a manageable way, a logarithmic scale called the decibel, or dB scale is used. The decibel scale typically ranges from 0 dB (the threshold of hearing) to over 120 dB. An indication of the range of sound levels commonly found in the environment is given in the following table.

Table A-1: Sound Levels Commonly Found in the Environment

Sound Level	Location
0 dBA	Threshold of hearing
20 to 30 dBA	Quiet bedroom at night
30 to 40 dBA	Living room during the day
40 to 50 dBA	Typical office
50 to 60 dBA	Inside a car
60 to 70 dBA	Typical high street
70 to 90 dBA	Inside factory
100 to 110 dBA	Burglar alarm at 1 m away
110 to 130 dBA	Jet aircraft on take off
140 dBA	Threshold of Pain

Appendix B Photographs of Measurement Locations

Baseline Sound Survey Report

Hemerdon Mine

Drakelands Restoration Ltd

SLR Project No.: 403.066596.00001.001

11 September 2026

B.1 NMP01



B.2 NMP02



B.3 NMP03



B.4 NMP04



B.5 NMP05



B.6 NMP06



B.7 NMP07



B.8 NMP08



Appendix C Equipment Calibration Certificates

Baseline Sound Survey Report

Hemerdon Mine

Drakelands Restoration Ltd

SLR Project No.: 403.066596.00001.001

11 September 2026

Calibration Certificate

CE-REP-11076.xls

ISSUED FOR :

acoustic1

overdale
manordeilo

sa19 7bd llandeilo
uk

Name and location of the laboratory of calibration:
Acoustic1 - Overdale Manordeilo, Llandeilo
Carmathenshire UK SA19 7BD

TESTED INSTRUMENT
Designation : Sound calibrator

Manufacturer : 01dB

Type : CAL31 Serial number : 82830

Identification number :

Date of issue : 10/02/2026

This certificate includes 3 pages

The measurements are performed according to the IEC 60942: 2018, Electroacoustics, - Sound calibrators.

Steve THOMAS
Head of calibration laboratory at Acoustic 1



THIS CERTIFICATE is compliant with THE FD X 07-012 STANDARD DOCUMENTATION
This document may not be reproduced other than in full, except with the prior written approval of the laboratory.

Identification :

	Sound calibrator
Manufacturer	01dB
Type	CAL31
Serial number	82830
Adaptor	/

Calibration Program:

The calibrator has been calibrated on different characteristics:
• Acoustic pressure level
• Acoustic signal frequency
• Total distortion + noise

Calibration Method:
The instrument has been calibrated in a air conditioning room. The characteristics are measured on a measuring chain which used a calibrated acoustic calibrator as reference.
The total distortion + noise is measured using a rejection filter device (distortion factor meter).

Calibration conditions:

Date of calibration	2/10/2026
Operator Name	Steve Thomas
Calibration instruction	MET.18.INS.084
Static pressure	>95,5 ; <105 kPa
Temperature	23 ± 3 °C
Relative humidity	>25 ; <70 %HR

Instruments used for calibration:

Designation	Manufacturer	Type	Serial number	Identification number
Multimeter	HP	34401A	3146A27296	-
Distortion meter	HP	8903E	2818A00381	-
Conditioner	GRAS	12AK	323147	-
Calibrator	ACOEM	CAL21	34675324	-
Microphone	ACOEM	MCE212	18019	-
Thermometer, hygrometer, barometer	TESTO	622	39517641/806	-

Results:

Mentioned expanded uncertainties correspond to two standard uncertainty types (k=2). Standard uncertainties are calculated including different uncertainty components, reference standards, instruments used, environmental conditions, calibrated instrument contribution, repeatability…

This calibration certificate guarantees the traceability of calibration measurements to the International System of Units (SI).
Cofrac is signatory of the European co-operation for Accreditation (EA) and of International Laboratory Accreditation Cooperation (Ilac) multilateral agreement. EA signatories recognise the equivalence of calibration certificates issued by EA agreement signatories.

	Nominal value	Displayed value	Measurement error	Maximum permissible errors	Expanded uncertainty
Frequency (Hz)	1000.0	1000.4	0.4	± 7,0	0.6
Level (dB)	94.00	93.98	-0.02	± 0,25	0.08
Total distortion + noise (%)		0.2		2.5	0.4

Calibrator user manual	NOT1406 September 2016 G - CAL21 CAL02 User Manual FR_EN
Type-approval certificate	France: LNE-30010 rev. 0 01/09/2015 Deutschland: PTB 21.51 03.01 27/01/2003

Conclusion:

This sound level calibrator is **compliant with the specifications.**

End of calibration certificate



CUBE Smart Noise Monitoring Terminal

Tests report, according to the IEC 61672-3

Acoustic1

01dB.com

Tests report

TR-REP-10867.xls

ISSUED FOR :

acoustic1

overdale
manordeilo

sa19 7bd llandeilo
uk

Name and location of the laboratory of tests:
Acoustic1 - Overdale Manordeilo, Llandeilo
Carmathenshire UK SA19 7BD

TESTED INSTRUMENT
Designation : Integrator Sound Level Meter

Manufacturer : 01dB

Type : CUBE

Serial number : 10692

Identification number :

Date of issue : 23/10/2024

This report includes 10 pages

The measurements are performed according to the IEC 61672-3, Electroacoustics, - Sound level meters – Part 3: Periodic tests.

Steve THOMAS
Head of calibration laboratory at Acoustic 1



THIS REPORT is compliant with THE FD X 07-012 STANDARD DOCUMENTATION
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Identification :

	Sound level meter	Microphone	Accessories
Manufacturer	01dB	GRAS	PRE22 # 1805178
Type	CUBE	40CD	Short windscreen + RA0208 noise cone
Serial number	10692	224253	RAL135 - 10M
Firmware version	Application: 2.73 Metrology: 2.12		
Calibrator	**Calibrator of the Laboratory**		

Program:

The Sound level meter has been tested on the following characteristics:

- Self-generated noise
- Acoustical signal tests of a frequency weightings
- Electrical signal tests of frequency weightings
- Frequency and time weightings at 1 kHz
- Long-term stability
- Level linearity
- Toneburst response
- C-weighted peak sound level
- Overload indication
- High-level stability

Method:

The instrument is tested in an air conditioned room. The characteristics are tested with multimeter and generator calibrated in amplitude and in frequency. Some manufacturer's corrections have been applied to account the acoustical effect from the case of the sound level meter and his accessories (IEC 61672-3). These corrections are available in the sound level meter user manual.

The reference frequency of the sound level meter is 1000 Hz. The reference sound pressure level of the sound level meter is 94 dB. The sound level meter possesses a single level range.

Tests conditions:

Date of tests	10/23/2024
Operator Name	Steve Thomas
Tests instruction	MET.15.INS.001_D_Fr
Static pressure	>95,5 ; <105 kPa
Temperature	23 ± 3 °C
Relative humidity	>25 ; <70 %HR

Instruments used for tests:

Designation	Manufacturer	Type	Serial number	Identification number
Multimeter	HP	34401A	3146A27296	-
Waveform generator	KEYSIGHT	33500B	MY57301384	-
Progammable Attenuator	ACOEM	OUT1694000	17-10-208	-
Electrostatic actuator	GRAS	14AA	288498	-
Thermometer, hygrometer, barometer	TESTO	622	39517641/806	-
Calibrator	ACOEM	CAL 21	34675324	-

Results:

Mentioned expanded uncertainties correspond to two standard uncertainty types (k=2). Standard uncertainties are calculated including different uncertainty components, reference standards, instruments used, environmental conditions, calibrated instrument contribution, repeatability…

The indicated Maximum Permissible Errors (M.P.E.). are the ones defined in the standard 61672-1 for a class 1 sound level meter.

Indication at the calibration check frequency

Initial indication (dB)	Correction (dB)	Adjusted indication (dB)	Tolerance (dB)
93.3	-0.4	93.8	+/- 1,0

Self-generated noise

0° RA208 + short windscreen

Microphone replaced by the electrical input-signal device	Nominal value (dB)	Displayed value (dB)
Leq dBA	< 14	9.2
Leq dBB	< 15	9.2
Leq dBC	< 20	11.6
Leq dBZ	< 21	16.5

Microphone installed	Nominal value (dB)	Displayed value (dB)
Leq dBA	< 20	16.9

Acoustical signal tests of a frequency weightings

90° RA208 + short windscreen	Measurement error *C* (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
125 Hz	0.0	0.3	+/- 1,0
1000 Hz	0.0	0.3	+/- 0,7
8000 Hz	-1.6	0.5	-2,5 ; +1,5
0° RA208 + short windscreen	*C* (dB)	Uncertainty (dB)	M.P.E. (dB)
125 Hz	0.0	0.3	+/- 1,0
1000 Hz	0.0	0.3	+/- 0,7
8000 Hz	-0.8	0.5	-2,5 ; +1,5

Electrical signal tests of frequency weightings

90° RA208 + short windscreen	Measurement error *Z* (dB)	*A* (dB)	*C* (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
63 Hz	-0.1	-0.2	-0.1	0.4	+/- 1,0
125 Hz	-0.1	-0.2	-0.1	0.4	+/- 1,0
250 Hz	-0.1	-0.1	-0.1	0.4	+/- 1,0
500 Hz	-0.1	-0.2	-0.1	0.4	+/- 1,0
1000 Hz	0.0	0.0	0.0	0.4	+/- 0,7
2000 Hz	-0.1	-0.1	-0.1	0.4	+/- 1,0
4000 Hz	0.7	0.6	0.6	0.4	+/- 1,0
8000 Hz	-0.7	-1.2	-1.2	0.6	-2,5 ; +1,5
16000 Hz	-6.6	-11.7	-12.0	0.6	-16,0 ; +2,5
0° RA208 + short windscreen	*Z* (dB)	*A* (dB)	*C* (dB)	Uncertainty (dB)	M.P.E. (dB)
63 Hz	-0.1	-0.1	-0.1	0.4	+/- 1,0
125 Hz	-0.1	-0.2	0.0	0.4	+/- 1,0
250 Hz	0.0	0.5	0.0	0.4	+/- 1,0
500 Hz	0.0	0.0	0.0	0.4	+/- 1,0
1000 Hz	0.0	0.0	0.0	0.4	+/- 0,7
2000 Hz	-0.1	0.0	0.0	0.4	+/- 1,0
4000 Hz	0.7	0.6	0.7	0.4	+/- 1,0
8000 Hz	0.3	-0.2	-0.2	0.6	-2,5 ; +1,5
16000 Hz	-4.5	-9.2	-9.9	0.6	-16,0 ; +2,5

Frequency and time weightings at 1 kHz

90° RA208 + short windscreen	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	M.P.E. (dB)
Lp dBA / 1000 Hz Fast	93.9	Reference	0.1	
Lp dBA / 1000 Hz Slow	93.9	0.0	0.1	+/- 0,1
LEQ dBA / 1000 Hz	93.9	0.0	0.1	+/- 0,1
Lp dBC / 1000 Hz Fast	93.8	0.0	0.1	+/- 0,2
Lp dBZ / 1000 Hz Fast	93.8	0.0	0.1	+/- 0,2
0° RA208 + short windscreen	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	M.P.E. (dB)
Lp dBA / 1000 Hz Fast	94.1	Reference	0.1	
Lp dBA / 1000 Hz Slow	94.1	0.0	0.1	+/- 0,1
LEQ dBA / 1000 Hz	94.1	0.0	0.1	+/- 0,1
Lp dBC / 1000 Hz Fast	94.1	0.0	0.1	+/- 0,2
Lp dBZ / 1000 Hz Fast	94.1	0.0	0.1	+/- 0,2

Long-term stability

90° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Initial indication	Final indication			
94.0	94.0	0.0	0.1	+/- 0,1

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Initial indication	Final indication			
93.9	93.9	0.0	0.1	+/- 0,1

Level linearity

90° RA208 + short windscreen

Nominal value (dB)	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
94.0	94.0	0.0	0.3	+/- 0,8
99.0	99.1	0.1	0.3	+/- 0,8
104.0	104.1	0.1	0.3	+/- 0,8
109.0	108.9	-0.1	0.3	+/- 0,8
114.0	113.9	-0.1	0.3	+/- 0,8
119.0	118.8	-0.2	0.3	+/- 0,8
124.0	123.8	-0.2	0.3	+/- 0,8
128.0	127.8	-0.2	0.3	+/- 0,8
129.0	128.8	-0.2	0.3	+/- 0,8
130.0	129.8	-0.2	0.3	+/- 0,8
131.0	130.8	-0.2	0.3	+/- 0,8
132.0	131.8	-0.2	0.3	+/- 0,8
133.0	132.8	-0.2	0.3	+/- 0,8
94.0	94.0	0.0	0.3	+/- 0,8
89.0	89.1	0.1	0.3	+/- 0,8
84.0	84.1	0.1	0.3	+/- 0,8
79.0	79.1	0.1	0.3	+/- 0,8
74.0	74.0	0.0	0.3	+/- 0,8
69.0	69.1	0.1	0.3	+/- 0,8
64.0	64.1	0.1	0.3	+/- 0,8
59.0	59.1	0.1	0.3	+/- 0,8
54.0	54.0	0.0	0.3	+/- 0,8
49.0	49.0	0.0	0.3	+/- 0,8
44.0	44.1	0.1	0.3	+/- 0,8
39.0	39.1	0.1	0.3	+/- 0,8
34.0	34.1	0.1	0.3	+/- 0,8
29.0	29.4	0.3	0.3	+/- 0,8
26.0	26.7	0.7	0.3	+/- 0,8
25.0	25.7	0.7	0.3	+/- 0,8
24.0	24.5	0.5	0.3	+/- 0,8
23.0	23.6	0.6	0.3	+/- 0,8
22.0	22.4	0.4	0.3	+/- 0,8

0° RA208 + short windscreen

Nominal value (dB)	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
94.0	94.0	0.0	0.3	+/- 0,8
99.0	99.1	0.1	0.3	+/- 0,8
104.0	104.0	0.0	0.3	+/- 0,8
109.0	108.9	-0.1	0.3	+/- 0,8
114.0	113.9	-0.1	0.3	+/- 0,8
119.0	118.8	-0.2	0.3	+/- 0,8
124.0	123.8	-0.2	0.3	+/- 0,8
128.0	127.8	-0.2	0.3	+/- 0,8
129.0	128.8	-0.2	0.3	+/- 0,8
130.0	129.8	-0.2	0.3	+/- 0,8
131.0	130.8	-0.2	0.3	+/- 0,8
132.0	131.8	-0.2	0.3	+/- 0,8
133.0	132.8	-0.2	0.3	+/- 0,8
94.0	94.0	0.0	0.3	+/- 0,8
89.0	89.1	0.1	0.3	+/- 0,8
84.0	84.1	0.1	0.3	+/- 0,8
79.0	79.1	0.1	0.3	+/- 0,8
74.0	74.0	0.0	0.3	+/- 0,8
69.0	69.1	0.1	0.3	+/- 0,8
64.0	64.1	0.1	0.3	+/- 0,8
59.0	59.1	0.1	0.3	+/- 0,8
54.0	54.0	0.0	0.3	+/- 0,8
49.0	49.0	0.0	0.3	+/- 0,8
44.0	44.1	0.1	0.3	+/- 0,8
39.0	39.1	0.1	0.3	+/- 0,8
34.0	34.1	0.1	0.3	+/- 0,8
29.0	28.9	-0.1	0.3	+/- 0,8
26.0	26.4	0.4	0.3	+/- 0,8
25.0	25.1	0.1	0.3	+/- 0,8
24.0	24.6	0.6	0.3	+/- 0,8
23.0	23.6	0.6	0.3	+/- 0,8
22.0	22.6	0.6	0.3	+/- 0,8

Toneburst response

90° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Lpmax 134 dB 4000 Hz A Slow 200 ms	126.3	-0.3	0.1	+/- 0,5
Lpmax 134 dB 4000 Hz A Slow 2 ms	107.7	0.7	0.1	-3,0 ; +1,0
Lpmax 134 dB 4000 Hz A fast 200 ms	132.7	-0.3	0.1	+/- 0,5
Lpmax 134 dB 4000 Hz A fast 2 ms	115.6	-0.4	0.1	-1,5 ; +1,0
Lpmax 134 dB 4000 Hz A fast 0.25 ms	106.4	-0.6	0.1	-3,0 ; +1,0
Leq 134 dB 4000 Hz A 1000 200 ms	126.7	-0.3	0.1	+/- 0,5
Leq 134 dB 4000 Hz A 1000 2 ms	106.7	-0.3	0.1	-1,5 ; +1,0
Leq 134 dB 4000 Hz A 1000 0.25 ms	97.4	-0.6	0.1	-3,0 ; +1,0

0° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Lpmax 134 dB 4000 Hz A Slow 200 ms	126.3	-0.3	0.1	+/- 0,5
Lpmax 134 dB 4000 Hz A Slow 2 ms	107	0	0.1	-3,0 ; +1,0
Lpmax 134 dB 4000 Hz A fast 200 ms	132.7	-0.3	0.0	+/- 0,5
Lpmax 134 dB 4000 Hz A fast 2 ms	115.6	-0.4	0.0	-1,5 ; +1,0
Lpmax 134 dB 4000 Hz A fast 0.25 ms	106.5	-0.5	0.0	-3,0 ; +1,0
Leq 134 dB 4000 Hz A 1000 200 ms	126.7	-0.3	0.0	+/- 0,5
Leq 134 dB 4000 Hz A 1000 2 ms	106.7	-0.3	0.0	-1,5 ; +1,0
Leq 134 dB 4000 Hz A 1000 0.25 ms	97.5	-0.5	0.0	-3,0 ; +1,0

C-weighted peak sound level

90° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
8000 Hz Complete cycle	133.3	0.8	0.1	+/- 2,0
500 Hz Positive one-half-cycle	134.0	-0.5	0.1	+/- 1,0
500 Hz Negative one-half-cycle	134.0	-0.4	0.1	+/- 1,0

0° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Erreur Maximale Tolérée (dB)
8000 Hz Complete cycle	130.9	1.5	0.1	+/- 2,0
500 Hz Positive one-half-cycle	133.5	-1.0	0.1	+/- 1,0
500 Hz Negative one-half-cycle	133.5	-0.9	0.1	+/- 1,0

Overload indication

90° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Positive one-half-cycle	Negative one-half-cycle			
109.8	110.0	-0.2	0.1	+/- 1,5

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Positive one-half-cycle	Negative one-half-cycle			
108.6	108.8	-0.2	0.1	+/- 1,5

High-level stability

90° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Initial indication	Final indication			
135.6	135.6	0.0	0.1	+/- 0,1

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Initial indication	Final indication			
135.8	135.8	0.0	0.1	+/- 0,1

Conclusion

CEI 61672-3 CEI:2013 Chapter:	Tests	Results
5	Preliminary inspection	Compliant
7	Environmental conditions	Compliant
9	Sound calibrator	Not applicable
10	Indication at the calibration check frequency	Compliant
11	Self-generated noise	Compliant
12	Acoustical signal tests of a frequency weighting	Compliant
13	Electrical signal tests of frequency weightings	Compliant
14	Frequency and time weightings at 1 kHz	Compliant
15	Long-term stability	Compliant
16	Level linearity on the reference level range	Compliant
18	Toneburst response	Compliant
19	C-weighted peak sound level	Compliant
20	Overload indication	Compliant
21	High-level stability	Compliant

CUBE user manual	DOC1144 February 2018 version M
Type-approval certificate	France: LNE-29639 revision 1 dated 04/04/2017 Deutschland: DE-16-M-PTB-0008 dated 28/09/2016

#REF!

End of tests report



CUBE Smart Noise Monitoring Terminal

Tests report, according to the IEC 61672-3

Acoustic1

01dB.com

Tests report

TR-REP-10877.xls

ISSUED FOR :

acoustic1

overdale
manordeilo

sa19 7bd llandeilo
uk

Name and location of the laboratory of tests:
Acoustic1 - Overdale Manordeilo, Llandeilo
Carmathenshire UK SA19 7BD

TESTED INSTRUMENT
Designation : Integrator Sound Level Meter

Manufacturer : 01dB

Type : CUBE

Serial number : 10694

Identification number :

Date of issue : 01/11/2024

This report includes 10 pages

The measurements are performed according to the IEC 61672-3, Electroacoustics, - Sound level meters – Part 3: Periodic tests.

Steve THOMAS
Head of calibration laboratory at Acoustic 1



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Identification :

	Sound level meter	Microphone	Accessories
Manufacturer	01dB	GRAS	PRE22 # 11118
Type	CUBE	40CD	Short windscreen + RA0208 noise cone
Serial number	10694	224223	RAL135 - 10M
Firmware version	Application: 2.74 Metrology: 2.12		
Calibrator	**Calibrator of the Laboratory**		

Program:

The Sound level meter has been tested on the following characteristics:

- Self-generated noise
- Acoustical signal tests of a frequency weightings
- Electrical signal tests of frequency weightings
- Frequency and time weightings at 1 kHz
- Long-term stability
- Level linearity
- Toneburst response
- C-weighted peak sound level
- Overload indication
- High-level stability

Method:

The instrument is tested in an air conditioned room. The characteristics are tested with multimeter and generator calibrated in amplitude and in frequency. Some manufacturer's corrections have been applied to account the acoustical effect from the case of the sound level meter and his accessories (IEC 61672-3). These corrections are available in the sound level meter user manual.

The reference frequency of the sound level meter is 1000 Hz. The reference sound pressure level of the sound level meter is 94 dB. The sound level meter possesses a single level range.

Tests conditions:

Date of tests	11/1/2024
Operator Name	Steve Thomas
Tests instruction	MET.15.INS.001_D_Fr
Static pressure	>95,5 ; <105 kPa
Temperature	23 ± 3 °C
Relative humidity	>25 ; <70 %HR

Instruments used for tests:

Designation	Manufacturer	Type	Serial number	Identification number
Multimeter	HP	34401A	3146A27296	-
Waveform generator	KEYSIGHT	33500B	MY57301384	-
Progammable Attenuator	ACOEM	OUT1694000	17-10-208	-
Electrostatic actuator	GRAS	14AA	288498	-
Thermometer, hygrometer, barometer	TESTO	622	39517641/806	-
Calibrator	ACOEM	CAL 21	34675324	-

Results:

Mentioned expanded uncertainties correspond to two standard uncertainty types (k=2). Standard uncertainties are calculated including different uncertainty components, reference standards, instruments used, environmental conditions, calibrated instrument contribution, repeatability…

The indicated Maximum Permissible Errors (M.P.E.). are the ones defined in the standard 61672-1 for a class 1 sound level meter.

Indication at the calibration check frequency

Initial indication (dB)	Correction (dB)	Adjusted indication (dB)	Tolerance (dB)
94.3	-0.3	93.8	+/- 1,0

Self-generated noise

0° RA208 + short windscreen

Microphone replaced by the electrical input-signal device	Nominal value (dB)	Displayed value (dB)
Leq dBA	< 14	9.9
Leq dBB	< 15	10.2
Leq dBC	< 20	11.8
Leq dBZ	< 21	18.4

Microphone installed	Nominal value (dB)	Displayed value (dB)
Leq dBA	< 20	15.7

Acoustical signal tests of a frequency weightings

90° RA208 + short windscreen	Measurement error *C* (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
125 Hz	0.0	0.3	+/- 1,0
1000 Hz	0.0	0.3	+/- 0,7
8000 Hz	-1.0	0.5	-2,5 ; +1,5
0° RA208 + short windscreen	*C* (dB)	Uncertainty (dB)	M.P.E. (dB)
125 Hz	0.0	0.3	+/- 1,0
1000 Hz	0.0	0.3	+/- 0,7
8000 Hz	-0.1	0.5	-2,5 ; +1,5

Electrical signal tests of frequency weightings

90° RA208 + short windscreen	Measurement error *Z* (dB)	*A* (dB)	*C* (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
63 Hz	-0.1	-0.1	-0.1	0.4	+/- 1,0
125 Hz	-0.1	-0.2	-0.1	0.4	+/- 1,0
250 Hz	-0.1	-0.2	-0.1	0.4	+/- 1,0
500 Hz	-0.1	-0.2	-0.1	0.4	+/- 1,0
1000 Hz	0.0	0.0	0.0	0.4	+/- 0,7
2000 Hz	-0.1	-0.1	-0.1	0.4	+/- 1,0
4000 Hz	0.7	0.7	0.6	0.4	+/- 1,0
8000 Hz	-0.7	-1.2	-1.2	0.6	-2,5 ; +1,5
16000 Hz	-6.6	-11.9	-12.0	0.6	-16,0 ; +2,5
0° RA208 + short windscreen	*Z* (dB)	*A* (dB)	*C* (dB)	Uncertainty (dB)	M.P.E. (dB)
63 Hz	0.0	-0.1	-0.1	0.4	+/- 1,0
125 Hz	-0.1	-0.2	0.0	0.4	+/- 1,0
250 Hz	0.0	-0.1	0.0	0.4	+/- 1,0
500 Hz	0.0	-0.1	0.0	0.4	+/- 1,0
1000 Hz	0.0	0.0	0.0	0.4	+/- 0,7
2000 Hz	-0.1	0.0	0.0	0.4	+/- 1,0
4000 Hz	0.7	0.6	0.7	0.4	+/- 1,0
8000 Hz	0.3	-0.2	-0.2	0.6	-2,5 ; +1,5
16000 Hz	-4.5	-9.8	-9.9	0.6	-16,0 ; +2,5

Frequency and time weightings at 1 kHz

90° RA208 + short windscreen	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	M.P.E. (dB)
Lp dBA / 1000 Hz Fast	93.8	Reference	0.1	
Lp dBA / 1000 Hz Slow	93.8	0.0	0.1	+/- 0,1
LEQ dBA / 1000 Hz	93.8	0.0	0.1	+/- 0,1
Lp dBC / 1000 Hz Fast	93.8	0.0	0.1	+/- 0,2
Lp dBZ / 1000 Hz Fast	93.8	0.0	0.1	+/- 0,2
0° RA208 + short windscreen	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	M.P.E. (dB)
Lp dBA / 1000 Hz Fast	94.1	Reference	0.1	
Lp dBA / 1000 Hz Slow	94.1	0.0	0.1	+/- 0,1
LEQ dBA / 1000 Hz	94.1	0.0	0.1	+/- 0,1
Lp dBC / 1000 Hz Fast	94.1	0.0	0.1	+/- 0,2
Lp dBZ / 1000 Hz Fast	94.1	0.0	0.1	+/- 0,2

Long-term stability

90° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Initial indication	Final indication			
94.0	94.0	0.0	0.1	+/- 0,1

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Initial indication	Final indication			
93.9	93.9	0.0	0.1	+/- 0,1

Level linearity

90° RA208 + short windscreen

Nominal value (dB)	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
94.0	94.0	0.0	0.3	+/- 0,8
99.0	99.1	0.1	0.3	+/- 0,8
104.0	104.0	0.0	0.3	+/- 0,8
109.0	108.9	-0.1	0.3	+/- 0,8
114.0	113.9	-0.1	0.3	+/- 0,8
119.0	118.8	-0.2	0.3	+/- 0,8
124.0	123.8	-0.2	0.3	+/- 0,8
128.0	127.8	-0.2	0.3	+/- 0,8
129.0	128.8	-0.2	0.3	+/- 0,8
130.0	129.8	-0.2	0.3	+/- 0,8
131.0	130.8	-0.2	0.3	+/- 0,8
132.0	131.8	-0.2	0.3	+/- 0,8
133.0	132.8	-0.2	0.3	+/- 0,8
94.0	94.0	0.0	0.3	+/- 0,8
89.0	89.1	0.1	0.3	+/- 0,8
84.0	84.1	0.1	0.3	+/- 0,8
79.0	79.1	0.0	0.3	+/- 0,8
74.0	74.0	0.0	0.3	+/- 0,8
69.0	69.1	0.0	0.3	+/- 0,8
64.0	64.1	0.1	0.3	+/- 0,8
59.0	59.1	0.1	0.3	+/- 0,8
54.0	54.0	0.0	0.3	+/- 0,8
49.0	49.0	0.0	0.3	+/- 0,8
44.0	44.1	0.1	0.3	+/- 0,8
39.0	39.0	0.0	0.3	+/- 0,8
34.0	34.0	0.0	0.3	+/- 0,8
29.0	29.1	0.1	0.3	+/- 0,8
26.0	26.3	0.3	0.3	+/- 0,8
25.0	25.2	0.2	0.3	+/- 0,8
24.0	24.4	0.3	0.3	+/- 0,8
23.0	23.4	0.4	0.3	+/- 0,8
22.0	22.5	0.5	0.3	+/- 0,8

0° RA208 + short windscreen

Nominal value (dB)	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
94.0	94.0	0.0	0.3	+/- 0,8
99.0	99.1	0.1	0.3	+/- 0,8
104.0	104.0	0.0	0.3	+/- 0,8
109.0	108.9	-0.1	0.3	+/- 0,8
114.0	113.9	-0.1	0.3	+/- 0,8
119.0	118.9	-0.1	0.3	+/- 0,8
124.0	123.8	-0.2	0.3	+/- 0,8
128.0	127.9	-0.1	0.3	+/- 0,8
129.0	128.9	-0.1	0.3	+/- 0,8
130.0	129.8	-0.2	0.3	+/- 0,8
131.0	130.8	-0.2	0.3	+/- 0,8
132.0	131.8	-0.2	0.3	+/- 0,8
133.0	132.8	-0.2	0.3	+/- 0,8
94.0	94.0	0.0	0.3	+/- 0,8
89.0	89.1	0.1	0.3	+/- 0,8
84.0	84.1	0.1	0.3	+/- 0,8
79.0	79.1	0.1	0.3	+/- 0,8
74.0	74.0	0.0	0.3	+/- 0,8
69.0	69.0	0.0	0.3	+/- 0,8
64.0	64.1	0.1	0.3	+/- 0,8
59.0	59.1	0.1	0.3	+/- 0,8
54.0	54.0	0.0	0.3	+/- 0,8
49.0	49.0	0.0	0.3	+/- 0,8
44.0	44.1	0.1	0.3	+/- 0,8
39.0	39.1	0.1	0.3	+/- 0,8
34.0	34.0	0.0	0.3	+/- 0,8
29.0	29.1	0.1	0.3	+/- 0,8
26.0	26.2	0.2	0.3	+/- 0,8
25.0	25.2	0.2	0.3	+/- 0,8
24.0	24.2	0.2	0.3	+/- 0,8
23.0	23.3	0.3	0.3	+/- 0,8
22.0	22.4	0.4	0.3	+/- 0,8

Toneburst response

90° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Lpmax 134 dB 4000 Hz A Slow 200 ms	126.6	0	0.1	+/- 0,5
Lpmax 134 dB 4000 Hz A Slow 2 ms	107	0	0.1	-3,0 ; +1,0
Lpmax 134 dB 4000 Hz A fast 200 ms	133.1	0.1	0.1	+/- 0,5
Lpmax 134 dB 4000 Hz A fast 2 ms	115.9	-0.1	0.1	-1,5 ; +1,0
Lpmax 134 dB 4000 Hz A fast 0.25 ms	106.7	-0.3	0.1	-3,0 ; +1,0
Leq 134 dB 4000 Hz A 1000 200 ms	127	0	0.1	+/- 0,5
Leq 134 dB 4000 Hz A 1000 2 ms	107	0	0.1	-1,5 ; +1,0
Leq 134 dB 4000 Hz A 1000 0.25 ms	97.8	-0.2	0.1	-3,0 ; +1,0

0° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Lpmax 134 dB 4000 Hz A Slow 200 ms	126.6	0	0.1	+/- 0,5
Lpmax 134 dB 4000 Hz A Slow 2 ms	107	0	0.1	-3,0 ; +1,0
Lpmax 134 dB 4000 Hz A fast 200 ms	133	0	0.0	+/- 0,5
Lpmax 134 dB 4000 Hz A fast 2 ms	115.9	-0.1	0.0	-1,5 ; +1,0
Lpmax 134 dB 4000 Hz A fast 0.25 ms	106.8	-0.2	0.0	-3,0 ; +1,0
Leq 134 dB 4000 Hz A 1000 200 ms	127	0	0.0	+/- 0,5
Leq 134 dB 4000 Hz A 1000 2 ms	107	0	0.0	-1,5 ; +1,0
Leq 134 dB 4000 Hz A 1000 0.25 ms	97.9	-0.1	0.0	-3,0 ; +1,0

C-weighted peak sound level

90° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
8000 Hz Complete cycle	133.6	1.2	0.1	+/- 2,0
500 Hz Positive one-half-cycle	134.3	-0.1	0.1	+/- 1,0
500 Hz Negative one-half-cycle	134.3	-0.1	0.1	+/- 1,0

0° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Erreur Maximale Tolérée (dB)
8000 Hz Complete cycle	131.2	1.8	0.1	+/- 2,0
500 Hz Positive one-half-cycle	133.8	-0.6	0.1	+/- 1,0
500 Hz Negative one-half-cycle	133.9	-0.5	0.1	+/- 1,0

Overload indication

90° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Positive one-half-cycle	Negative one-half-cycle			
109.6	109.8	-0.2	0.1	+/- 1,5

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Positive one-half-cycle	Negative one-half-cycle			
108.4	108.6	-0.2	0.1	+/- 1,5

High-level stability

90° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Initial indication	Final indication			
135.6	135.6	0.0	0.1	+/- 0,1

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Initial indication	Final indication			
135.8	135.8	0.0	0.1	+/- 0,1

Conclusion

CEI 61672-3 CEI:2013 Chapter:	Tests	Results
5	Preliminary inspection	Compliant
7	Environmental conditions	Compliant
9	Sound calibrator	Not applicable
10	Indication at the calibration check frequency	Compliant
11	Self-generated noise	Compliant
12	Acoustical signal tests of a frequency weighting	Compliant
13	Electrical signal tests of frequency weightings	Compliant
14	Frequency and time weightings at 1 kHz	Compliant
15	Long-term stability	Compliant
16	Level linearity on the reference level range	Compliant
18	Toneburst response	Compliant
19	C-weighted peak sound level	Compliant
20	Overload indication	Compliant
21	High-level stability	Compliant

CUBE user manual	DOC1144 February 2018 version M
Type-approval certificate	France: LNE-29639 revision 1 dated 04/04/2017 Deutschland: DE-16-M-PTB-0008 dated 28/09/2016

#REF!

End of tests report



CUBE Smart Noise Monitoring Terminal

Tests report, according to the IEC 61672-3

Acoustic1

01dB.com

Tests report

TR-REP-10968.xls

ISSUED FOR :

acoustic1

overdale
manordeilo

sa19 7bd llandeilo
uk

Name and location of the laboratory of tests:
Acoustic1 - Overdale Manordeilo, Llandeilo
Carmathenshire UK SA19 7BD

TESTED INSTRUMENT
Designation : Integrator Sound Level Meter

Manufacturer : 01dB

Type : CUBE

Serial number : 11110

Identification number :

Date of issue : 03/07/2025

This report includes 10 pages

The measurements are performed according to the IEC 61672-3, Electroacoustics, - Sound level meters – Part 3: Periodic tests.

Steve THOMAS
Head of calibration laboratory at Acoustic 1

THIS REPORT is compliant with THE FD X 07-012 STANDARD DOCUMENTATION
This document may not be reproduced other than in full, except with the prior written approval of the laboratory.

Identification :

	Sound level meter	Microphone	Accessories
Manufacturer	01dB	GRAS	PRE22 # 2302013
Type	CUBE	40CD	Short windscreen + RA0208 noise cone
Serial number	11110	562223	RAL135 - 10M
Firmware version	Application: 2.74 Metrology: 2.12		
Calibrator	**Calibrator of the Laboratory**		

Program:

The Sound level meter has been tested on the following characteristics:

- Self-generated noise
- Acoustical signal tests of a frequency weightings
- Electrical signal tests of frequency weightings
- Frequency and time weightings at 1 kHz
- Long-term stability
- Level linearity
- Toneburst response
- C-weighted peak sound level
- Overload indication
- High-level stability

Method:

The instrument is tested in an air conditioned room. The characteristics are tested with multimeter and generator calibrated in amplitude and in frequency. Some manufacturer's corrections have been applied to account the acoustical effect from the case of the sound level meter and his accessories (IEC 61672-3). These corrections are available in the sound level meter user manual.

The reference frequency of the sound level meter is 1000 Hz. The reference sound pressure level of the sound level meter is 94 dB. The sound level meter possesses a single level range.

Tests conditions:

Date of tests	7/3/2025
Operator Name	Steve Thomas
Tests instruction	MET.15.INS.001_D_Fr
Static pressure	>95,5 ; <105 kPa
Temperature	23 ± 3 °C
Relative humidity	>25 ; <70 %HR

Instruments used for tests:

Designation	Manufacturer	Type	Serial number	Identification number
Multimeter	HP	34401A	3146A27296	-
Waveform generator	KEYSIGHT	33500B	MY57301384	-
Progammable Attenuator	ACOEM	OUT1694000	17-10-208	-
Electrostatic actuator	GRAS	14AA	288498	-
Thermometer, hygrometer, barometer	TESTO	622	39517641/806	-
Calibrator	ACOEM	CAL 21	34675324	-

Results:

Mentioned expanded uncertainties correspond to two standard uncertainty types (k=2). Standard uncertainties are calculated including different uncertainty components, reference standards, instruments used, environmental conditions, calibrated instrument contribution, repeatability…

The indicated Maximum Permissible Errors (M.P.E.). are the ones defined in the standard 61672-1 for a class 1 sound level meter.

Indication at the calibration check frequency

Initial indication (dB)	Correction (dB)	Adjusted indication (dB)	Tolerance (dB)
94.0	-0.1	93.8	+/- 1,0

Self-generated noise

0° RA208 + short windscreen

Microphone replaced by the electrical input-signal device	Nominal value (dB)	Displayed value (dB)
Leq dBA	< 14	8.4
Leq dBB	< 15	8.0
Leq dBC	< 20	9.3
Leq dBZ	< 21	16.3

Microphone installed	Nominal value (dB)	Displayed value (dB)
Leq dBA	< 20	15.0

Acoustical signal tests of a frequency weightings

90° RA208 + short windscreen	Measurement error *C* (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
125 Hz	0.0	0.3	+/- 1,0
1000 Hz	0.0	0.3	+/- 0,7
8000 Hz	-1.3	0.5	-2,5 ; +1,5
0° RA208 + short windscreen	*C* (dB)	Uncertainty (dB)	M.P.E. (dB)
125 Hz	0.0	0.3	+/- 1,0
1000 Hz	0.0	0.3	+/- 0,7
8000 Hz	-0.5	0.5	-2,5 ; +1,5

Electrical signal tests of frequency weightings

90° RA208 + short windscreen	Measurement error *Z* (dB)	*A* (dB)	*C* (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
63 Hz	0.0	-0.1	-0.1	0.4	+/- 1,0
125 Hz	-0.1	-0.2	0.0	0.4	+/- 1,0
250 Hz	-0.1	-0.2	-0.1	0.4	+/- 1,0
500 Hz	-0.1	-0.2	-0.1	0.4	+/- 1,0
1000 Hz	0.0	0.0	0.0	0.4	+/- 0,7
2000 Hz	-0.1	-0.1	-0.1	0.4	+/- 1,0
4000 Hz	0.7	0.6	0.6	0.4	+/- 1,0
8000 Hz	-0.7	-1.2	-1.2	0.6	-2,5 ; +1,5
16000 Hz	-6.6	-11.9	-12.0	0.6	-16,0 ; +2,5
0° RA208 + short windscreen	*Z* (dB)	*A* (dB)	*C* (dB)	Uncertainty (dB)	M.P.E. (dB)
63 Hz	-0.1	-0.1	-0.1	0.4	+/- 1,0
125 Hz	-0.1	-0.2	0.0	0.4	+/- 1,0
250 Hz	0.0	-0.1	0.0	0.4	+/- 1,0
500 Hz	0.0	0.0	0.0	0.4	+/- 1,0
1000 Hz	0.0	0.0	0.0	0.4	+/- 0,7
2000 Hz	-0.1	0.0	0.0	0.4	+/- 1,0
4000 Hz	0.7	0.6	0.6	0.4	+/- 1,0
8000 Hz	0.3	-0.3	-0.2	0.6	-2,5 ; +1,5
16000 Hz	-4.5	-9.8	-9.9	0.6	-16,0 ; +2,5

Frequency and time weightings at 1 kHz

90° RA208 + short windscreen	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	M.P.E. (dB)
Lp dBA / 1000 Hz Fast	93.8	Reference	0.1	
Lp dBA / 1000 Hz Slow	93.8	0.0	0.1	+/- 0,1
LEQ dBA / 1000 Hz	93.8	0.0	0.1	+/- 0,1
Lp dBC / 1000 Hz Fast	93.8	0.0	0.1	+/- 0,2
Lp dBZ / 1000 Hz Fast	93.8	0.0	0.1	+/- 0,2
0° RA208 + short windscreen	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	M.P.E. (dB)
Lp dBA / 1000 Hz Fast	94.1	Reference	0.1	
Lp dBA / 1000 Hz Slow	94.1	0.0	0.1	+/- 0,1
LEQ dBA / 1000 Hz	94.1	0.0	0.1	+/- 0,1
Lp dBC / 1000 Hz Fast	94.1	0.0	0.1	+/- 0,2
Lp dBZ / 1000 Hz Fast	94.1	0.0	0.1	+/- 0,2

Long-term stability

90° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Initial indication	Final indication			
94.0	94.0	0.0	0.1	+/- 0,1

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Initial indication	Final indication			
93.9	93.9	0.0	0.1	+/- 0,1

Level linearity

90° RA208 + short windscreen

Nominal value (dB)	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
94.0	94.0	0.0	0.3	+/- 0,8
99.0	99.1	0.1	0.3	+/- 0,8
104.0	104.0	0.0	0.3	+/- 0,8
109.0	108.9	-0.1	0.3	+/- 0,8
114.0	113.9	-0.1	0.3	+/- 0,8
119.0	118.8	-0.2	0.3	+/- 0,8
124.0	123.8	-0.2	0.3	+/- 0,8
128.0	127.8	-0.2	0.3	+/- 0,8
129.0	128.8	-0.2	0.3	+/- 0,8
130.0	129.8	-0.2	0.3	+/- 0,8
131.0	130.8	-0.2	0.3	+/- 0,8
132.0	131.8	-0.2	0.3	+/- 0,8
133.0	132.8	-0.2	0.3	+/- 0,8
94.0	94.0	0.0	0.3	+/- 0,8
89.0	89.1	0.1	0.3	+/- 0,8
84.0	84.1	0.1	0.3	+/- 0,8
79.0	79.1	0.1	0.3	+/- 0,8
74.0	74.0	0.0	0.3	+/- 0,8
69.0	69.1	0.0	0.3	+/- 0,8
64.0	64.1	0.1	0.3	+/- 0,8
59.0	59.1	0.1	0.3	+/- 0,8
54.0	54.0	0.0	0.3	+/- 0,8
49.0	49.1	0.0	0.3	+/- 0,8
44.0	44.1	0.1	0.3	+/- 0,8
39.0	39.1	0.1	0.3	+/- 0,8
34.0	34.0	0.0	0.3	+/- 0,8
29.0	29.1	0.1	0.3	+/- 0,8
26.0	26.2	0.2	0.3	+/- 0,8
25.0	25.2	0.2	0.3	+/- 0,8
24.0	24.3	0.3	0.3	+/- 0,8
23.0	23.3	0.3	0.3	+/- 0,8
22.0	22.4	0.4	0.3	+/- 0,8

0° RA208 + short windscreen

Nominal value (dB)	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
94.0	94.0	0.0	0.3	+/- 0,8
99.0	99.1	0.1	0.3	+/- 0,8
104.0	104.0	0.0	0.3	+/- 0,8
109.0	108.9	-0.1	0.3	+/- 0,8
114.0	113.9	-0.1	0.3	+/- 0,8
119.0	118.8	-0.2	0.3	+/- 0,8
124.0	123.8	-0.2	0.3	+/- 0,8
128.0	127.9	-0.2	0.3	+/- 0,8
129.0	128.8	-0.2	0.3	+/- 0,8
130.0	129.8	-0.2	0.3	+/- 0,8
131.0	130.8	-0.2	0.3	+/- 0,8
132.0	131.8	-0.2	0.3	+/- 0,8
133.0	132.8	-0.3	0.3	+/- 0,8
94.0	94.0	0.0	0.3	+/- 0,8
89.0	89.1	0.1	0.3	+/- 0,8
84.0	84.1	0.1	0.3	+/- 0,8
79.0	79.1	0.1	0.3	+/- 0,8
74.0	74.0	0.0	0.3	+/- 0,8
69.0	69.0	0.0	0.3	+/- 0,8
64.0	64.1	0.1	0.3	+/- 0,8
59.0	59.1	0.1	0.3	+/- 0,8
54.0	54.0	0.0	0.3	+/- 0,8
49.0	49.0	0.0	0.3	+/- 0,8
44.0	44.1	0.1	0.3	+/- 0,8
39.0	39.1	0.1	0.3	+/- 0,8
34.0	34.0	0.0	0.3	+/- 0,8
29.0	29.1	0.1	0.3	+/- 0,8
26.0	26.1	0.1	0.3	+/- 0,8
25.0	25.3	0.3	0.3	+/- 0,8
24.0	24.2	0.2	0.3	+/- 0,8
23.0	23.3	0.3	0.3	+/- 0,8
22.0	22.3	0.3	0.3	+/- 0,8

Toneburst response

90° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Lpmax 134 dB 4000 Hz A Slow 200 ms	126.6	0	0.1	+/- 0,5
Lpmax 134 dB 4000 Hz A Slow 2 ms	107	0	0.1	-3,0 ; +1,0
Lpmax 134 dB 4000 Hz A fast 200 ms	133	0	0.1	+/- 0,5
Lpmax 134 dB 4000 Hz A fast 2 ms	115.9	-0.1	0.1	-1,5 ; +1,0
Lpmax 134 dB 4000 Hz A fast 0.25 ms	106.7	-0.3	0.1	-3,0 ; +1,0
Leq 134 dB 4000 Hz A 1000 200 ms	127	0	0.1	+/- 0,5
Leq 134 dB 4000 Hz A 1000 2 ms	107	0	0.1	-1,5 ; +1,0
Leq 134 dB 4000 Hz A 1000 0.25 ms	97.8	-0.2	0.1	-3,0 ; +1,0

0° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Lpmax 134 dB 4000 Hz A Slow 200 ms	126.6	0	0.1	+/- 0,5
Lpmax 134 dB 4000 Hz A Slow 2 ms	107.9	0.9	0.1	-3,0 ; +1,0
Lpmax 134 dB 4000 Hz A fast 200 ms	133	0	0.0	+/- 0,5
Lpmax 134 dB 4000 Hz A fast 2 ms	115.9	-0.1	0.0	-1,5 ; +1,0
Lpmax 134 dB 4000 Hz A fast 0.25 ms	106.8	-0.2	0.0	-3,0 ; +1,0
Leq 134 dB 4000 Hz A 1000 200 ms	127	0	0.0	+/- 0,5
Leq 134 dB 4000 Hz A 1000 2 ms	107	0	0.0	-1,5 ; +1,0
Leq 134 dB 4000 Hz A 1000 0.25 ms	97.9	-0.1	0.0	-3,0 ; +1,0

C-weighted peak sound level

90° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
8000 Hz Complete cycle	133.4	1.0	0.1	+/- 2,0
500 Hz Positive one-half-cycle	134.3	-0.1	0.1	+/- 1,0
500 Hz Negative one-half-cycle	134.4	0.0	0.1	+/- 1,0

0° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Erreur Maximale Tolérée (dB)
8000 Hz Complete cycle	130.9	1.5	0.1	+/- 2,0
500 Hz Positive one-half-cycle	133.8	-0.7	0.1	+/- 1,0
500 Hz Negative one-half-cycle	133.9	-0.5	0.1	+/- 1,0

Overload indication

90° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Positive one-half-cycle	Negative one-half-cycle			
109.2	109.4	-0.2	0.1	+/- 1,5

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Positive one-half-cycle	Negative one-half-cycle			
107.9	108.1	-0.3	0.1	+/- 1,5

High-level stability

90° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Initial indication	Final indication			
135.6	135.6	0.0	0.1	+/- 0,1

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Initial indication	Final indication			
135.9	135.9	0.0	0.1	+/- 0,1

Conclusion

CEI 61672-3 CEI:2013 Chapter:	Tests	Results
5	Preliminary inspection	Compliant
7	Environmental conditions	Compliant
9	Sound calibrator	Not applicable
10	Indication at the calibration check frequency	Compliant
11	Self-generated noise	Compliant
12	Acoustical signal tests of a frequency weighting	Compliant
13	Electrical signal tests of frequency weightings	Compliant
14	Frequency and time weightings at 1 kHz	Compliant
15	Long-term stability	Compliant
16	Level linearity on the reference level range	Compliant
18	Toneburst response	Compliant
19	C-weighted peak sound level	Compliant
20	Overload indication	Compliant
21	High-level stability	Compliant

CUBE user manual	DOC1144 February 2018 version M
Type-approval certificate	France: LNE-29639 revision 1 dated 04/04/2017 Deutschland: DE-16-M-PTB-0008 dated 28/09/2016

#REF!

End of tests report

CERTIFICAT DE CONFORMITE CONSTRUCTEUR
MANUFACTURER'S CERTIFICATE OF CONFORMITY

DTE-L-26-PVE-97200

DELIVRE PAR :
DELIVERED BY :

ACOEM France SAS

Supply Chain
85 route de Marcilly
69380 LISSIEU
France

INSTRUMENT VERIFIE
INSTRUMENT CHECKED

Désignation :
Designation :
Sonomètre Intégrateur-Moyenneur
Integrating-Averaging Sound Level Meter

Constructeur :
Manufacturer :
ACOEM EM

Type :
Type :
CUBE

N° de serie :
Serial number :
14846

N° d'identification :
Identification number

Date d'émission :
Date of issue :
30/03/2026

Ce certificat comprend 4 pages
This certificate includes *pages*

LE RESPONSABLE PRODUCTION
MANUFACTURING MANAGER

Jerome PIA

LA REPRODUCTION DE CE CERTIFICAT N'EST AUTORISEE QUE SOUS LA FORME DE FAC-SIMILE PHOTOGRAPHIQUE INTEGRAL

CE DOCUMENT NE PEUT PAS ETRE UTILISE EN LIEU ET PLACE D'UN CERTIFICAT D'ETALONNAGE.

THIS CERTIFICATE REPORT MAY NOT BE REPRODUCED OTHER THAN IN FULL BY PHOTOGRAPHIC PROCESS

THIS DOCUMENT CAN'T BE USED AS CALIBRATION CERTIFICATE.

IDENTIFICATION :
IDENTIFICATION:

	Sonomètre *Sound level meter*	Préamplificateur *Preamplifier*	Microphone *Microphone*
Constructeur : *Manufacturer*	ACOEM EM	ACOEM	GRAS
Type : *Type*	CUBE	PRE22	40CD
Numéro de série : *Serial number*	14846	2504390	646996

PROGRAMME DE VERIFICATION :
VERIFICATION PROGRAM:

Ce sonomètre a été vérifié sur les caractéristiques suivantes:

- Réponse en fréquence du sonomètre
- Linéarité
- Pondérations fréquentielles A-C-Z
- Bruit de fond

This sound level meter has been verified on its following characteristics:

- *Frequency response of the sound level meter*
- *Linearity*
- *A-C-Z Weighting*
- *Background noise*

METHODE DE VERIFICATION :
VERIFICATION METHOD:

Les caractéristiques sont vérifiées avec un atténuateur et un générateur étalonnés. Des corrections constructeurs sont appliquées pour prendre en compte les effets des accessoires et du boîtier.

The other characteristics are verified with attenuator and generator calibrated. Some manufacturer's corrections have been applied to account the acoustical effect from the case of the sound level meter and its accessories.

CONDITIONS DE VERIFICATION :
VERIFICATION CONDITIONS:

Date de l'étalonnage :
Date of Calibration (french format) . 30 - 3 - 2026 .

Nom de l'opérateur :
Operator Name **Celso ALVES**

Pression atmosphérique :
Static pressure **99,81 kPa**

Température :
Temperature **20,8 °C**

Taux d'humidité relative :
Relative humidity **29 %HR**

acoem

MOYENS DE MESURE UTILISES POUR LA VERIFICATION :
INSTRUMENTS USED FOR VERIFICATION:

Désignation Designation	Constructeur Manufacturer	Type Type	N° de série Serial number	N° d'identification Identification number
Générateur BF / Waveform generator	Helwet-Packard	33120A	US36010354	APM 5855
Calibreur acoustique / Calibrator	01dB-Metravib	CAL31	94751	APM 6236
Boite à décades / Decade box	01dB-Metravib	OUT1694	1605204	APM 5543
Pré-amplificateur / preamplifier	01dB-Metravib	PRE21A	20453	APM 1435

Tous les moyens de mesure utilisés sont raccordés aux étalons de référence de la société *ACOEM*. Les étalons de référence de la société *ACOEM* sont raccordés aux étalons nationaux par un étalonnage COFRAC. La liste de ces étalons est disponible sur simple demande auprès du responsable métrologique du laboratoire.

All the measuring instruments are calibrated using the ACOEM reference standards. ACOEM reference standards are calibrated with COFRAC certificate of calibration. The reference standard list is available on simple request to the head of the Metrology Lab.

LINEARITE
LINEARITY

Description *Description*	Résultat *Result*
Linéarité *Linearity*	Conforme *Compliant*

Linéatité (voie principale) *Linearity (Primary channel)*	Valeur nominale (dB) *Nominal value(dB)*	Valeur affichée (dB) *Displayed value (dB)*	Incertitudes (dB) *Uncertainty (dB)*	E.M.T (dB) *E.M.T (dB)*
Leq 35 dBZ / 8000 Hz	35,0	35,17	0,35	-0,8 / 0,8
Leq 40 dBZ / 8000 Hz	40,0	40,08	0,35	-0,8 / 0,8
Leq 50 dBZ / 8000 Hz	50,0	50,04	0,35	-0,8 / 0,8
Leq 60 dBZ / 8000 Hz	60,0	60,02	0,35	-0,8 / 0,8
Leq 70 dBZ / 8000 Hz	70,0	70,01	0,35	-0,8 / 0,8
Leq 80 dBZ / 8000 Hz	80,0	80,05	0,35	-0,8 / 0,8
Leq 90 dBZ / 8000 Hz	90,0	90	0,35	-0,8 / 0,8
Leq 100 dBZ / 8000 Hz	100,0	99,99	0,35	-0,8 / 0,8
Leq 110 dBZ / 8000 Hz	108,9	109,9	0,35	-0,8 / 0,8
Leq 120 dBZ / 8000 Hz	118,9	119,79	0,35	-0,8 / 0,8
Leq 130 dBZ / 8000 Hz	128,9	129,75	0,35	-0,8 / 0,8
Leq 134 dBZ / 8000 Hz	132,9	133,72	0,35	-0,8 / 0,8
Leq 134 dBA / 8000 Hz	132,9	133,74	0,35	-0,8 / 0,8
Leq 130 dBA / 8000 Hz	128,9	129,78	0,35	-0,8 / 0,8
Leq 120 dBA / 8000 Hz	118,9	119,79	0,35	-0,8 / 0,8
Leq 110 dBA / 8000 Hz	108,9	109,91	0,35	-0,8 / 0,8
Leq 100 dBA / 8000 Hz	98,9	100,01	0,35	-0,8 / 0,8
Leq 90 dBA / 8000 Hz	88,9	90	0,35	-0,8 / 0,8
Leq 80 dBA / 8000 Hz	78,9	80,02	0,35	-0,8 / 0,8
Leq 70 dBA / 8000 Hz	68,9	70,02	0,35	-0,8 / 0,8
Leq 60 dBA / 8000 Hz	58,9	60,03	0,35	-0,8 / 0,8
Leq 50 dBA / 8000 Hz	48,9	50,02	0,35	-0,8 / 0,8
Leq 40 dBA / 8000 Hz	38,9	39,97	0,35	-0,8 / 0,8
Leq 30 dBA / 8000 Hz	28,9	30,18	0,35	-0,8 / 0,8
Leq 26 dBA / 8000 Hz	24,9	26,4	0,35	-0,8 / 0,8

PONDERATIONS FREQUENTIELLES A-C-Z
A-B-C-Z WEIGHTINGS

Description *Description*	Résultat *Result*
Pondération fréquentielle *Frequency weighting*	Conforme *Compliant*

	Pondération fréquentielle *Frequency weighting*				
0° Ecran anti-vent court *0° Short windscreen*	***Z*** ***(dB)***	***A*** ***(dB)***	***C*** ***(dB)***	Incertitude *uncertainty* (dB)	E.M.T (dB)
125 Hz	-0,1	-0,2	0,0	0,55	-0,7 / 0,7
1000 Hz	0,0	0,0	0,0	0,55	-1,0 / 1,0
8000 Hz	-0,7	-1,2	-1,2	0,74	-2,5 / 1,5

BRUIT DE FOND
BACKGROUND NOISE

Description *Description*	Résultat *Result*
Bruit de fond *Noise level*	Conforme *Compliant*



FUSION Smart Sound & Vibration Analyzer

Tests report, according to the IEC 61672-3

01dB.com

Tests report

TR-REP-11111.xls

ISSUED FOR :

acoustic1

overdale
manordeilo

sa19 7bd llandeilo
uk

Name and location of the laboratory of tests:

Acoustic1 - Overdale Manordeilo, Llandeilo
Carmathenshire UK SA19 7BD

TESTED INSTRUMENT

Designation : Integrator Sound Level Meter

Manufacturer : 01dB

Type : FUSION + DMK

Serial number : 10919

Identification number :

Date of issue : 19/05/2026

This report includes 7 pages

The measurements are performed according to the IEC 61672-3, Electroacoustics, - Sound level meters – Part 3: Periodic tests.

Steve THOMAS
Head of calibration laboratory at Acoustic 1



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Identification :

	Sound level meter	Microphone	Accessories
Manufacturer	01dB	GRAS	
Type	FUSION + DMK	40CD	
Serial number	10919	144851	
Firmware version	See Tests report of FUSION without DMK		
Calibrator	**Calibrator of the Laboratory**		

Program:

The Sound level meter has been tested on the following characteristics:

- Self-generated noise
- Acoustical signal tests of a frequency weightings
- Electrical signal tests of frequency weightings
- Frequency and time weightings at 1 kHz
- Long-term stability
- Level linearity
- Toneburst response
- C-weighted peak sound level
- Overload indication
- High-level stability

Method:

The instrument is tested in an air conditioned room. The characteristics are tested with multimeter and generator calibrated in amplitude and in frequency. Some manufacturer's corrections have been applied to account the acoustical effect from the case of the sound level meter and his accessories (IEC 61672-3). These corrections are available in the sound level meter user manual.

The reference frequency of the sound level meter is 1000 Hz. The reference sound pressure level of the sound level meter is 94 dB. The sound level meter possesses a single level range.

Tests conditions:

Date of tests	5/19/2026
Operator Name	MET.15.INS.001_D_Fr
Tests instruction	0
Static pressure	>95,5 ; <105 kPa
Temperature	23 ± 3 °C
Relative humidity	>25 ; <70 %HR

Instruments used for tests:

Designation	Manufacturer	Type	Serial number	Identification number
Insulated chamber	SKC Acoustic	-	-	-
Waveform generator	KEYSIGHT	33500B	MY57301384	-
Progammable Attenuator	ACOEM	OUT1694000	17-10-208	-
Electrostatic actuator	GRAS	14AA	288498	-
Thermometer, hygrometer, barometer	TESTO	622	39517641/806	-
Calibrator	ACOEM	CAL 21	34675324	-

Results:

Mentioned expanded uncertainties correspond to two standard uncertainty types (k=2). Standard uncertainties are calculated including different uncertainty components, reference standards, instruments used, environmental conditions, calibrated instrument contribution, repeatability…

The indicated Maximum Permissible Errors (M.P.E.) are the ones defined in the standard 61672-1 for a class 1 sound level meter.

Indication at the calibration check frequency

Initial indication (dB)	Correction (dB)	Adjusted indication (dB)	Tolerance (dB)
93.7	0.3	93.8	+/- 1,0

Self-generated noise

0° RA208 + short windscreen

Microphone replaced by the electrical input-signal device	Nominal value (dB)	Displayed value (dB)
Leq dBA	< 14	9.9
Leq dBB	< 15	9.5
Leq dBC	< 20	11.3
Leq dBZ	< 21	15.3

Microphone installed	Nominal value (dB)	Displayed value (dB)
Leq dBA	< 20	16.6

Acoustical signal tests of a frequency weightings

0° RA208 + short windscreen	Measurement error *C* (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
125 Hz	0.2	0.3	+/- 1,0
1000 Hz	0.0	0.3	+/- 0,7
8000 Hz	-1.2	0.5	-2,5 ; +1,5

Electrical signal tests of frequency weightings

0° RA208 + short windscreen	Measurement error *Z* (dB)	*A* (dB)	*C* (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
63 Hz	-0.2	-0.2	-0.3	0.4	+/- 1,0
125 Hz	-0.2	-0.3	-0.2	0.4	+/- 1,0
250 Hz	-0.1	-0.2	-0.2	0.4	+/- 1,0
500 Hz	0.0	-0.1	0.0	0.4	+/- 1,0
1000 Hz	0.0	0.0	0.0	0.4	+/- 0,7
2000 Hz	0.1	0.1	0.1	0.4	+/- 1,0
4000 Hz	0.5	0.5	0.5	0.6	+/- 1,0
8000 Hz	-0.5	-1.0	-1.0	0.6	-2,5 ; +1,5
16000 Hz	-3.1	-8.4	-8.4	0.4	-16,0 ; +2,5

Frequency and time weightings at 1 kHz

0° RA208 + short windscreen	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	M.P.E. (dB)
Lp dBA / 1000 Hz Fast	94.0	Reference	0.0	
Lp dBA / 1000 Hz Slow	94.0	0.0	0.0	+/- 0,1
LEQ dBA / 1000 Hz	94.0	0.0	0.0	+/- 0,1
Lp dBC / 1000 Hz Fast	94.0	0.0	0.0	+/- 0,2
Lp dBZ / 1000 Hz Fast	94.0	0.0	0.0	+/- 0,2

Long-term stability

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Initial indication	Final indication			
94.0	94.0	0.0	0.1	+/- 0,1

Level linearity

0° RA208 + short windscreen

Nominal value (dB)	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
94.0	94.0	0.0	0.3	+/- 0,8
99.0	99.1	0.1	0.3	+/- 0,8
104.0	104.0	0.0	0.3	+/- 0,8
109.0	108.9	-0.1	0.3	+/- 0,8
114.0	113.9	-0.1	0.3	+/- 0,8
119.0	118.8	-0.2	0.3	+/- 0,8
124.0	123.8	-0.2	0.3	+/- 0,8
128.0	127.8	-0.2	0.3	+/- 0,8
129.0	128.9	-0.1	0.3	+/- 0,8
130.0	129.8	-0.2	0.3	+/- 0,8
131.0	130.8	-0.2	0.3	+/- 0,8
132.0	131.8	-0.2	0.3	+/- 0,8
133.0	132.8	-0.2	0.3	+/- 0,8
94.0	94.0	0.0	0.3	+/- 0,8
89.0	89.1	0.1	0.3	+/- 0,8
84.0	84.1	0.1	0.3	+/- 0,8
79.0	79.1	0.1	0.3	+/- 0,8
74.0	74.0	0.0	0.3	+/- 0,8
69.0	69.1	0.0	0.3	+/- 0,8
64.0	64.1	0.1	0.3	+/- 0,8
59.0	59.1	0.1	0.3	+/- 0,8
54.0	54.0	0.0	0.3	+/- 0,8
49.0	49.1	0.0	0.3	+/- 0,8
44.0	44.1	0.1	0.3	+/- 0,8
39.0	39.1	0.1	0.3	+/- 0,8
34.0	34.0	0.0	0.3	+/- 0,8
29.0	29.1	0.1	0.3	+/- 0,8
28.0	28.1	0.1	0.3	+/- 0,8
27.0	27.1	0.1	0.3	+/- 0,8
26.0	26.2	0.2	0.3	+/- 0,8
25.0	25.2	0.2	0.3	+/- 0,8
24.0	24.2	0.2	0.3	+/- 0,8

Toneburst response

0° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Lpmax 135 dB 4000 Hz A Slow 200 ms	127.6	0	0.1	+/- 0,5
Lpmax 135 dB 4000 Hz A Slow 2 ms	108	0	0.1	-3,0 ; +1,0
Lpmax 135 dB 4000 Hz A fast 200 ms	134	0	0.1	+/- 0,5
Lpmax 135 dB 4000 Hz A fast 2 ms	117	0	0.1	-1,5 ; +1,0
Lpmax 135 dB 4000 Hz A fast 0.25 ms	107.9	-0.1	0.1	-3,0 ; +1,0
Leq 135 dB 4000 Hz A 1000 200 ms	128	0	0.1	+/- 0,5
Leq 135 dB 4000 Hz A 1000 2 ms	108	0	0.1	-1,5 ; +1,0
Leq 135 dB 4000 Hz A 1000 0.25 ms	98.9	-0.1	0.1	-3,0 ; +1,0

C-weighted peak sound level

0° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
8000 Hz Complete cycle	137.1	1.7	0.1	+/- 2,0
500 Hz Positive one-half-cycle	134.3	-0.1	0.1	+/- 1,0
500 Hz Negative one-half-cycle	134.3	-0.1	0.1	+/- 1,0

Overload indication

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation	Uncertainty	Maximum Permissible Error (dB)
Positive one-half-cycle	Negative one-half-cycle	(dB)	(dB)	
108.6	109.9	-1.4	0.2	+/- 1,5

High-level stability

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation	Uncertainty	Maximum Permissible Error (dB)
Initial indication	Final indication	(dB)	(dB)	
135.8	135.8	0.0	0.0	+/- 0,1

Conclusion

CEI 61672-3 CEI:2013 Chapter:	Tests	Results
5	Preliminary inspection	Compliant
7	Environmental conditions	Compliant
10	Indication at the calibration check frequency	Compliant
11	Self-generated noise	Compliant
12	Acoustical signal tests of a frequency weighting	Compliant
13	Electrical signal tests of frequency weightings	Compliant
14	Frequency and time weightings at 1 kHz	Compliant
15	Long-term stability	Compliant
16	Level linearity on the reference level range	Compliant
18	Toneburst response	Compliant
19	C-weighted peak sound level	Compliant
20	Overload indication	Compliant
21	High-level stability	Compliant

FUSION user manual	DOC1131 version M February 2018
Type-approval certificate	France: LNE-27092 revision 2 dated 04/04/2017 Deutschland: DE-16-M-PTB-0006 dated 28/09/2016

#REF!

End of tests report



FUSION Smart Sound & Vibration Analyzer

Tests report, according to the IEC 61672-3

01dB.com

Tests report

TR-REP-11095.xls

ISSUED FOR : Acoustic1

Acoustic1
Overdale
Manordeilo
SA19 7BD Llandeilo
United Kingdom

Name and location of the laboratory of tests:
Acoustic1 - Overdale Manordeilo, Llandeilo
Carmathenshire UK SA19 7BD

TESTED INSTRUMENT
Designation : Integrator Sound Level Meter

Manufacturer : 01dB

Type : FUSION + DMK Serial number : 14144

Identification number :

Date of issue : 21/04/2026

This report includes 7 pages

The measurements are performed according to the IEC 61672-3, Electroacoustics, - Sound level meters – Part 3: Periodic tests.

Steve THOMAS
Head of calibration laboratory at Acoustic 1



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Identification :

	Sound level meter	Microphone	Accessories
Manufacturer	01dB	GRAS	
Type	FUSION + DMK	40CD	
Serial number	14144	330671	
Firmware version	See Tests report of FUSION without DMK		
Calibrator	**Calibrator of the Laboratory**		

Program:

The Sound level meter has been tested on the following characteristics:

- Self-generated noise
- Acoustical signal tests of a frequency weightings
- Electrical signal tests of frequency weightings
- Frequency and time weightings at 1 kHz
- Long-term stability
- Level linearity
- Toneburst response
- C-weighted peak sound level
- Overload indication
- High-level stability

Method:

The instrument is tested in an air conditioned room. The characteristics are tested with multimeter and generator calibrated in amplitude and in frequency. Some manufacturer's corrections have been applied to account the acoustical effect from the case of the sound level meter and his accessories (IEC 61672-3). These corrections are available in the sound level meter user manual.

The reference frequency of the sound level meter is 1000 Hz. The reference sound pressure level of the sound level meter is 94 dB. The sound level meter possesses a single level range.

Tests conditions:

Date of tests	4/21/2026
Operator Name	MET.15.INS.001_D_Fr
Tests instruction	0
Static pressure	>95,5 ; <105 kPa
Temperature	23 ± 3 °C
Relative humidity	>25 ; <70 %HR

Instruments used for tests:

Designation	Manufacturer	Type	Serial number	Identification number
Insulated chamber	SKC Acoustic	-	-	-
Waveform generator	KEYSIGHT	33500B	MY57301384	-
Progammable Attenuator	ACOEM	OUT1694000	17-10-208	-
Electrostatic actuator	GRAS	14AA	288498	-
Thermometer, hygrometer, barometer	TESTO	622	39517641/806	-
Calibrator	ACOEM	CAL 21	34675324	-

Results:

Mentioned expanded uncertainties correspond to two standard uncertainty types (k=2). Standard uncertainties are calculated including different uncertainty components, reference standards, instruments used, environmental conditions, calibrated instrument contribution, repeatability…

The indicated Maximum Permissible Errors (M.P.E.) are the ones defined in the standard 61672-1 for a class 1 sound level meter.

Indication at the calibration check frequency

Initial indication (dB)	Correction (dB)	Adjusted indication (dB)	Tolerance (dB)
93.9	-0.2	93.5	+/- 1,0

Self-generated noise

0° RA208 + short windscreen

Microphone replaced by the electrical input-signal device	Nominal value (dB)	Displayed value (dB)
Leq dBA	< 14	9.1
Leq dBB	< 15	8.5
Leq dBC	< 20	9.8
Leq dBZ	< 21	18.1

Microphone installed	Nominal value (dB)	Displayed value (dB)
Leq dBA	< 20	16.0

Acoustical signal tests of a frequency weightings

0° RA208 + short windscreen	Measurement error *C* (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
125 Hz	0.0	0.3	+/- 1,0
1000 Hz	0.0	0.3	+/- 0,7
8000 Hz	-0.9	0.5	-2,5 ; +1,5

Electrical signal tests of frequency weightings

0° RA208 + short windscreen	Measurement error *Z* (dB)	*A* (dB)	*C* (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
63 Hz	-0.6	-0.4	0.0	0.4	+/- 1,0
125 Hz	-0.5	-0.5	-0.1	0.4	+/- 1,0
250 Hz	-0.5	0.0	-0.1	0.4	+/- 1,0
500 Hz	-0.3	-0.1	0.0	0.4	+/- 1,0
1000 Hz	0.0	0.0	0.0	0.4	+/- 0,7
2000 Hz	-0.2	0.1	0.0	0.4	+/- 1,0
4000 Hz	0.2	0.5	0.0	0.6	+/- 1,0
8000 Hz	-0.5	-1.0	-1.6	0.6	-2,5 ; +1,5
16000 Hz	-3.3	-7.9	-3.2	0.4	-16,0 ; +2,5

Frequency and time weightings at 1 kHz

0° RA208 + short windscreen	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	M.P.E. (dB)
Lp dBA / 1000 Hz Fast	94.1	Reference	0.0	
Lp dBA / 1000 Hz Slow	94.1	0.0	0.0	+/- 0,1
LEQ dBA / 1000 Hz	94.0	0.0	0.0	+/- 0,1
Lp dBC / 1000 Hz Fast	94.1	0.0	0.0	+/- 0,2
Lp dBZ / 1000 Hz Fast	94.1	0.0	0.0	+/- 0,2

Long-term stability

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Initial indication	Final indication			
94.0	94.0	0.0	0.1	+/- 0,1

Level linearity

0° RA208 + short windscreen

Nominal value (dB)	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
94.0	94.0	0.0	0.3	+/- 0,8
99.0	99.1	0.1	0.3	+/- 0,8
104.0	104.0	0.0	0.3	+/- 0,8
109.0	108.9	-0.1	0.3	+/- 0,8
114.0	113.9	-0.1	0.3	+/- 0,8
119.0	118.8	-0.2	0.3	+/- 0,8
124.0	123.8	-0.2	0.3	+/- 0,8
128.0	127.8	-0.2	0.3	+/- 0,8
129.0	128.8	-0.2	0.3	+/- 0,8
130.0	129.8	-0.2	0.3	+/- 0,8
131.0	130.8	-0.2	0.3	+/- 0,8
132.0	131.8	-0.2	0.3	+/- 0,8
133.0	132.8	-0.2	0.3	+/- 0,8
94.0	94.0	0.0	0.3	+/- 0,8
89.0	89.1	0.1	0.3	+/- 0,8
84.0	84.1	0.1	0.3	+/- 0,8
79.0	79.1	0.1	0.3	+/- 0,8
74.0	74.0	0.0	0.3	+/- 0,8
69.0	69.0	0.0	0.3	+/- 0,8
64.0	64.1	0.1	0.3	+/- 0,8
59.0	59.1	0.1	0.3	+/- 0,8
54.0	54.0	0.0	0.3	+/- 0,8
49.0	49.0	0.0	0.3	+/- 0,8
44.0	44.1	0.1	0.3	+/- 0,8
39.0	39.2	0.2	0.3	+/- 0,8
34.0	34.1	0.1	0.3	+/- 0,8
29.0	28.9	-0.1	0.3	+/- 0,8
28.0	28.5	0.5	0.3	+/- 0,8
27.0	27.1	0.1	0.3	+/- 0,8
26.0	26.7	0.7	0.3	+/- 0,8
25.0	25.1	0.1	0.3	+/- 0,8
24.0	24.5	0.5	0.3	+/- 0,8

Toneburst response

0° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Lpmax 135 dB 4000 Hz A Slow 200 ms	127.6	0	0.1	+/- 0,5
Lpmax 135 dB 4000 Hz A Slow 2 ms	108	0	0.1	-3,0 ; +1,0
Lpmax 135 dB 4000 Hz A fast 200 ms	134.1	0.1	0.1	+/- 0,5
Lpmax 135 dB 4000 Hz A fast 2 ms	117	0	0.1	-1,5 ; +1,0
Lpmax 135 dB 4000 Hz A fast 0.25 ms	107.9	-0.1	0.1	-3,0 ; +1,0
Leq 135 dB 4000 Hz A 1000 200 ms	128.1	0.1	0.1	+/- 0,5
Leq 135 dB 4000 Hz A 1000 2 ms	108	0	0.1	-1,5 ; +1,0
Leq 135 dB 4000 Hz A 1000 0.25 ms	98.9	-0.1	0.1	-3,0 ; +1,0

C-weighted peak sound level

0° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
8000 Hz Complete cycle	137.0	1.6	0.1	+/- 2,0
500 Hz Positive one-half-cycle	134.3	-0.1	0.1	+/- 1,0
500 Hz Negative one-half-cycle	134.4	0.0	0.1	+/- 1,0

Overload indication

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation	Uncertainty	Maximum Permissible Error (dB)
Positive one-half-cycle	Negative one-half-cycle	(dB)	(dB)	
109.2	109.5	-0.3	0.2	+/- 1,5

High-level stability

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation	Uncertainty	Maximum Permissible Error (dB)
Initial indication	Final indication	(dB)	(dB)	
135.8	135.8	0.0	0.0	+/- 0,1

Conclusion

CEI 61672-3 CEI:2013 Chapter:	Tests	Results
5	Preliminary inspection	Compliant
7	Environmental conditions	Compliant
10	Indication at the calibration check frequency	Compliant
11	Self-generated noise	Compliant
12	Acoustical signal tests of a frequency weighting	Compliant
13	Electrical signal tests of frequency weightings	Compliant
14	Frequency and time weightings at 1 kHz	Compliant
15	Long-term stability	Compliant
16	Level linearity on the reference level range	Compliant
18	Toneburst response	Compliant
19	C-weighted peak sound level	Compliant
20	Overload indication	Compliant
21	High-level stability	Compliant

FUSION user manual	DOC1131 version M February 2018
Type-approval certificate	France: LNE-27092 revision 2 dated 04/04/2017 Deutschland: DE-16-M-PTB-0006 dated 28/09/2016

#REF!

End of tests report



FUSION Smart Sound & Vibration Analyzer

Tests report, according to the IEC 61672-3

01dB.com

Tests report

TR-REP-11008.xls

ISSUED FOR :

acoustic1

overdale
manordeilo

sa19 7bd llandeilo
uk

Name and location of the laboratory of tests:

Acoustic1 - Overdale Manordeilo, Llandeilo
Carmathenshire UK SA19 7BD

TESTED INSTRUMENT

Designation : Integrator Sound Level Meter

Manufacturer : 01dB

Type : FUSION + DMK

Serial number : 14149

Identification number :

Date of issue : 28/08/2025

This report includes 7 pages

The measurements are performed according to the IEC 61672-3, Electroacoustics, - Sound level meters – Part 3: Periodic tests.

Steve THOMAS
Head of calibration laboratory at Acoustic 1



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Identification :

	Sound level meter	Microphone	Accessories
Manufacturer	01dB	GRAS	
Type	FUSION + DMK	40CD	
Serial number	14149	331890	
Firmware version	See Tests report of FUSION without DMK		
Calibrator	**Calibrator of the Laboratory**		

Program:

The Sound level meter has been tested on the following characteristics:

- Self-generated noise
- Acoustical signal tests of a frequency weightings
- Electrical signal tests of frequency weightings
- Frequency and time weightings at 1 kHz
- Long-term stability
- Level linearity
- Toneburst response
- C-weighted peak sound level
- Overload indication
- High-level stability

Method:

The instrument is tested in an air conditioned room. The characteristics are tested with multimeter and generator calibrated in amplitude and in frequency. Some manufacturer's corrections have been applied to account the acoustical effect from the case of the sound level meter and his accessories (IEC 61672-3). These corrections are available in the sound level meter user manual.

The reference frequency of the sound level meter is 1000 Hz. The reference sound pressure level of the sound level meter is 94 dB. The sound level meter possesses a single level range.

Tests conditions:

Date of tests	8/28/2025
Operator Name	MET.15.INS.001_D_Fr
Tests instruction	0
Static pressure	>95,5 ; <105 kPa
Temperature	23 ± 3 °C
Relative humidity	>25 ; <70 %HR

Instruments used for tests:

Designation	Manufacturer	Type	Serial number	Identification number
Insulated chamber	SKC Acoustic	-	-	-
Waveform generator	KEYSIGHT	33500B	MY57301384	-
Progammable Attenuator	ACOEM	OUT1694000	17-10-208	-
Electrostatic actuator	GRAS	14AA	288498	-
Thermometer, hygrometer, barometer	TESTO	622	39517641/806	-
Calibrator	ACOEM	CAL 21	34675324	-

Results:

Mentioned expanded uncertainties correspond to two standard uncertainty types (k=2). Standard uncertainties are calculated including different uncertainty components, reference standards, instruments used, environmental conditions, calibrated instrument contribution, repeatability…

The indicated Maximum Permissible Errors (M.P.E.) are the ones defined in the standard 61672-1 for a class 1 sound level meter.

Indication at the calibration check frequency

Initial indication (dB)	Correction (dB)	Adjusted indication (dB)	Tolerance (dB)
93.3	0.7	93.8	+/- 1,0

Self-generated noise

0° RA208 + short windscreen

Microphone replaced by the electrical input-signal device	Nominal value (dB)	Displayed value (dB)
Leq dBA	< 14	9.8
Leq dBB	< 15	9.5
Leq dBC	< 20	10.7
Leq dBZ	< 21	18.5

Microphone installed	Nominal value (dB)	Displayed value (dB)
Leq dBA	< 20	16.5

Acoustical signal tests of a frequency weightings

0° RA208 + short windscreen	Measurement error *C* (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
125 Hz	-0.1	0.3	+/- 1,0
1000 Hz	0.0	0.3	+/- 0,7
8000 Hz	-0.9	0.5	-2,5 ; +1,5

Electrical signal tests of frequency weightings

0° RA208 + short windscreen	Measurement error *Z* (dB)	*A* (dB)	*C* (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
63 Hz	-0.2	-0.2	-0.2	0.4	+/- 1,0
125 Hz	-0.2	-0.3	-0.2	0.4	+/- 1,0
250 Hz	-0.1	-0.2	-0.2	0.4	+/- 1,0
500 Hz	0.0	-0.1	0.0	0.4	+/- 1,0
1000 Hz	0.0	0.0	0.0	0.4	+/- 0,7
2000 Hz	0.1	0.1	0.1	0.4	+/- 1,0
4000 Hz	0.5	0.5	0.5	0.6	+/- 1,0
8000 Hz	-0.5	-1.0	-1.0	0.6	-2,5 ; +1,5
16000 Hz	-3.1	-8.4	-8.4	0.4	-16,0 ; +2,5

Frequency and time weightings at 1 kHz

0° RA208 + short windscreen	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	M.P.E. (dB)
Lp dBA / 1000 Hz Fast	94.0	Reference	0.0	
Lp dBA / 1000 Hz Slow	94.0	0.0	0.0	+/- 0,1
LEQ dBA / 1000 Hz	94.0	0.0	0.0	+/- 0,1
Lp dBC / 1000 Hz Fast	94.0	0.0	0.0	+/- 0,2
Lp dBZ / 1000 Hz Fast	94.0	0.0	0.0	+/- 0,2

Long-term stability

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Initial indication	Final indication			
93.9	93.9	0.0	0.1	+/- 0,1

Level linearity

0° RA208 + short windscreen

Nominal value (dB)	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
94.0	94.0	0.0	0.3	+/- 0,8
99.0	99.1	0.1	0.3	+/- 0,8
104.0	104.0	0.0	0.3	+/- 0,8
109.0	108.9	-0.1	0.3	+/- 0,8
114.0	113.9	-0.1	0.3	+/- 0,8
119.0	118.8	-0.2	0.3	+/- 0,8
124.0	123.8	-0.2	0.3	+/- 0,8
128.0	127.8	-0.2	0.3	+/- 0,8
129.0	128.9	-0.2	0.3	+/- 0,8
130.0	129.8	-0.2	0.3	+/- 0,8
131.0	130.8	-0.2	0.3	+/- 0,8
132.0	131.8	-0.2	0.3	+/- 0,8
133.0	132.8	-0.2	0.3	+/- 0,8
94.0	94.0	0.0	0.3	+/- 0,8
89.0	89.1	0.1	0.3	+/- 0,8
84.0	84.1	0.1	0.3	+/- 0,8
79.0	79.1	0.1	0.3	+/- 0,8
74.0	74.0	0.0	0.3	+/- 0,8
69.0	69.1	0.1	0.3	+/- 0,8
64.0	64.1	0.1	0.3	+/- 0,8
59.0	59.1	0.1	0.3	+/- 0,8
54.0	54.0	0.0	0.3	+/- 0,8
49.0	49.1	0.1	0.3	+/- 0,8
44.0	44.1	0.1	0.3	+/- 0,8
39.0	39.1	0.1	0.3	+/- 0,8
34.0	34.0	0.0	0.3	+/- 0,8
29.0	29.1	0.1	0.3	+/- 0,8
28.0	28.2	0.2	0.3	+/- 0,8
27.0	27.1	0.1	0.3	+/- 0,8
26.0	26.2	0.2	0.3	+/- 0,8
25.0	25.2	0.2	0.3	+/- 0,8
24.0	24.3	0.3	0.3	+/- 0,8

Toneburst response

0° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Lpmax 135 dB 4000 Hz A Slow 200 ms	127.6	0	0.1	+/- 0,5
Lpmax 135 dB 4000 Hz A Slow 2 ms	108	0	0.1	-3,0 ; +1,0
Lpmax 135 dB 4000 Hz A fast 200 ms	134	0	0.1	+/- 0,5
Lpmax 135 dB 4000 Hz A fast 2 ms	116.8	-0.2	0.1	-1,5 ; +1,0
Lpmax 135 dB 4000 Hz A fast 0.25 ms	107.8	-0.2	0.1	-3,0 ; +1,0
Leq 135 dB 4000 Hz A 1000 200 ms	128	0	0.1	+/- 0,5
Leq 135 dB 4000 Hz A 1000 2 ms	108	0	0.1	-1,5 ; +1,0
Leq 135 dB 4000 Hz A 1000 0.25 ms	98.9	-0.1	0.1	-3,0 ; +1,0

C-weighted peak sound level

0° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
8000 Hz Complete cycle	137.1	1.7	0.1	+/- 2,0
500 Hz Positive one-half-cycle	134.3	-0.1	0.1	+/- 1,0
500 Hz Negative one-half-cycle	134.3	-0.1	0.1	+/- 1,0

Overload indication

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation	Uncertainty	Maximum Permissible Error (dB)
Positive one-half-cycle	Negative one-half-cycle	(dB)	(dB)	
110.0	110.2	-0.3	0.2	+/- 1,5

High-level stability

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation	Uncertainty	Maximum Permissible Error (dB)
Initial indication	Final indication	(dB)	(dB)	
135.7	135.7	0.0	0.0	+/- 0,1

Conclusion

CEI 61672-3 CEI:2013 Chapter:	Tests	Results
5	Preliminary inspection	Compliant
7	Environmental conditions	Compliant
10	Indication at the calibration check frequency	Compliant
11	Self-generated noise	Compliant
12	Acoustical signal tests of a frequency weighting	Compliant
13	Electrical signal tests of frequency weightings	Compliant
14	Frequency and time weightings at 1 kHz	Compliant
15	Long-term stability	Compliant
16	Level linearity on the reference level range	Compliant
18	Toneburst response	Compliant
19	C-weighted peak sound level	Compliant
20	Overload indication	Compliant
21	High-level stability	Compliant

FUSION user manual	DOC1131 version M February 2018
Type-approval certificate	France: LNE-27092 revision 2 dated 04/04/2017 Deutschland: DE-16-M-PTB-0006 dated 28/09/2016

#REF!

End of tests report



FUSION Smart Sound & Vibration Analyzer

Tests report, according to the IEC 61672-3

01dB.com

Tests report

TR-REP-11009.xls

ISSUED FOR :

acoustic1

overdale
manordeilo

sa19 7bd llandeilo
uk

Name and location of the laboratory of tests:

Acoustic1 - Overdale Manordeilo, Llandeilo
Carmathenshire UK SA19 7BD

TESTED INSTRUMENT

Designation : Integrator Sound Level Meter

Manufacturer : 01dB

Type : FUSION + DMK

Serial number : 14155

Identification number :

Date of issue : 28/08/2025

This report includes 7 pages

The measurements are performed according to the IEC 61672-3, Electroacoustics, - Sound level meters – Part 3: Periodic tests.

Steve THOMAS
Head of calibration laboratory at Acoustic 1



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Identification :

	Sound level meter	Microphone	Accessories
Manufacturer	01dB	GRAS	
Type	FUSION + DMK	40CD	
Serial number	14155	428368	
Firmware version	See Tests report of FUSION without DMK		
Calibrator	**Calibrator of the Laboratory**		

Program:

The Sound level meter has been tested on the following characteristics:

- Self-generated noise
- Acoustical signal tests of a frequency weightings
- Electrical signal tests of frequency weightings
- Frequency and time weightings at 1 kHz
- Long-term stability
- Level linearity
- Toneburst response
- C-weighted peak sound level
- Overload indication
- High-level stability

Method:

The instrument is tested in an air conditioned room. The characteristics are tested with multimeter and generator calibrated in amplitude and in frequency. Some manufacturer's corrections have been applied to account the acoustical effect from the case of the sound level meter and his accessories (IEC 61672-3). These corrections are available in the sound level meter user manual.

The reference frequency of the sound level meter is 1000 Hz. The reference sound pressure level of the sound level meter is 94 dB. The sound level meter possesses a single level range.

Tests conditions:

Date of tests	8/28/2025
Operator Name	MET.15.INS.001_D_Fr
Tests instruction	0
Static pressure	>95,5 ; <105 kPa
Temperature	23 ± 3 °C
Relative humidity	>25 ; <70 %HR

Instruments used for tests:

Designation	Manufacturer	Type	Serial number	Identification number
Insulated chamber	SKC Acoustic	-	-	-
Waveform generator	KEYSIGHT	33500B	MY57301384	-
Progammable Attenuator	ACOEM	OUT1694000	17-10-208	-
Electrostatic actuator	GRAS	14AA	288498	-
Thermometer, hygrometer, barometer	TESTO	622	39517641/806	-
Calibrator	ACOEM	CAL 21	34675324	-

Results:

Mentioned expanded uncertainties correspond to two standard uncertainty types (k=2). Standard uncertainties are calculated including different uncertainty components, reference standards, instruments used, environmental conditions, calibrated instrument contribution, repeatability…

The indicated Maximum Permissible Errors (M.P.E.) are the ones defined in the standard 61672-1 for a class 1 sound level meter.

Indication at the calibration check frequency

Initial indication (dB)	Correction (dB)	Adjusted indication (dB)	Tolerance (dB)
93.8	0.2	93.8	+/- 1,0

Self-generated noise

0° RA208 + short windscreen

Microphone replaced by the electrical input-signal device	Nominal value (dB)	Displayed value (dB)
Leq dBA	< 14	9.8
Leq dBB	< 15	11.9
Leq dBC	< 20	14.0
Leq dBZ	< 21	18.7

Microphone installed	Nominal value (dB)	Displayed value (dB)
Leq dBA	< 20	16.4

Acoustical signal tests of a frequency weightings

0° RA208 + short windscreen	Measurement error *C* (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
125 Hz	-0.1	0.3	+/- 1,0
1000 Hz	0.0	0.3	+/- 0,7
8000 Hz	-1.5	0.5	-2,5 ; +1,5

Electrical signal tests of frequency weightings

0° RA208 + short windscreen	Measurement error *Z* (dB)	*A* (dB)	*C* (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
63 Hz	-0.2	-0.2	-0.3	0.4	+/- 1,0
125 Hz	-0.2	-0.3	-0.2	0.4	+/- 1,0
250 Hz	-0.2	-0.2	-0.2	0.4	+/- 1,0
500 Hz	0.0	-0.1	0.0	0.4	+/- 1,0
1000 Hz	0.0	0.0	0.0	0.4	+/- 0,7
2000 Hz	0.1	0.1	0.1	0.4	+/- 1,0
4000 Hz	0.5	0.5	0.5	0.6	+/- 1,0
8000 Hz	-0.5	-1.0	-1.0	0.6	-2,5 ; +1,5
16000 Hz	-3.1	-8.4	-8.4	0.4	-16,0 ; +2,5

Frequency and time weightings at 1 kHz

0° RA208 + short windscreen	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	M.P.E. (dB)
Lp dBA / 1000 Hz Fast	94.0	Reference	0.0	
Lp dBA / 1000 Hz Slow	94.0	0.0	0.0	+/- 0,1
LEQ dBA / 1000 Hz	94.0	0.0	0.0	+/- 0,1
Lp dBC / 1000 Hz Fast	94.0	0.0	0.0	+/- 0,2
Lp dBZ / 1000 Hz Fast	94.0	0.0	0.0	+/- 0,2

Long-term stability

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Initial indication	Final indication			
93.9	93.9	0.0	0.1	+/- 0,1

Level linearity

0° RA208 + short windscreen

Nominal value (dB)	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
94.0	94.0	0.0	0.3	+/- 0,8
99.0	99.1	0.1	0.3	+/- 0,8
104.0	104.0	0.0	0.3	+/- 0,8
109.0	109.0	0.0	0.3	+/- 0,8
114.0	113.9	-0.1	0.3	+/- 0,8
119.0	118.9	-0.1	0.3	+/- 0,8
124.0	123.9	-0.2	0.3	+/- 0,8
128.0	127.9	-0.1	0.3	+/- 0,8
129.0	128.9	-0.1	0.3	+/- 0,8
130.0	129.9	-0.1	0.3	+/- 0,8
131.0	130.9	-0.1	0.3	+/- 0,8
132.0	131.9	-0.1	0.3	+/- 0,8
133.0	132.8	-0.2	0.3	+/- 0,8
94.0	94.0	0.0	0.3	+/- 0,8
89.0	89.1	0.1	0.3	+/- 0,8
84.0	84.1	0.1	0.3	+/- 0,8
79.0	79.1	0.1	0.3	+/- 0,8
74.0	74.0	0.0	0.3	+/- 0,8
69.0	69.1	0.1	0.3	+/- 0,8
64.0	64.1	0.1	0.3	+/- 0,8
59.0	59.1	0.1	0.3	+/- 0,8
54.0	54.0	0.0	0.3	+/- 0,8
49.0	49.1	0.1	0.3	+/- 0,8
44.0	44.1	0.1	0.3	+/- 0,8
39.0	39.1	0.1	0.3	+/- 0,8
34.0	34.0	0.0	0.3	+/- 0,8
29.0	29.1	0.1	0.3	+/- 0,8
28.0	28.1	0.1	0.3	+/- 0,8
27.0	27.2	0.2	0.3	+/- 0,8
26.0	26.2	0.2	0.3	+/- 0,8
25.0	25.2	0.2	0.3	+/- 0,8
24.0	24.2	0.2	0.3	+/- 0,8

Toneburst response

0° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Lpmax 135 dB 4000 Hz A Slow 200 ms	127.6	0	0.1	+/- 0,5
Lpmax 135 dB 4000 Hz A Slow 2 ms	108	0	0.1	-3,0 ; +1,0
Lpmax 135 dB 4000 Hz A fast 200 ms	134	0	0.1	+/- 0,5
Lpmax 135 dB 4000 Hz A fast 2 ms	116.9	-0.1	0.1	-1,5 ; +1,0
Lpmax 135 dB 4000 Hz A fast 0.25 ms	107.9	-0.1	0.1	-3,0 ; +1,0
Leq 135 dB 4000 Hz A 1000 200 ms	128	0	0.1	+/- 0,5
Leq 135 dB 4000 Hz A 1000 2 ms	108	0	0.1	-1,5 ; +1,0
Leq 135 dB 4000 Hz A 1000 0.25 ms	98.9	-0.1	0.1	-3,0 ; +1,0

C-weighted peak sound level

0° RA208 + short windscreen

Description	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
8000 Hz Complete cycle	137.1	1.7	0.1	+/- 2,0
500 Hz Positive one-half-cycle	134.3	-0.1	0.1	+/- 1,0
500 Hz Negative one-half-cycle	134.4	0.0	0.1	+/- 1,0

Overload indication

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation	Uncertainty	Maximum Permissible Error (dB)
Positive one-half-cycle	Negative one-half-cycle	(dB)	(dB)	
109.5	109.8	-0.3	0.2	+/- 1,5

High-level stability

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation	Uncertainty	Maximum Permissible Error (dB)
Initial indication	Final indication	(dB)	(dB)	
135.8	135.8	0.0	0.0	+/- 0,1

Conclusion

CEI 61672-3 CEI:2013 Chapter:	Tests	Results
5	Preliminary inspection	Compliant
7	Environmental conditions	Compliant
10	Indication at the calibration check frequency	Compliant
11	Self-generated noise	Compliant
12	Acoustical signal tests of a frequency weighting	Compliant
13	Electrical signal tests of frequency weightings	Compliant
14	Frequency and time weightings at 1 kHz	Compliant
15	Long-term stability	Compliant
16	Level linearity on the reference level range	Compliant
18	Toneburst response	Compliant
19	C-weighted peak sound level	Compliant
20	Overload indication	Compliant
21	High-level stability	Compliant

FUSION user manual	DOC1131 version M February 2018
Type-approval certificate	France: LNE-27092 revision 2 dated 04/04/2017 Deutschland: DE-16-M-PTB-0006 dated 28/09/2016

#REF!

End of tests report

Appendix D Survey Data Graphs

Baseline Sound Survey Report

Hemerdon Mine

Drakelands Restoration Ltd

SLR Project No.: 403.066596.00001.001

11 September 2026

D.1 NMP01 – Mumford Cottage

Figure D-1: Measured Sound Levels – NMP01, dB

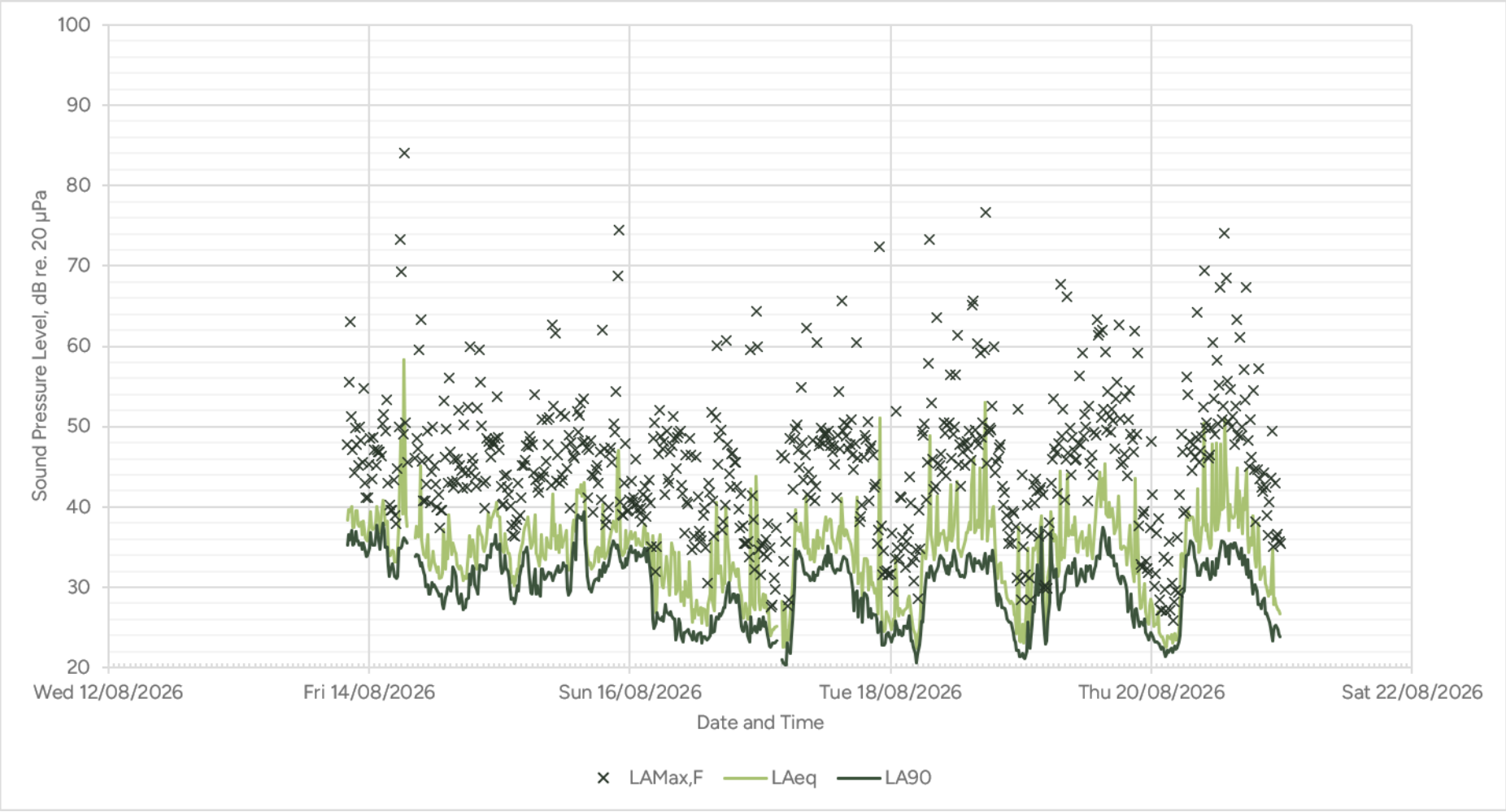


Figure D-2: Histogram of Weekday Ambient Sound Levels – NMP01, dB

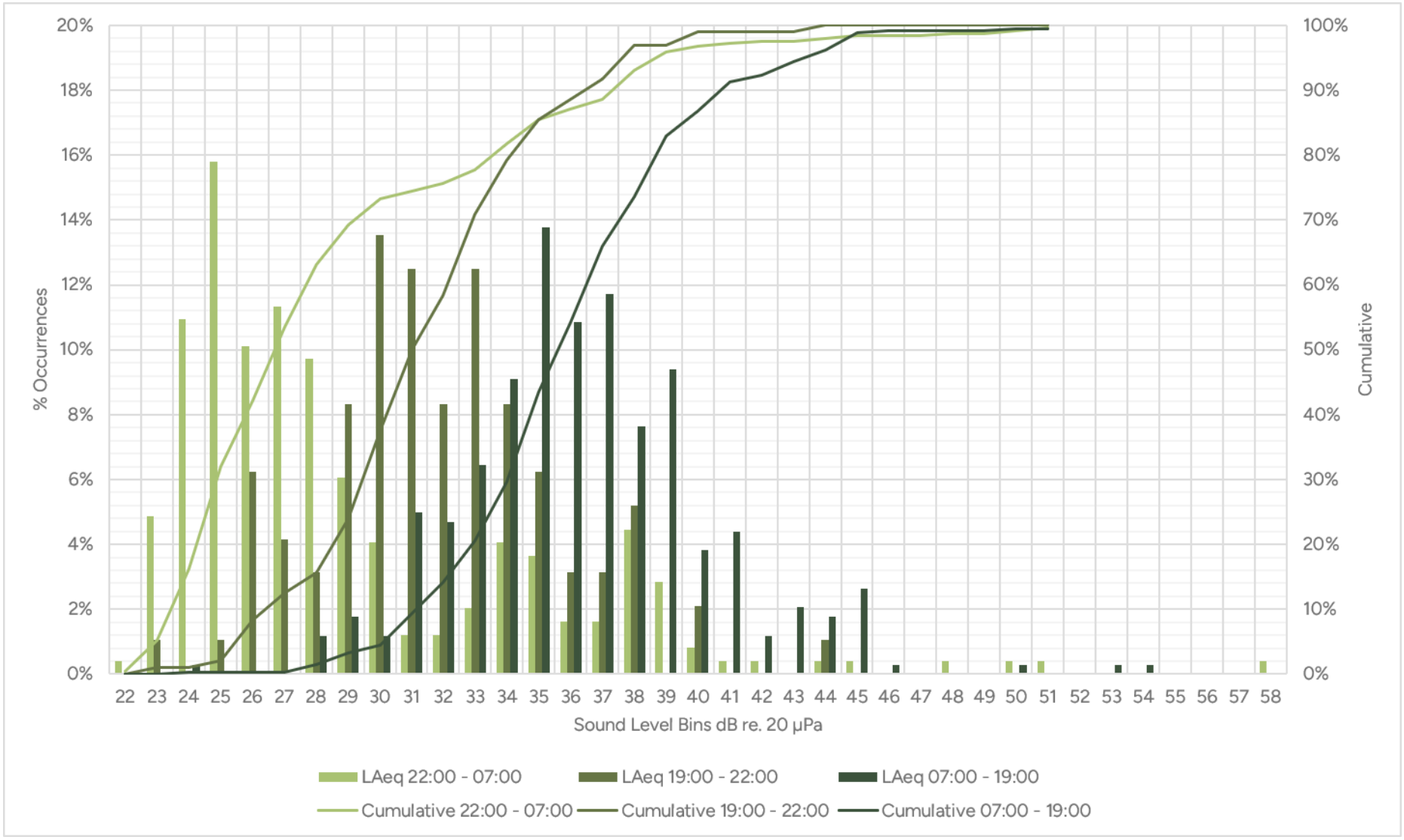


Figure D-3: Histogram of Weekday Background Sound Levels – NMP01, dB

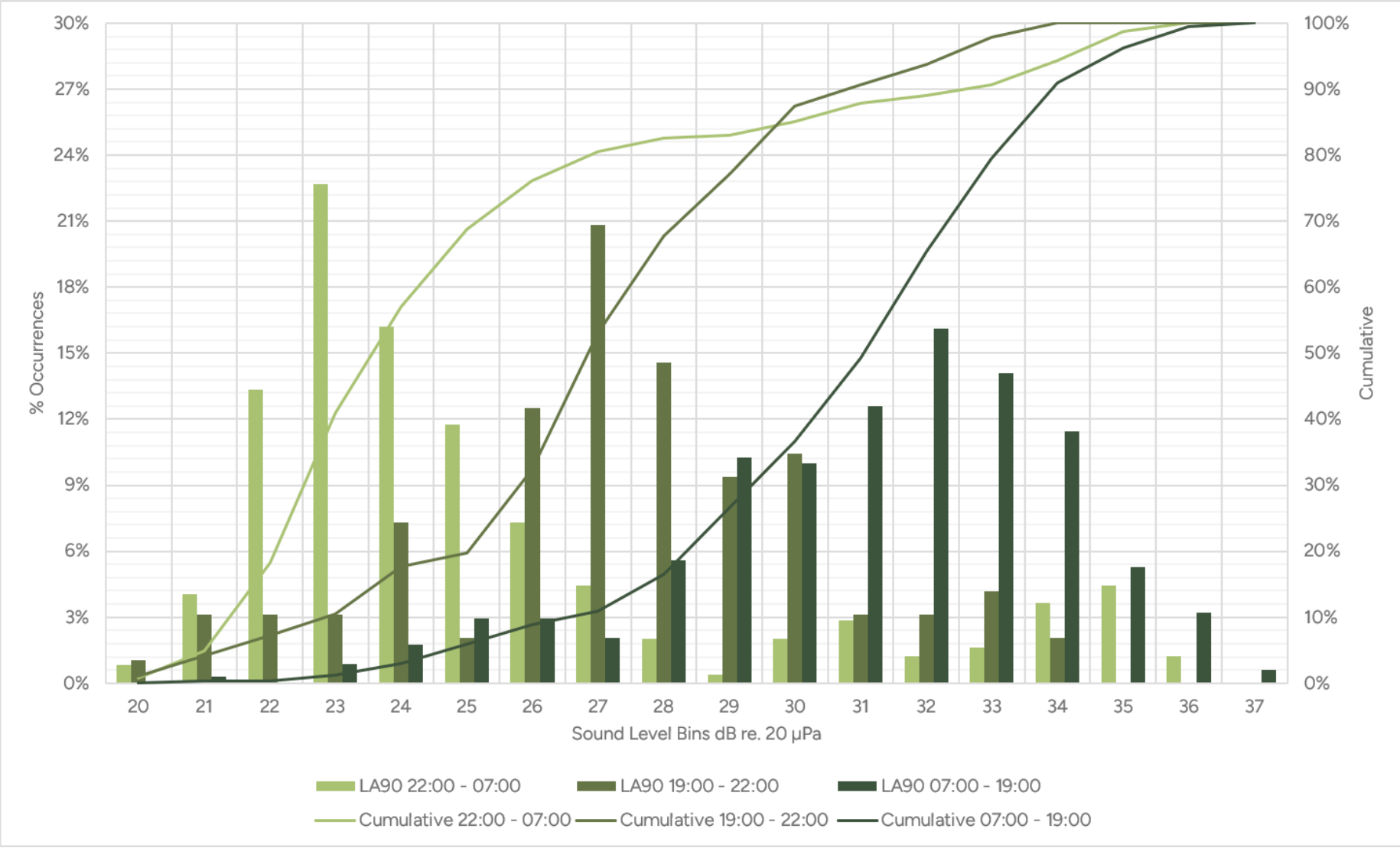


Figure D-4: Histogram of Weekend Ambient Sound Levels – NMP01, dB

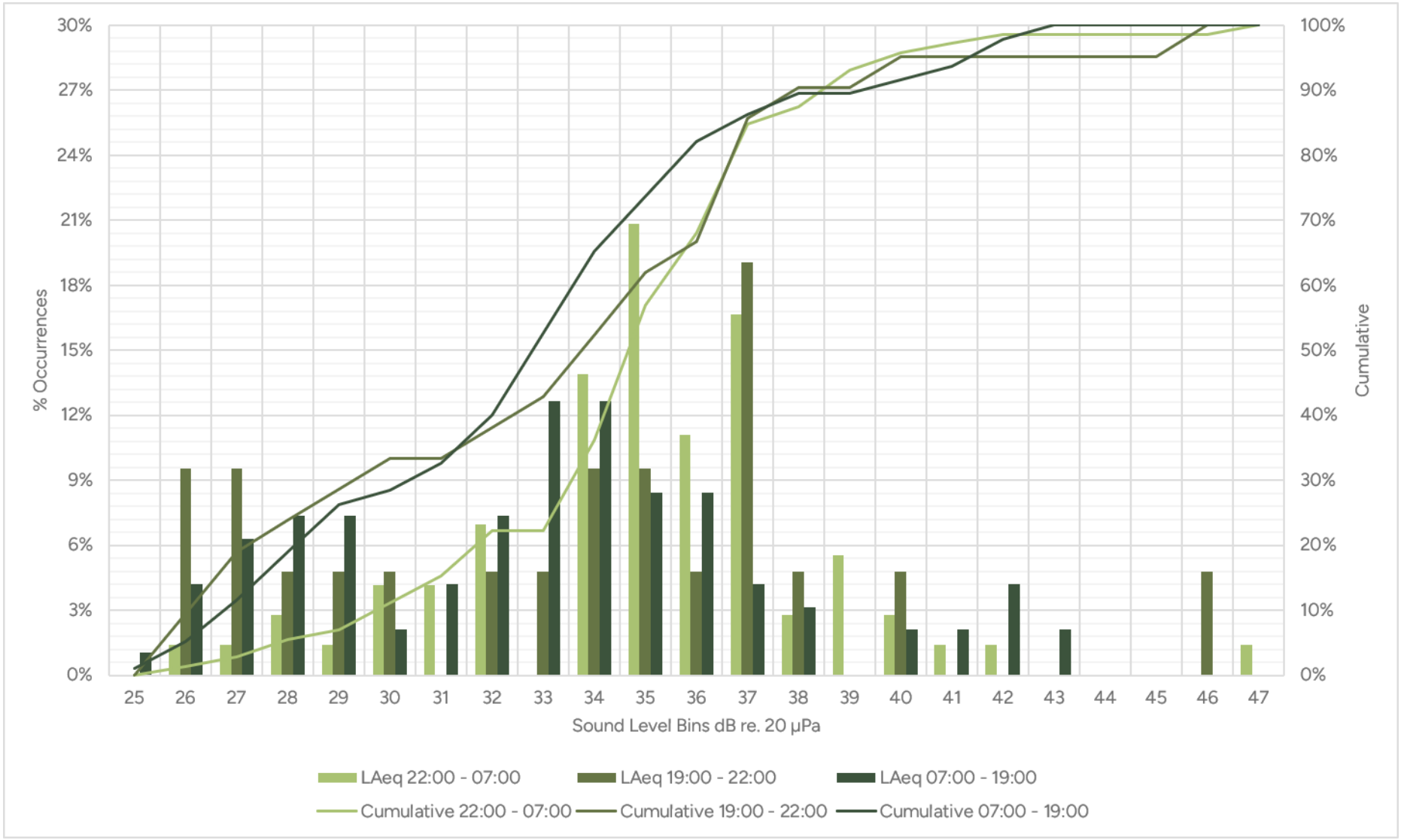
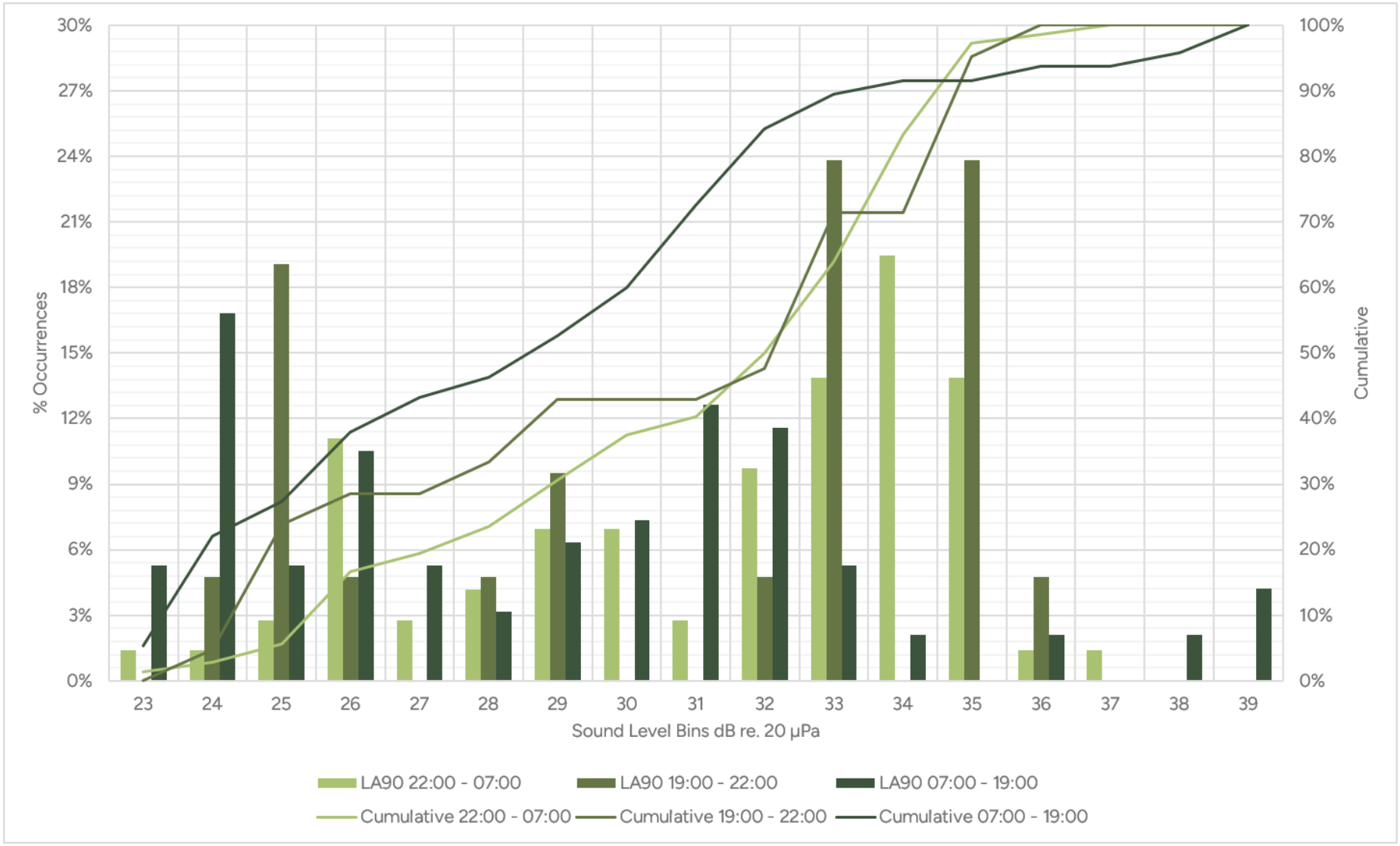


Figure D-5: Histogram of Weekend Background Sound Levels – NMP01, dB



D.2 NMP02 – Dartmoor Zoo

Figure D-6: Measured Sound Levels – NMP02, dB

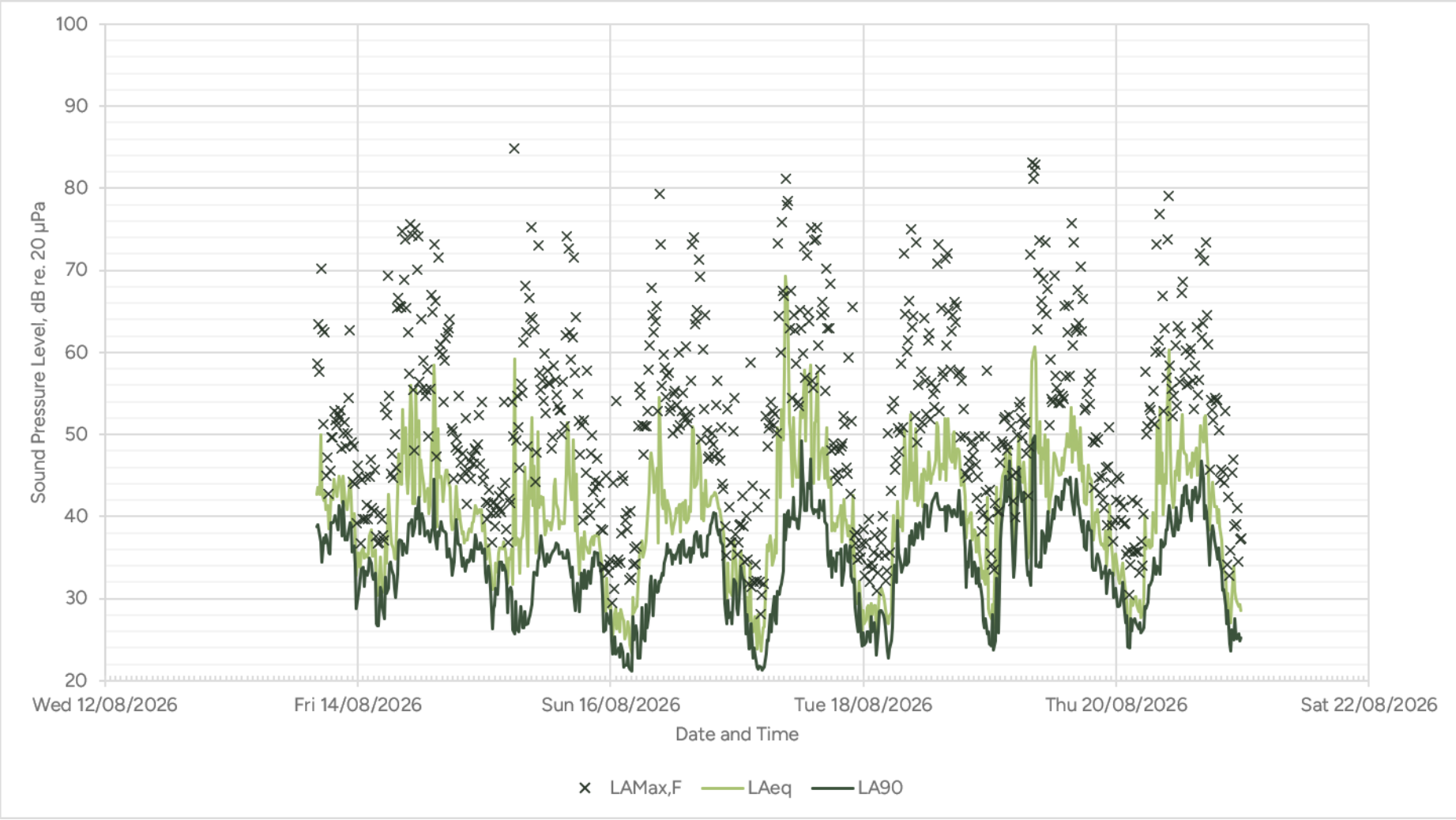


Figure D-7: Histogram of Weekday Ambient Sound Levels – NMP02, dB

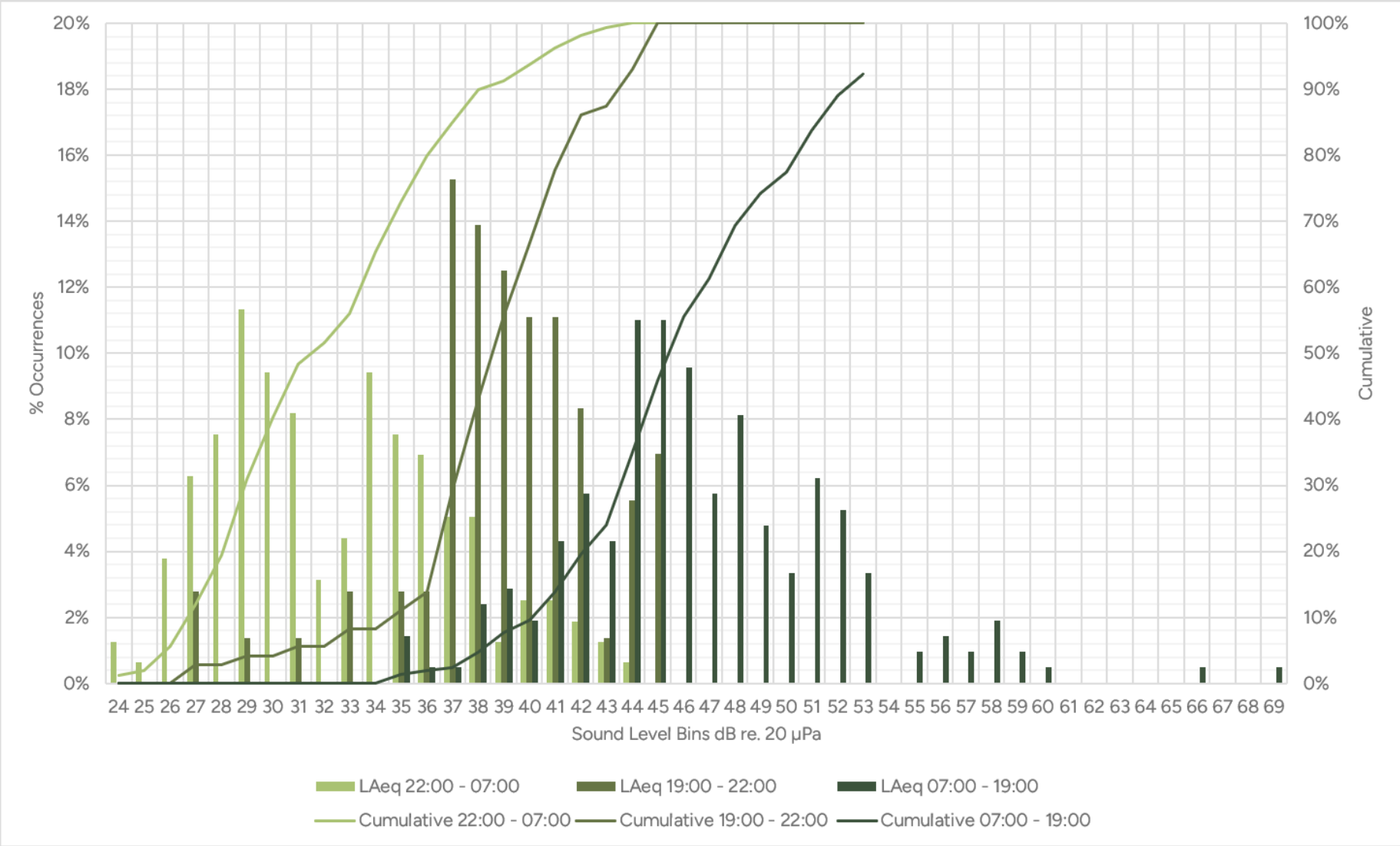


Figure D-8: Histogram of Weekday Background Sound Levels – NMP02, dB

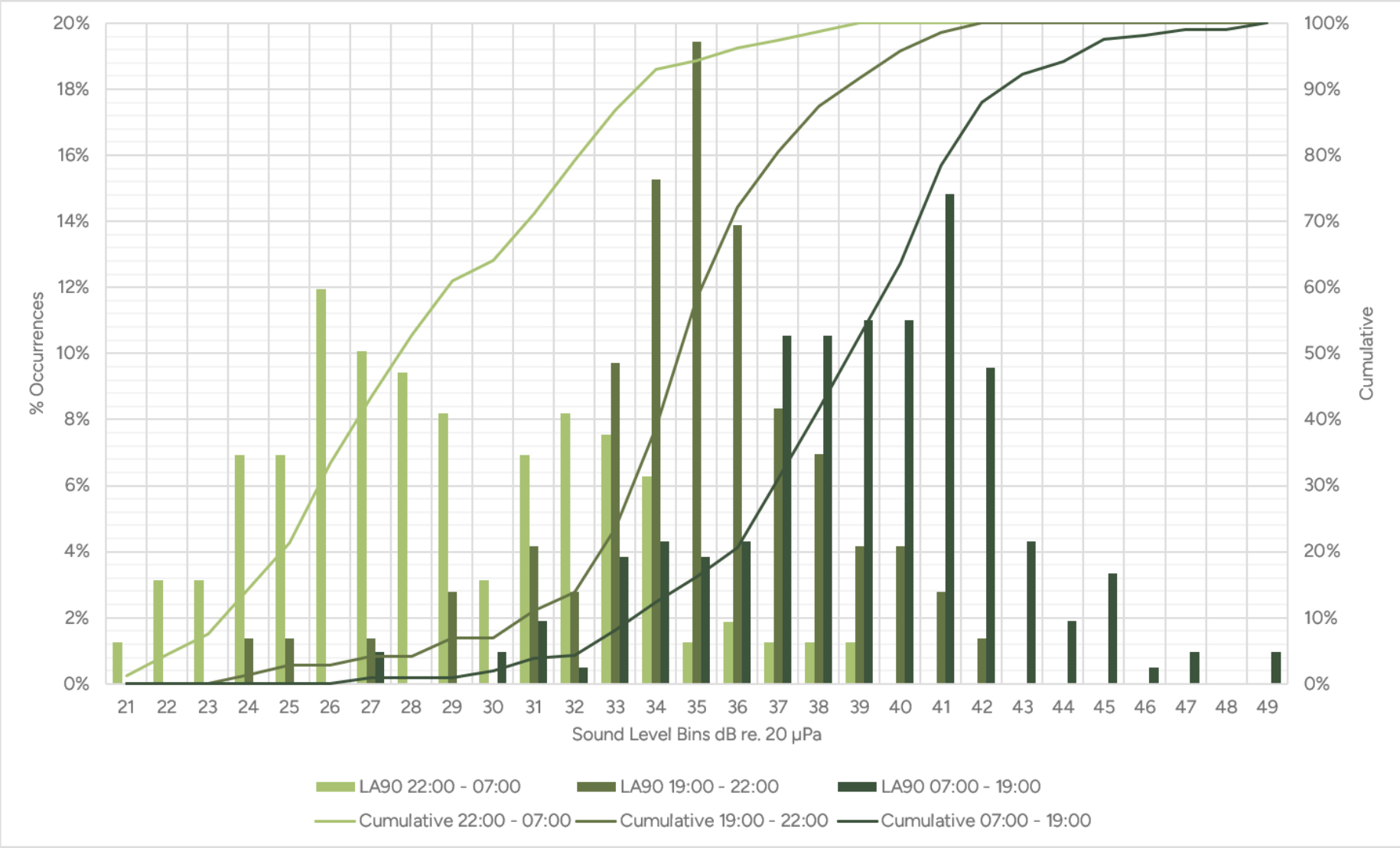


Figure D-9: Histogram of Weekend Ambient Sound Levels – NMP02, dB

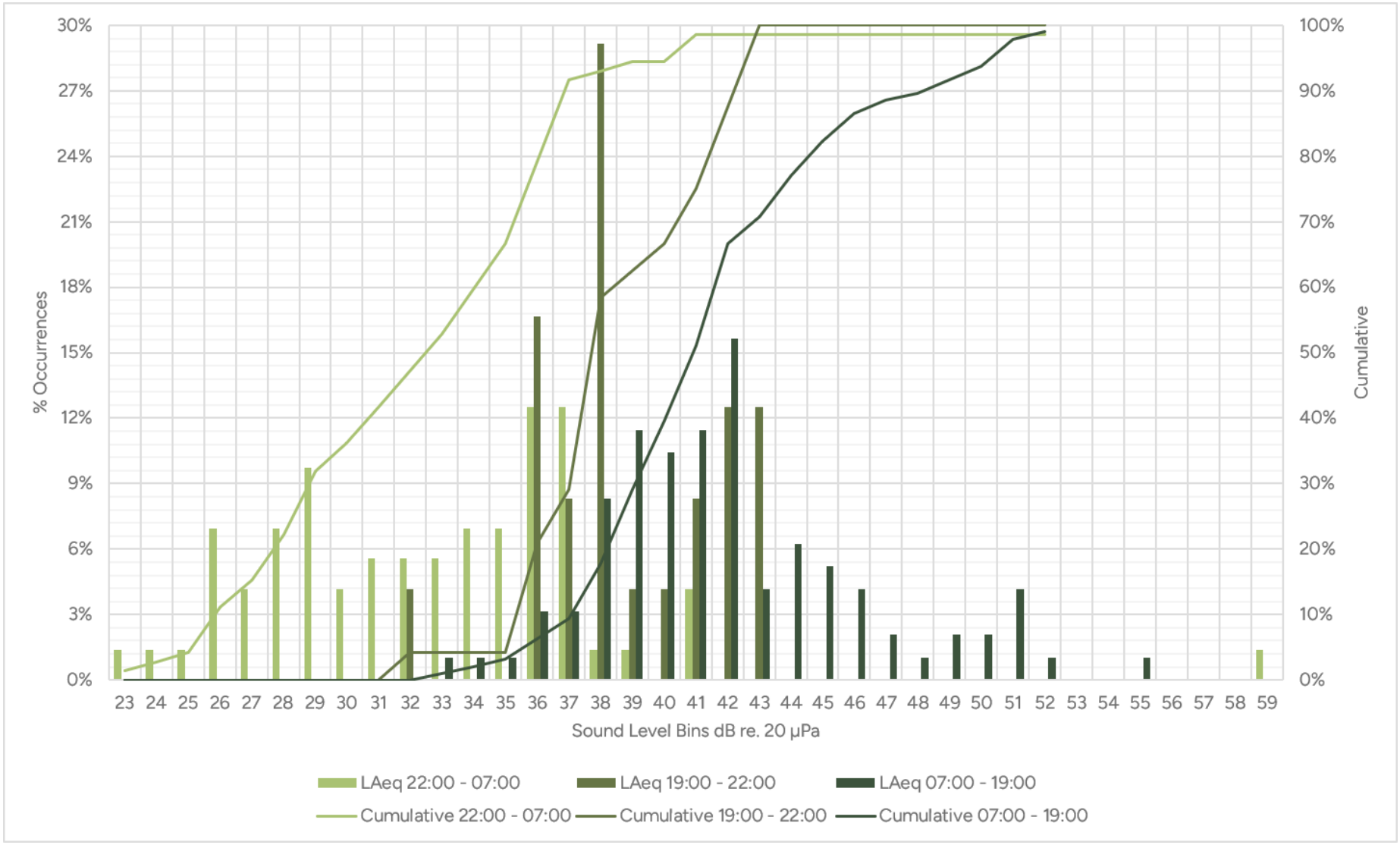
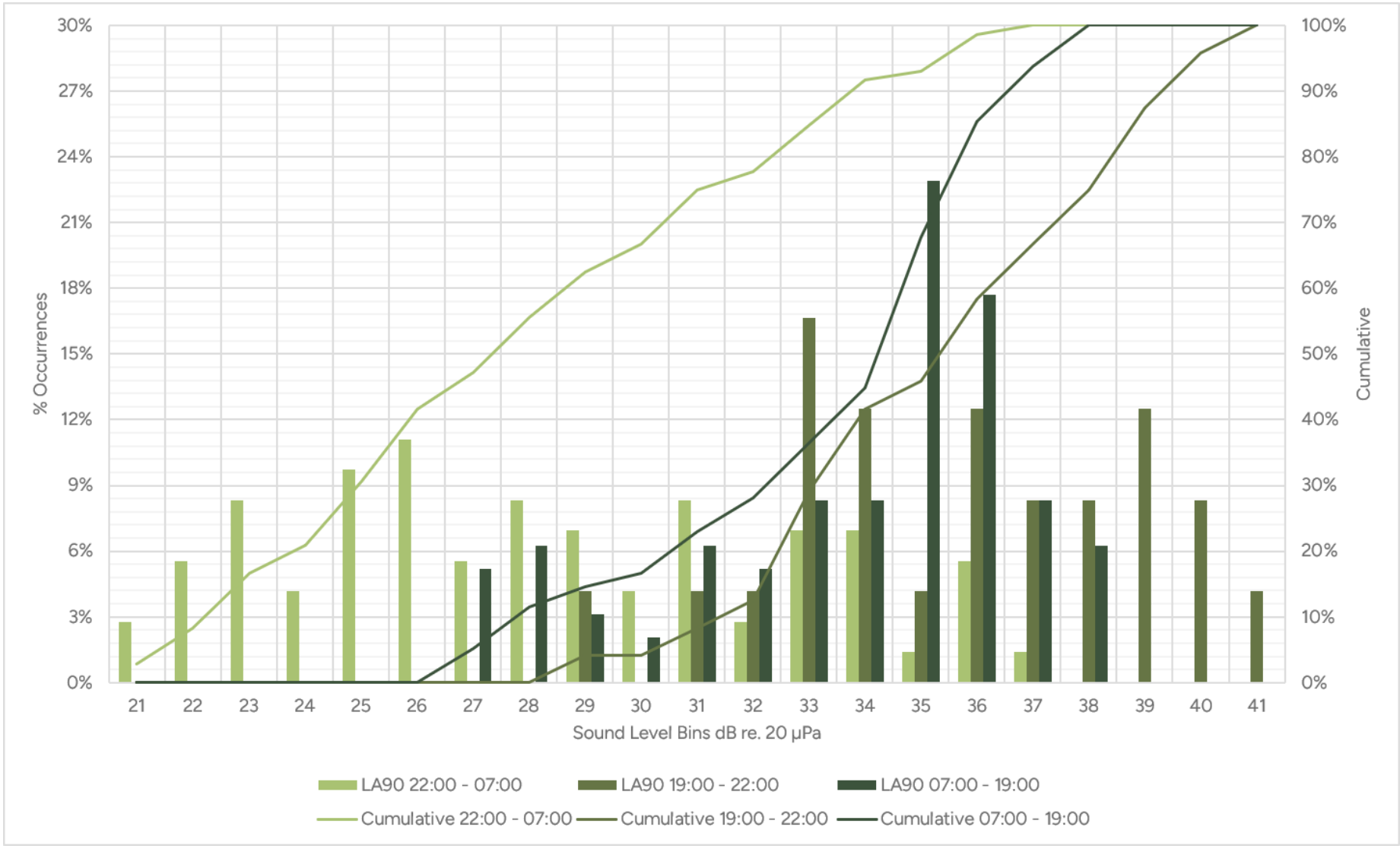


Figure D-10: Histogram of Weekend Background Sound Levels – NMP02, dB



D.3 NMP03 – Birchland Farm

Figure D-11: Measured Sound Levels – NMP03, dB

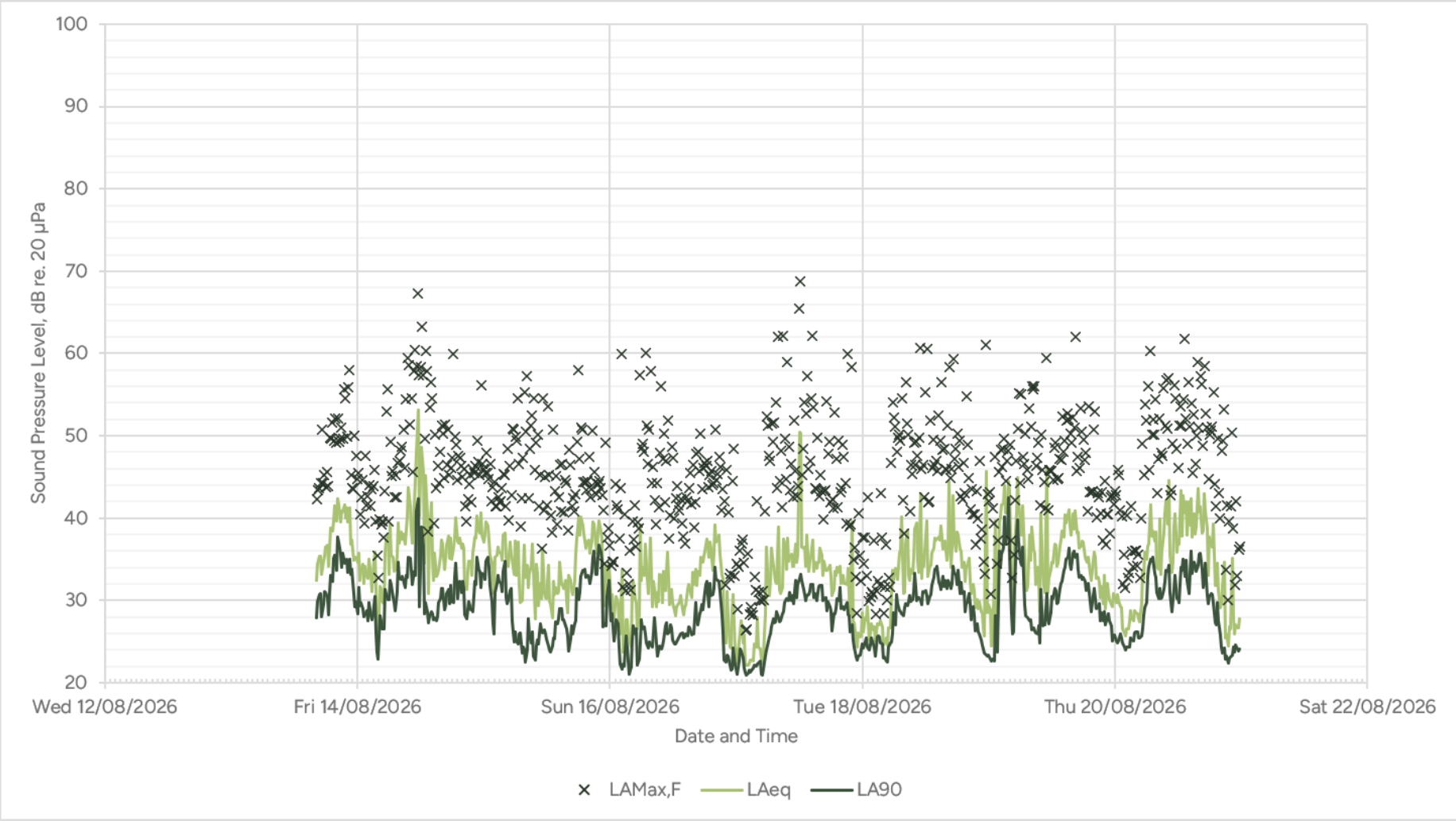


Figure D-12: Histogram of Weekday Ambient Sound Levels – NMP03, dB

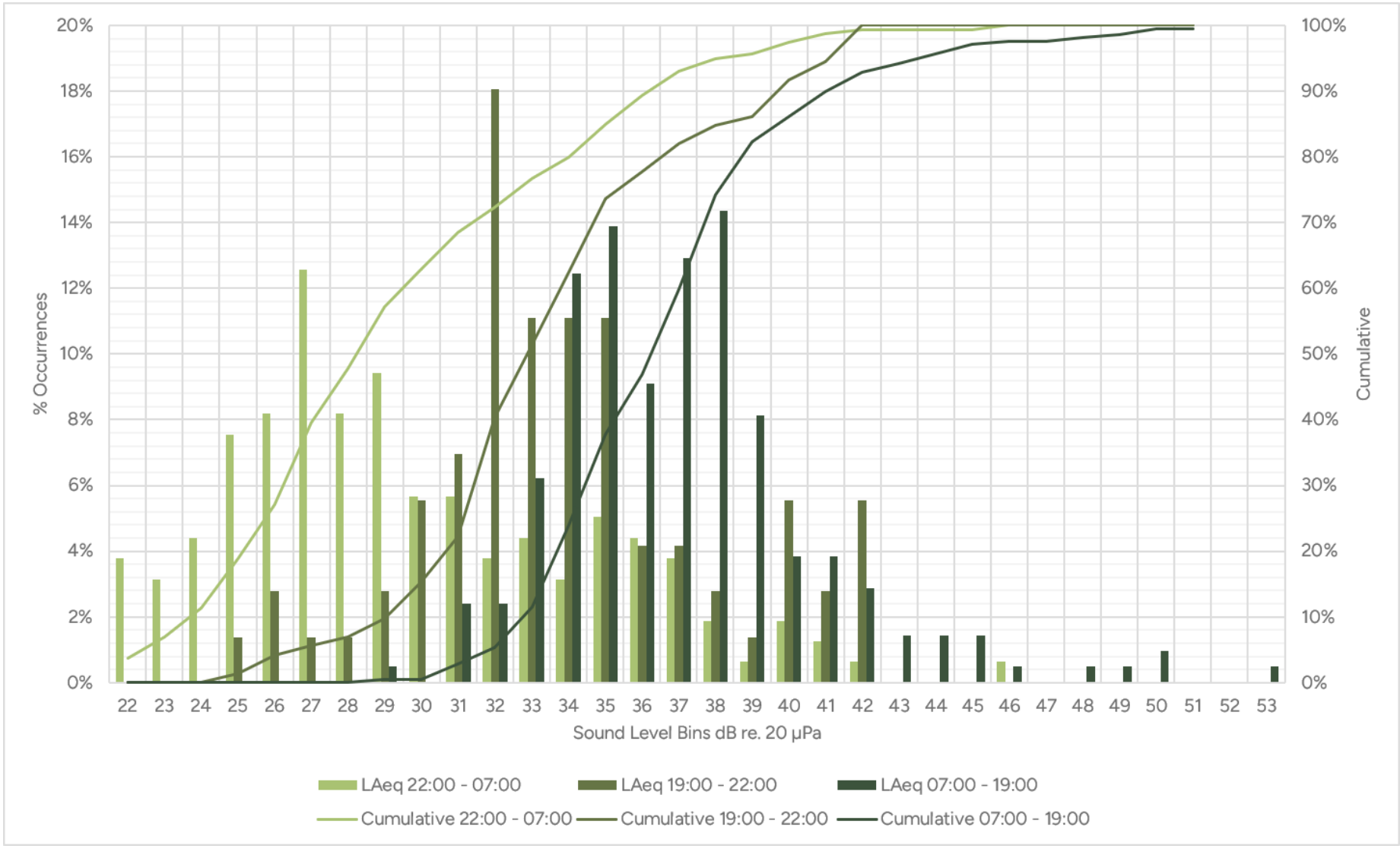


Figure D-13: Histogram of Weekday Background Sound Levels – NMP03, dB

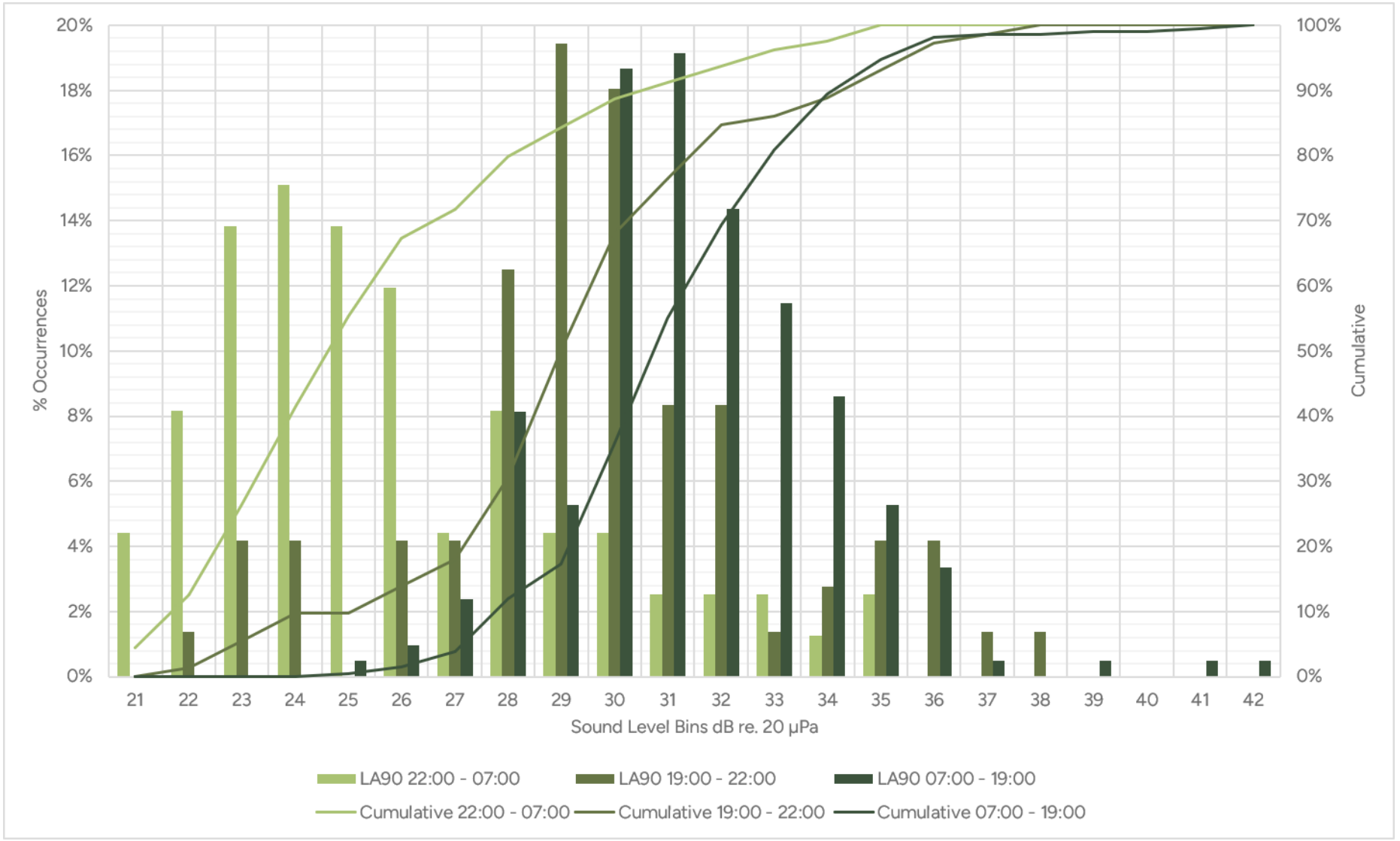


Figure D-14: Histogram of Weekend Ambient Sound Levels – NMP03, dB

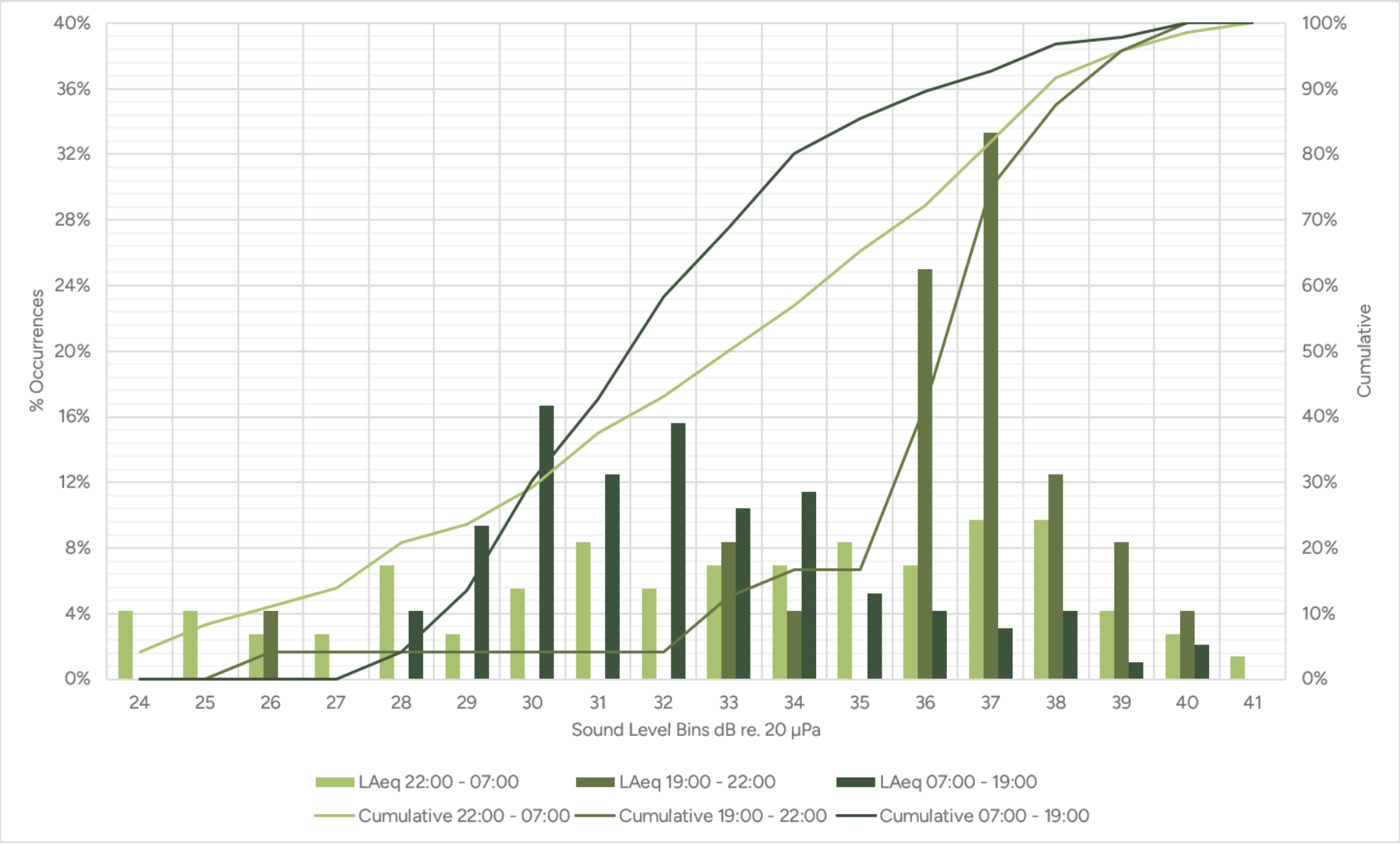
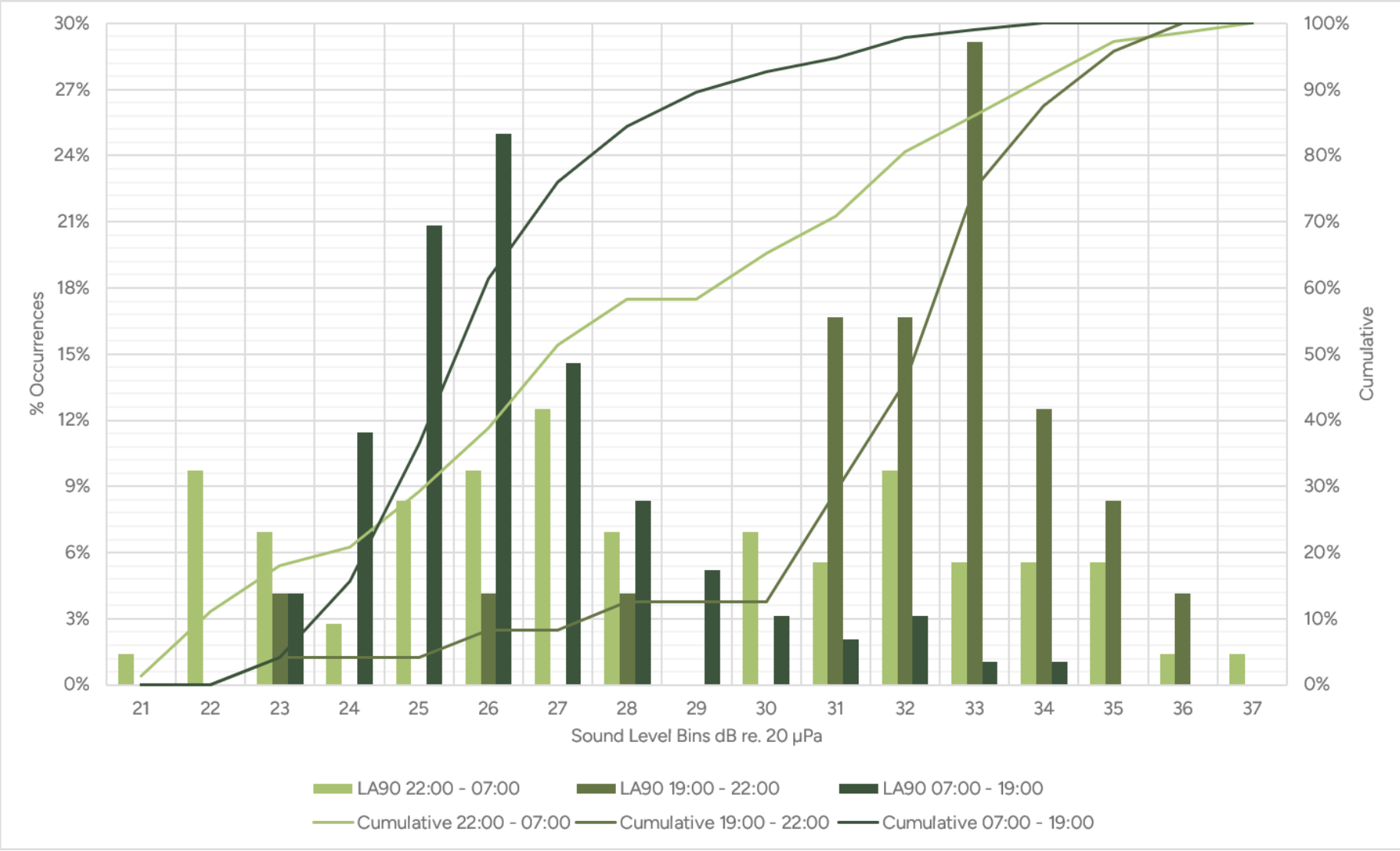


Figure D-15: Histogram of Weekend Background Sound Levels – NMP03, dB



D.4 NMP04 – Galva House

Figure D-16: Measured Sound Levels – NMP04, dB

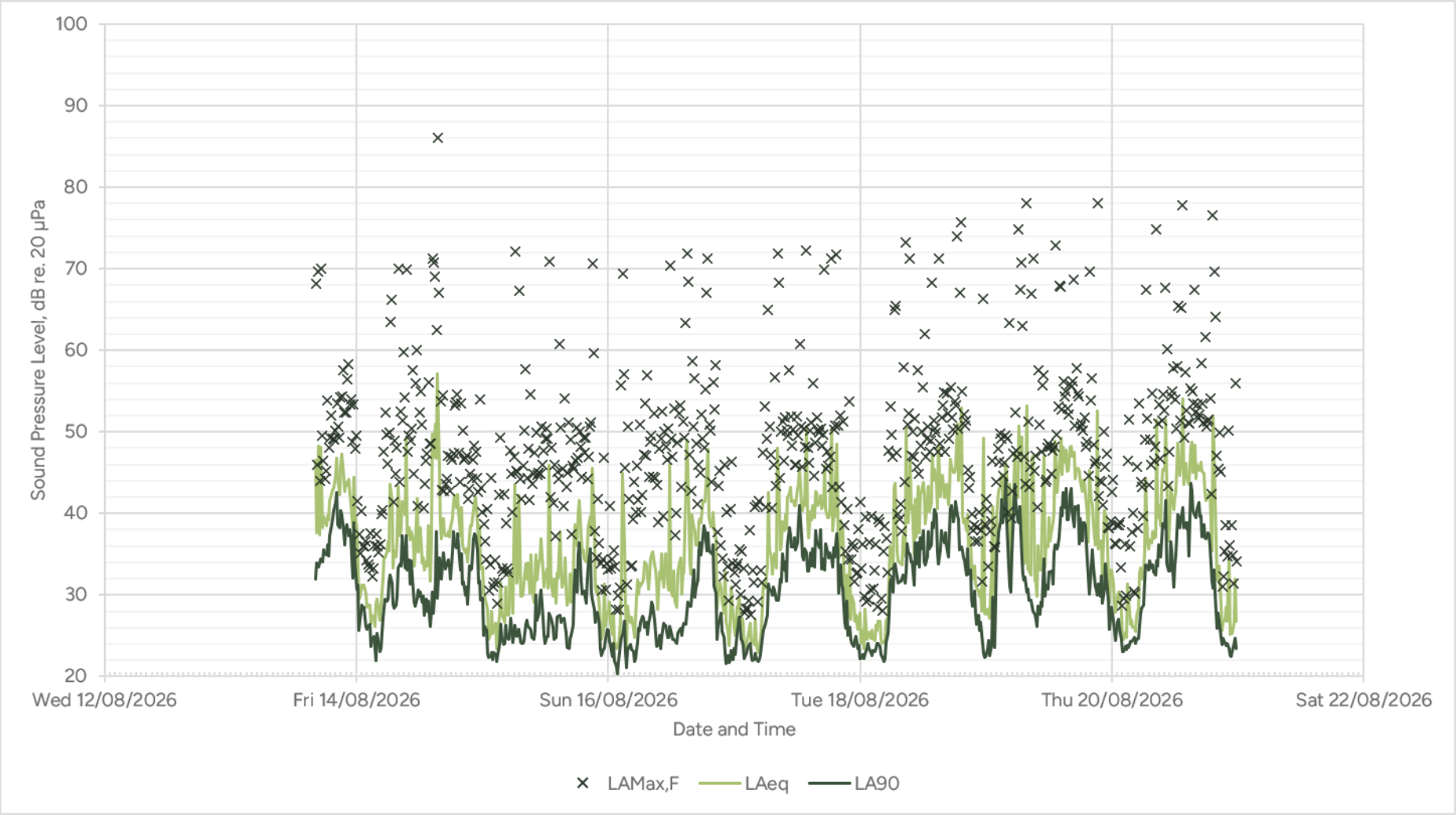


Figure D-17: Histogram of Weekday Ambient Sound Levels – NMP04, dB

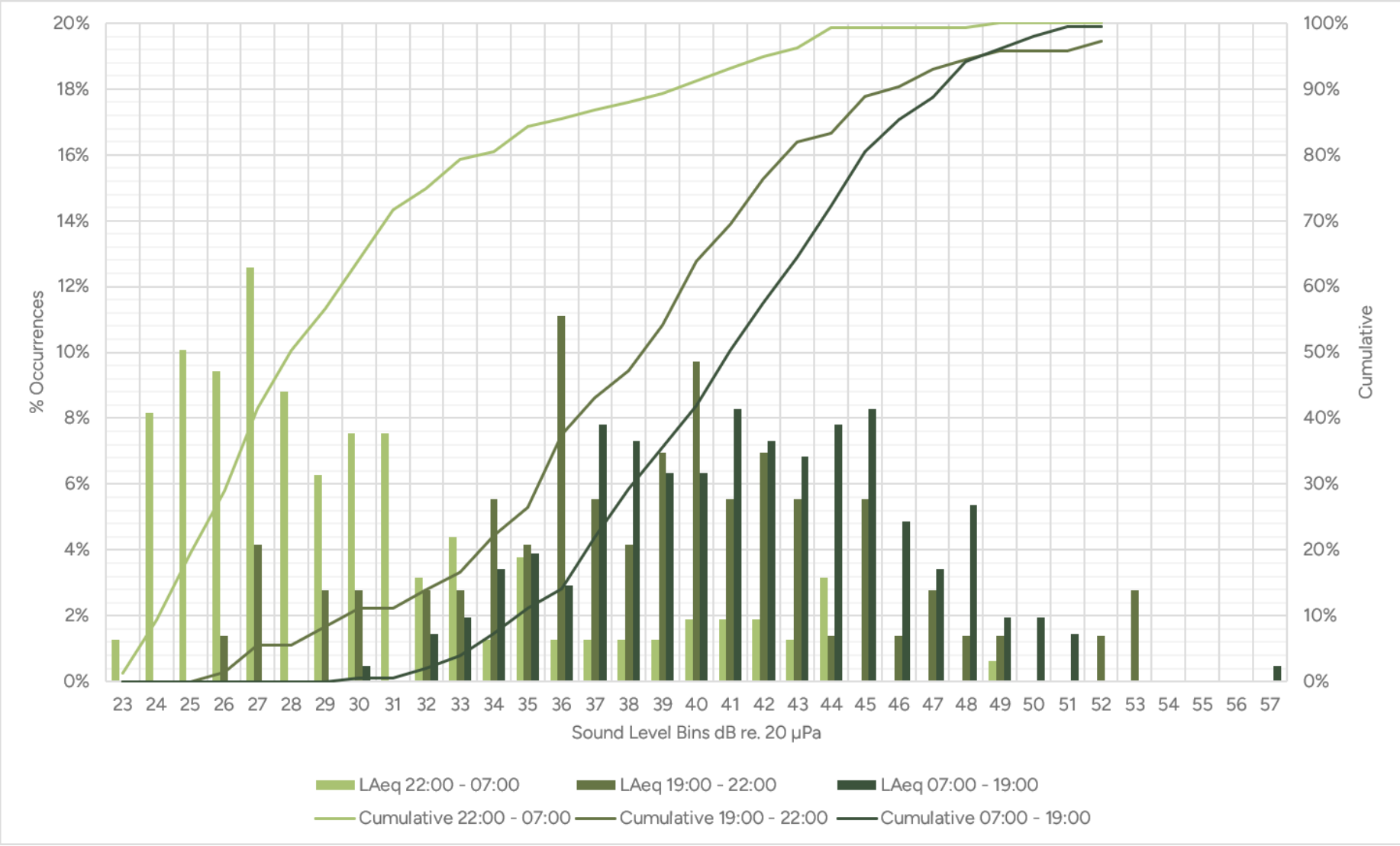


Figure D-18: Histogram of Weekday Background Sound Levels – NMP04, dB

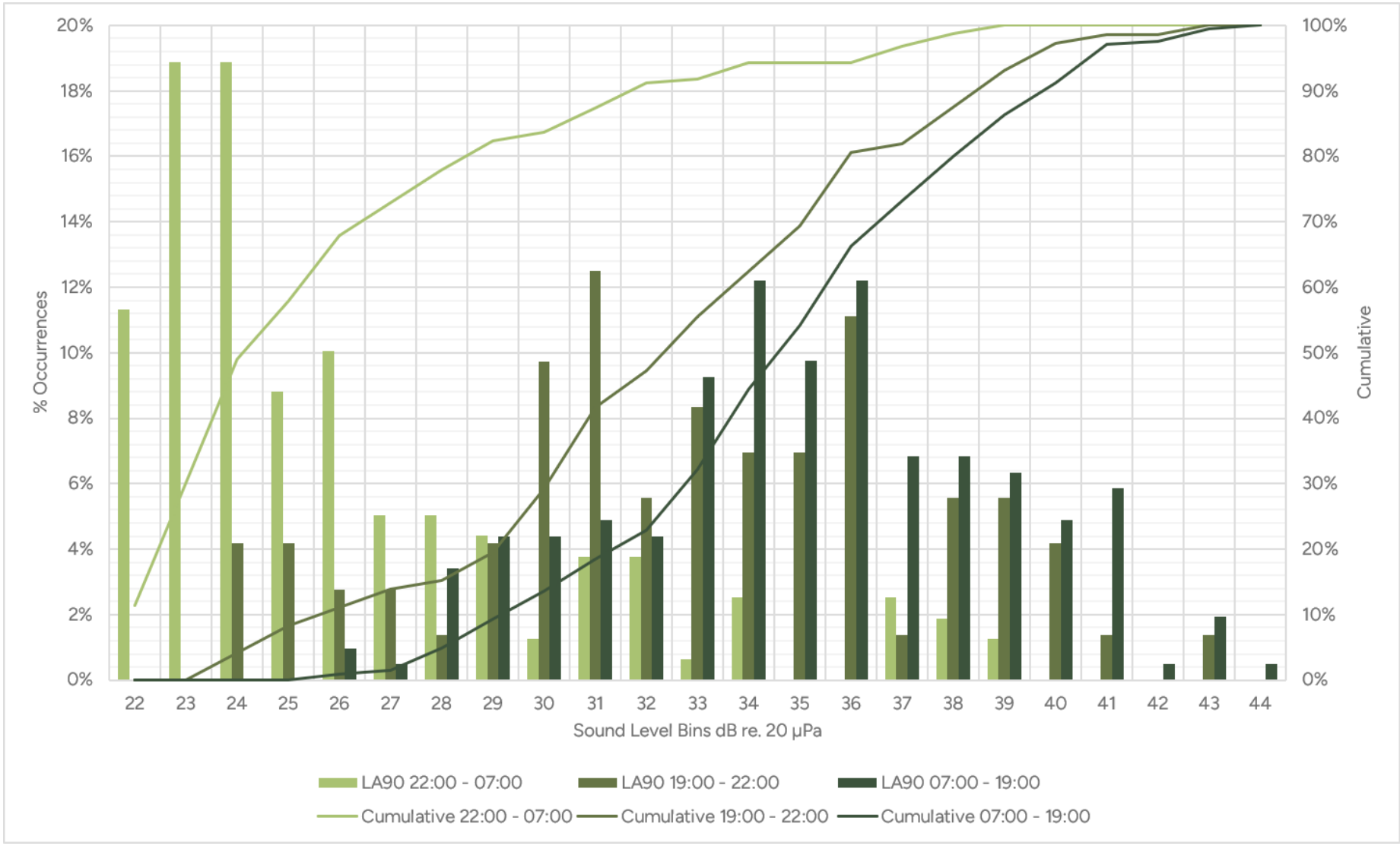


Figure D-19: Histogram of Weekend Ambient Sound Levels – NMP04, dB

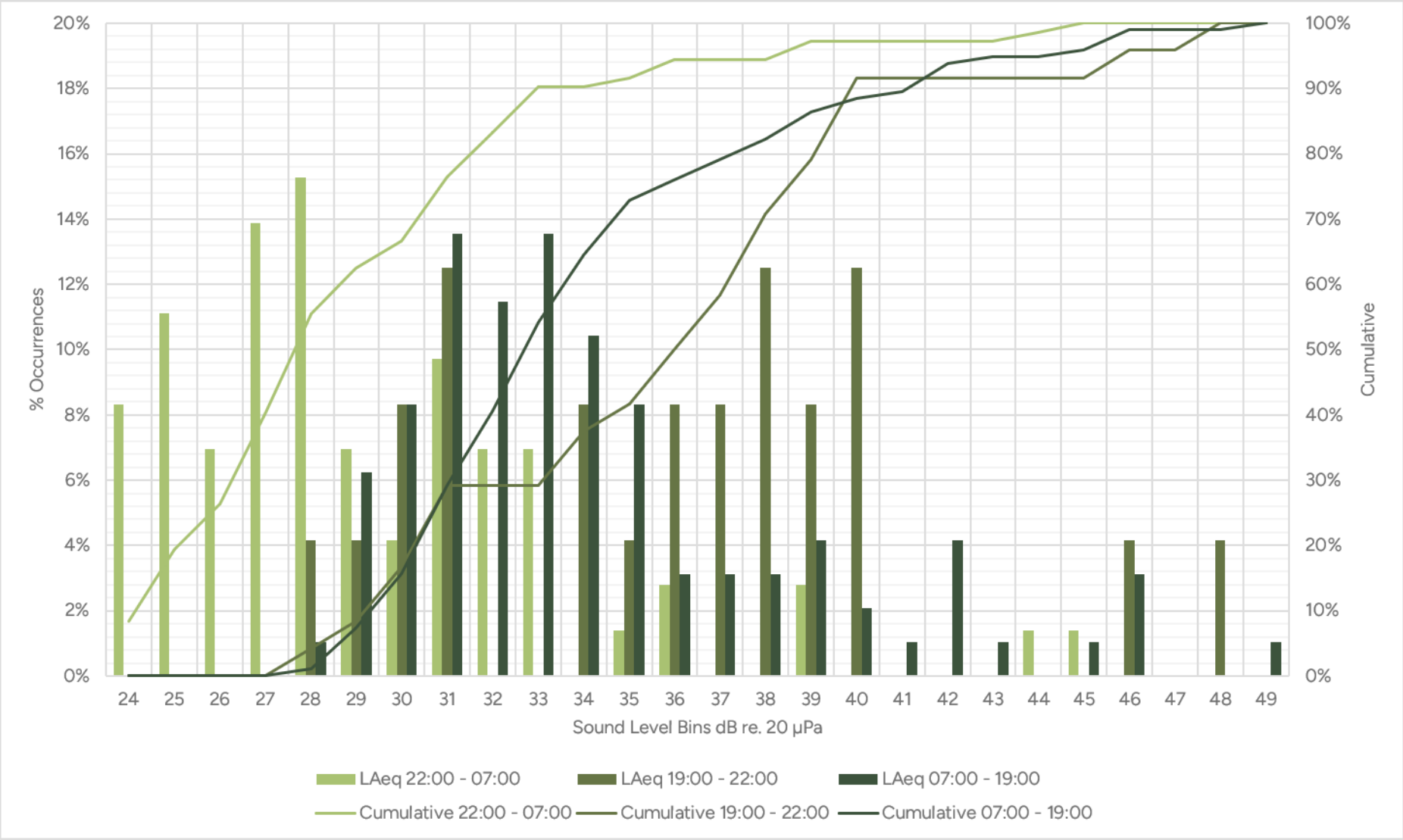
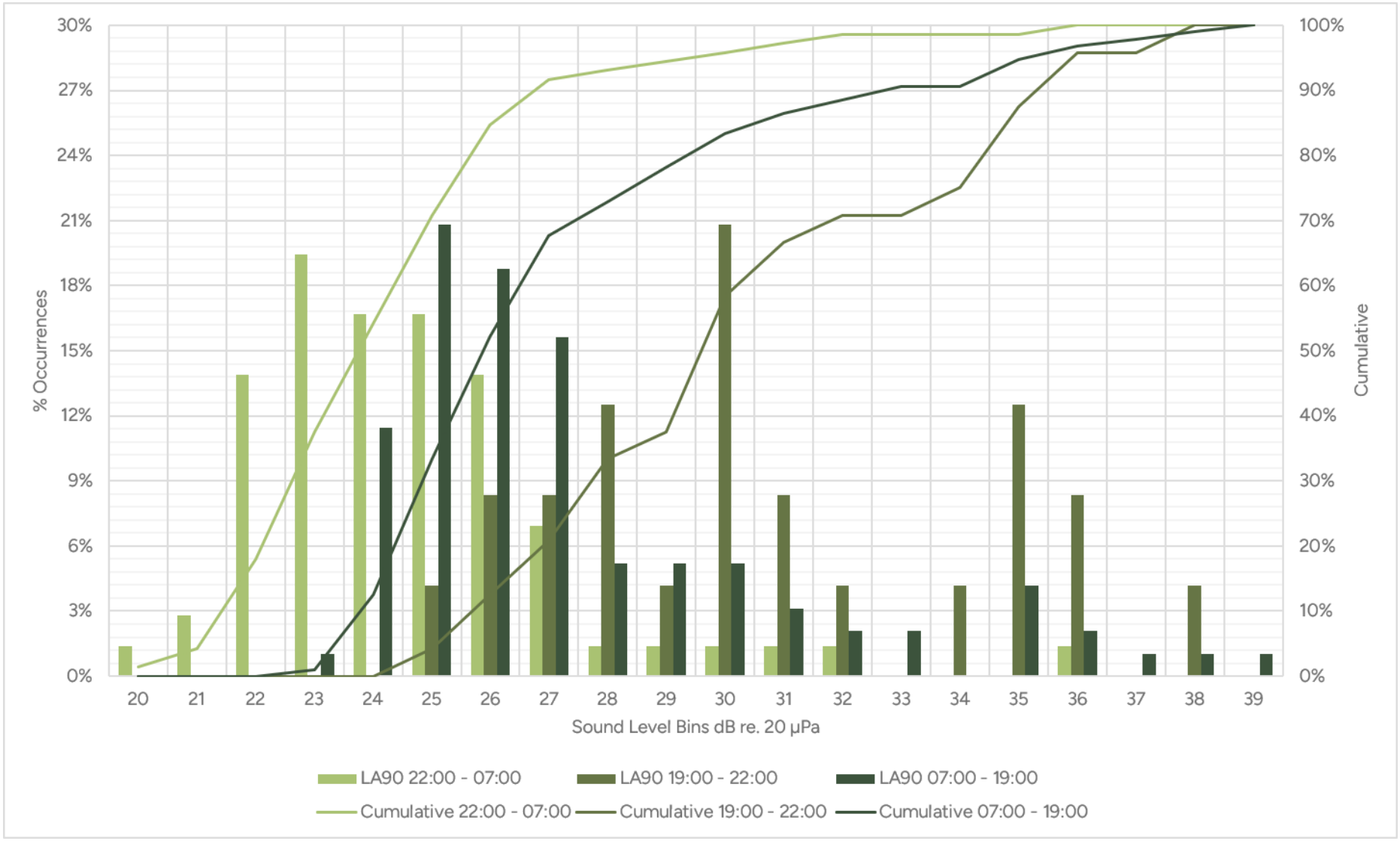


Figure D-20: Histogram of Weekend Background Sound Levels – NMP04, dB



D.5 NMP05 – Windwhistle Farm

Figure D-21: Measured Sound Levels – NMP05, dB

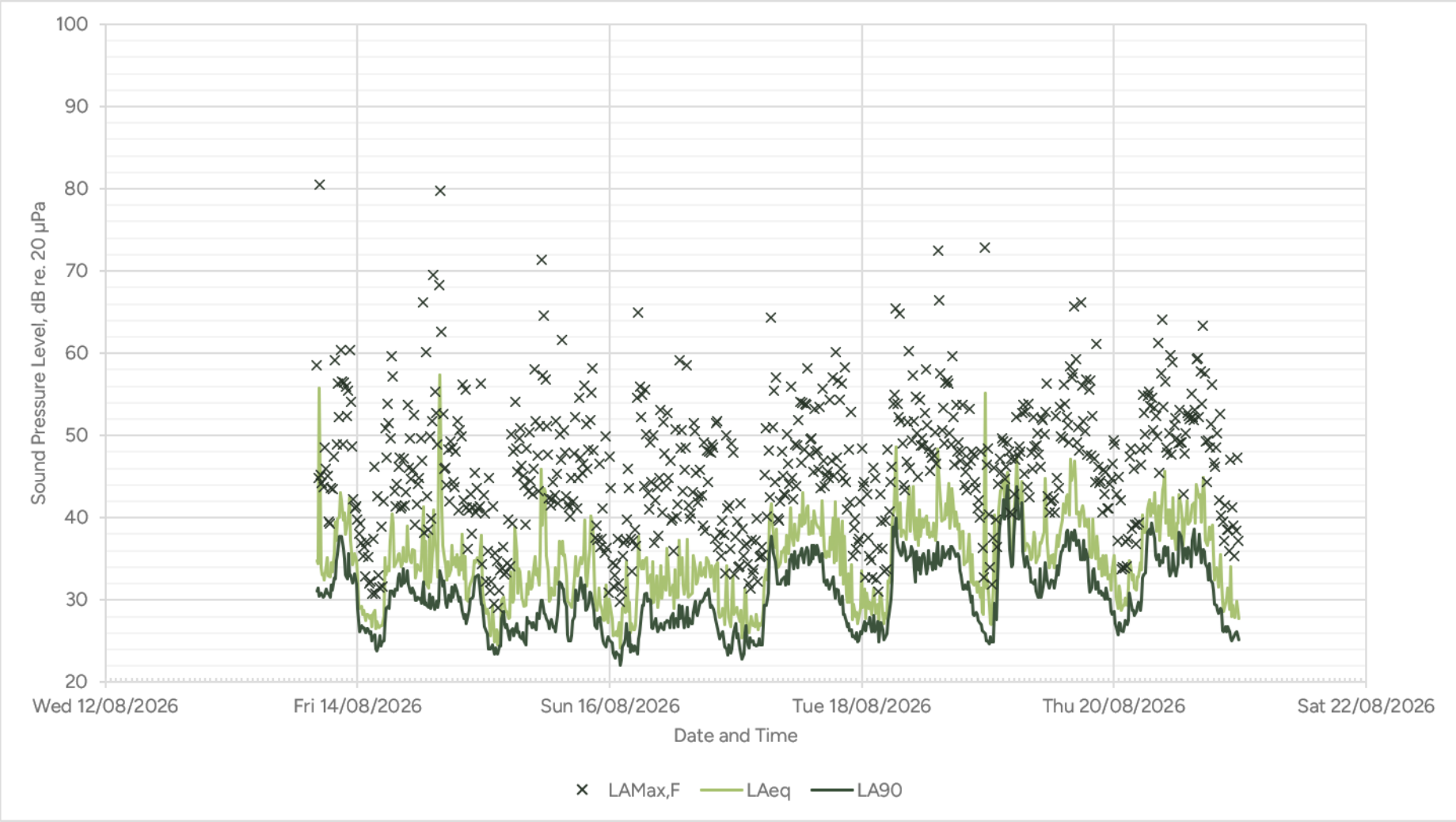


Figure D-22: Histogram of Weekday Ambient Sound Levels – NMP05, dB

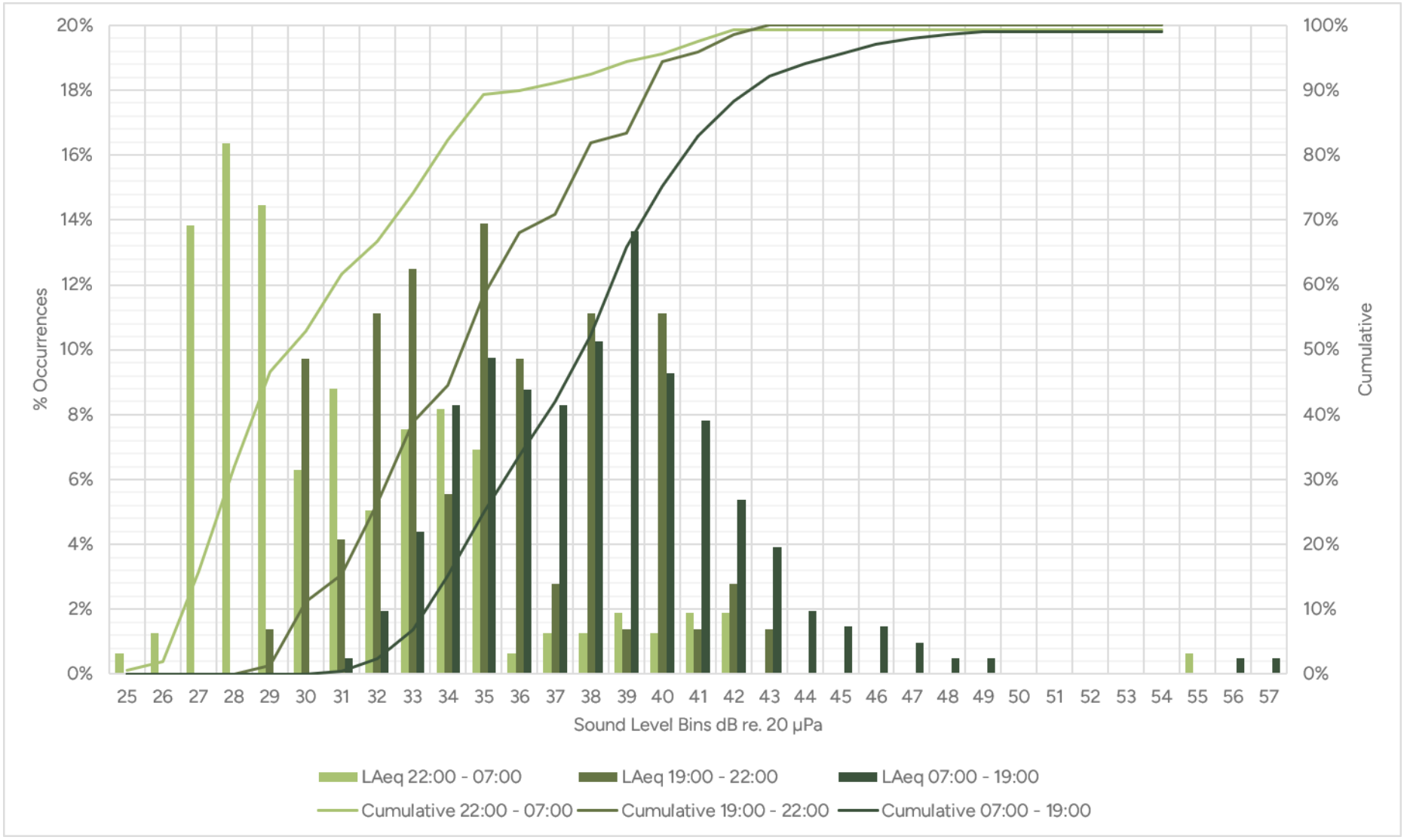


Figure D-23: Histogram of Weekday Background Sound Levels – NMP05, dB

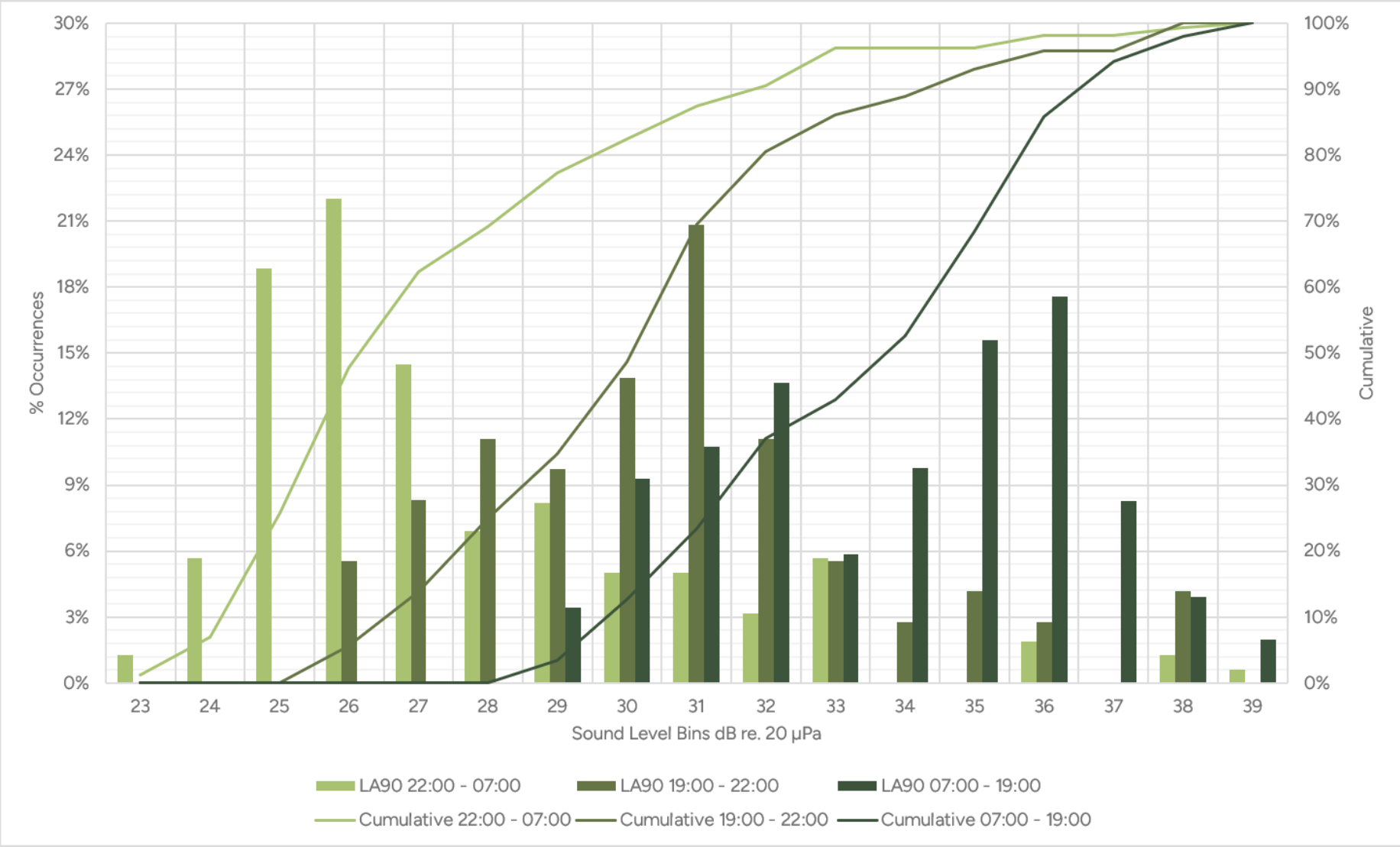


Figure D-24: Histogram of Weekend Ambient Sound Levels – NMP05, dB

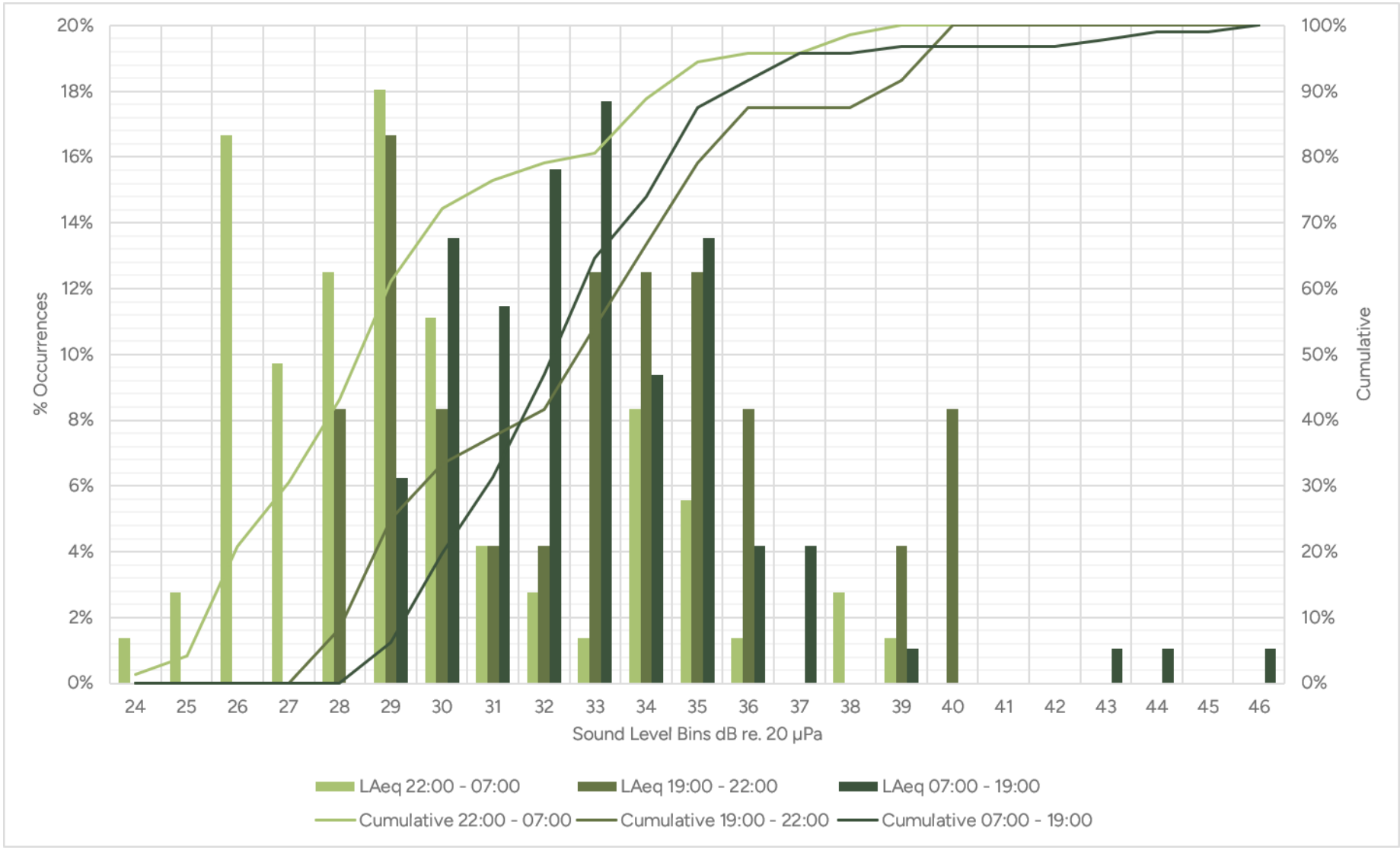
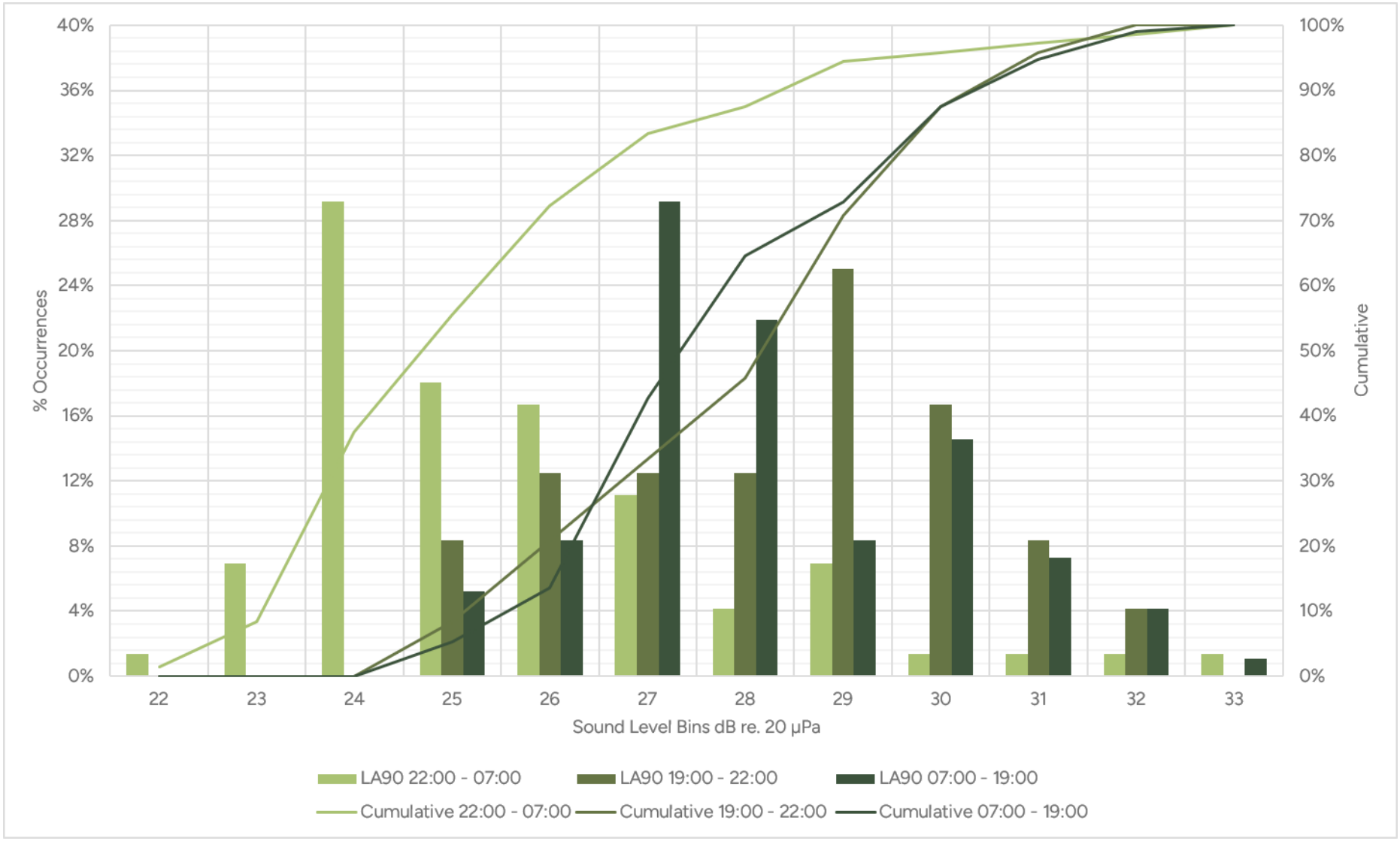


Figure D-25: Histogram of Weekend Background Sound Levels – NMP05, dB



D.6 NMP06 – Newnham Park

Figure D-26: Measured Sound Levels – NMP06, dB

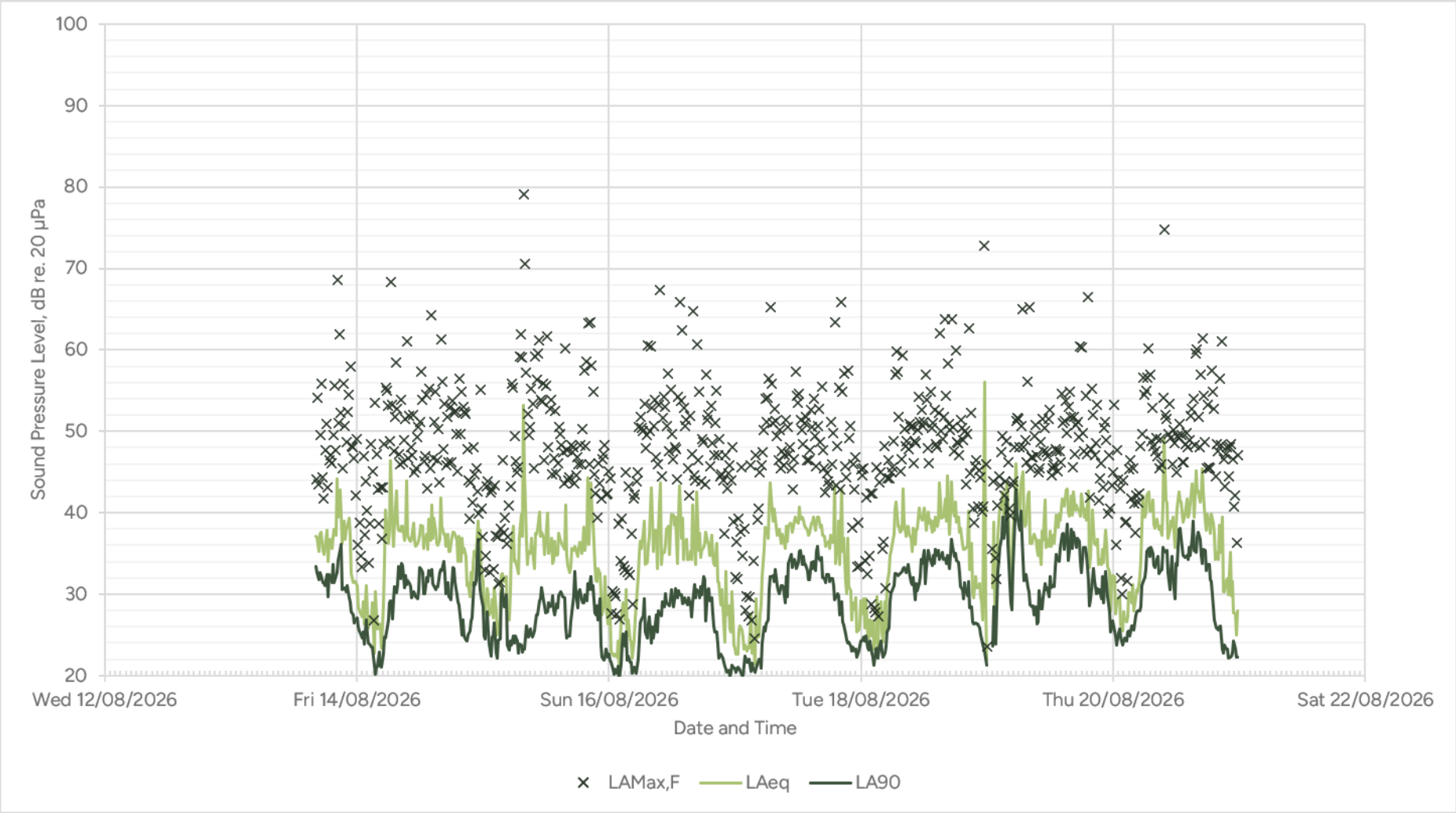


Figure D-27: Histogram of Weekday Ambient Sound Levels – NMP06, dB

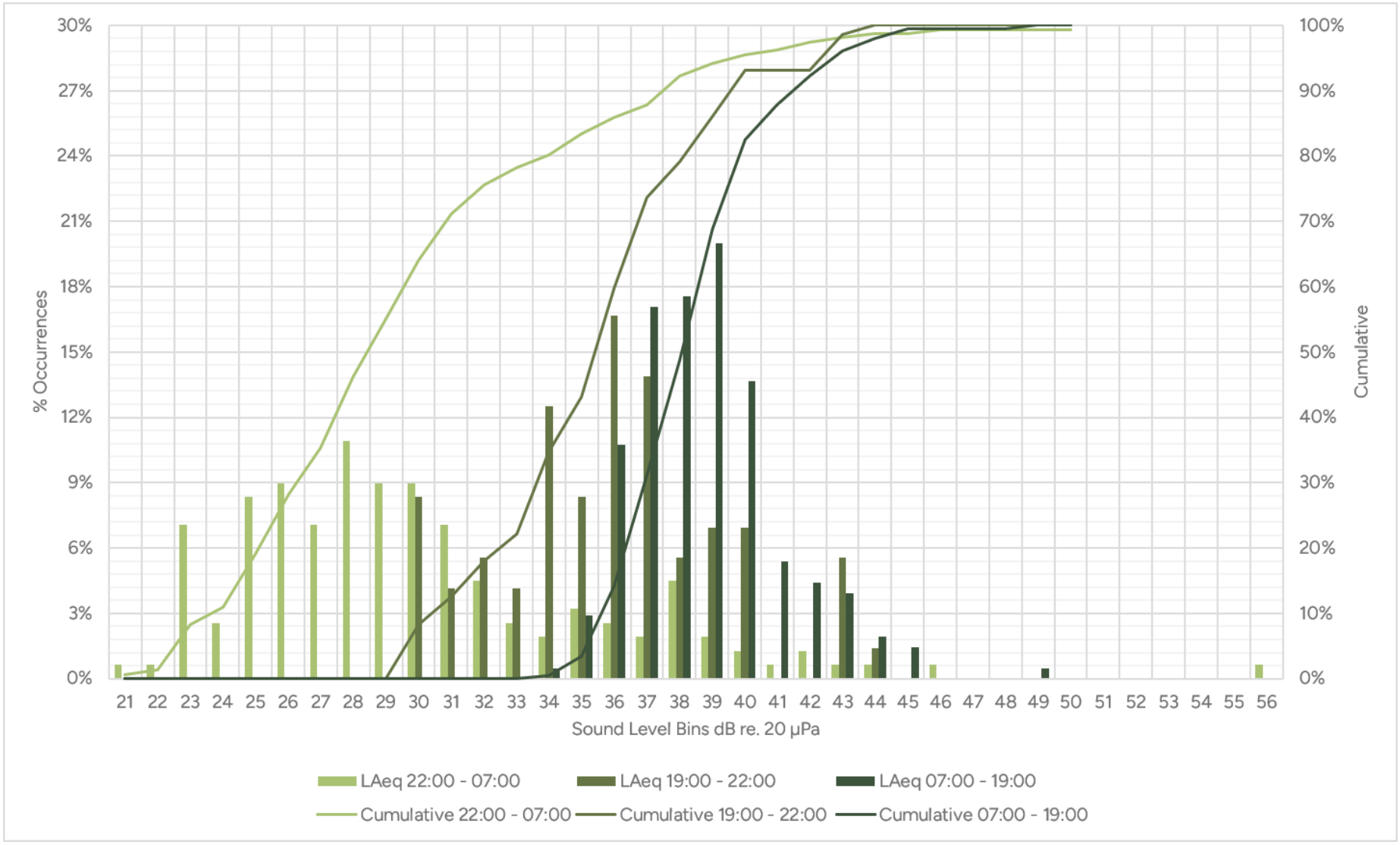


Figure D-28: Histogram of Weekday Background Sound Levels – NMP06, dB

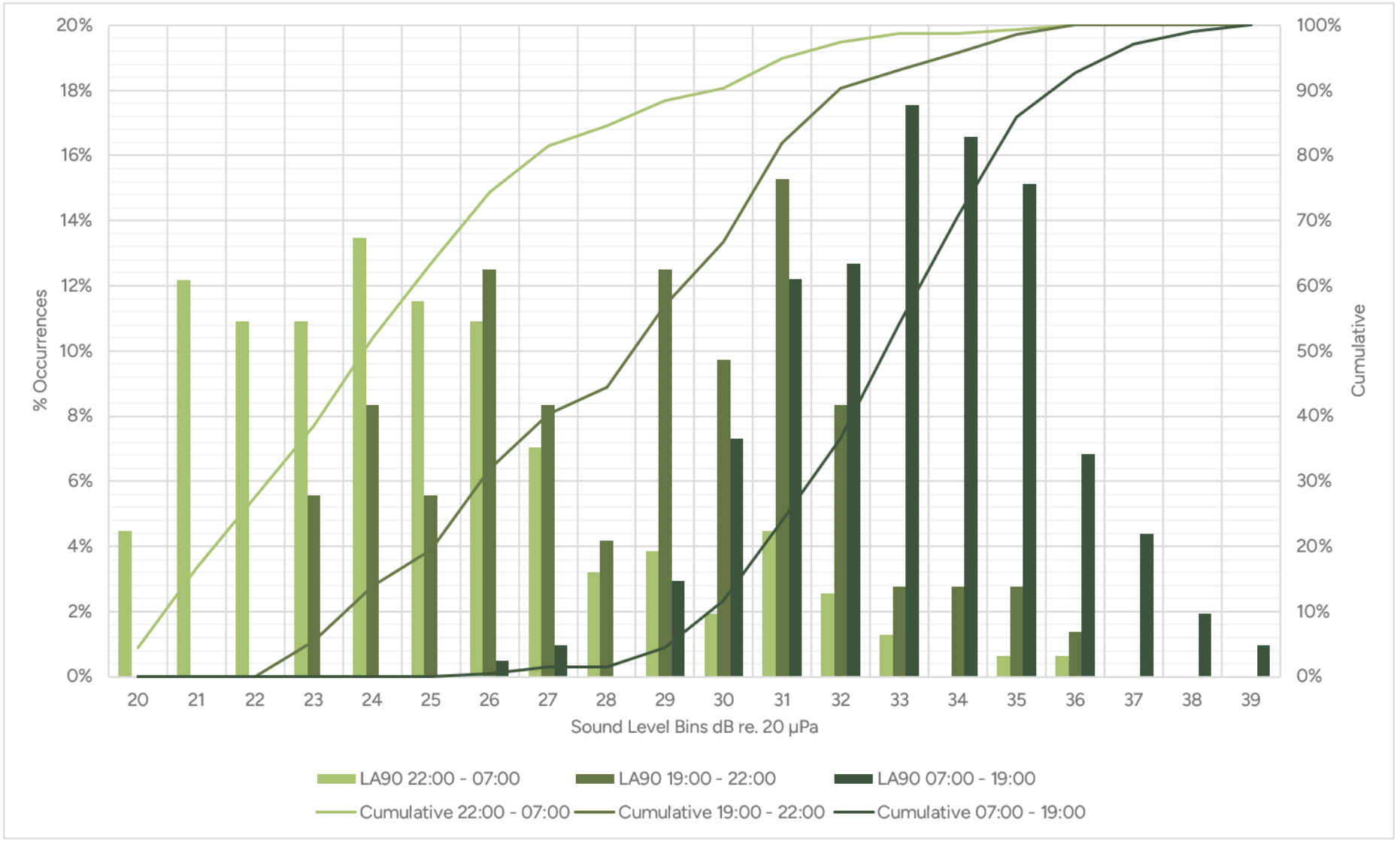


Figure D-29: Histogram of Weekend Ambient Sound Levels – NMP06, dB

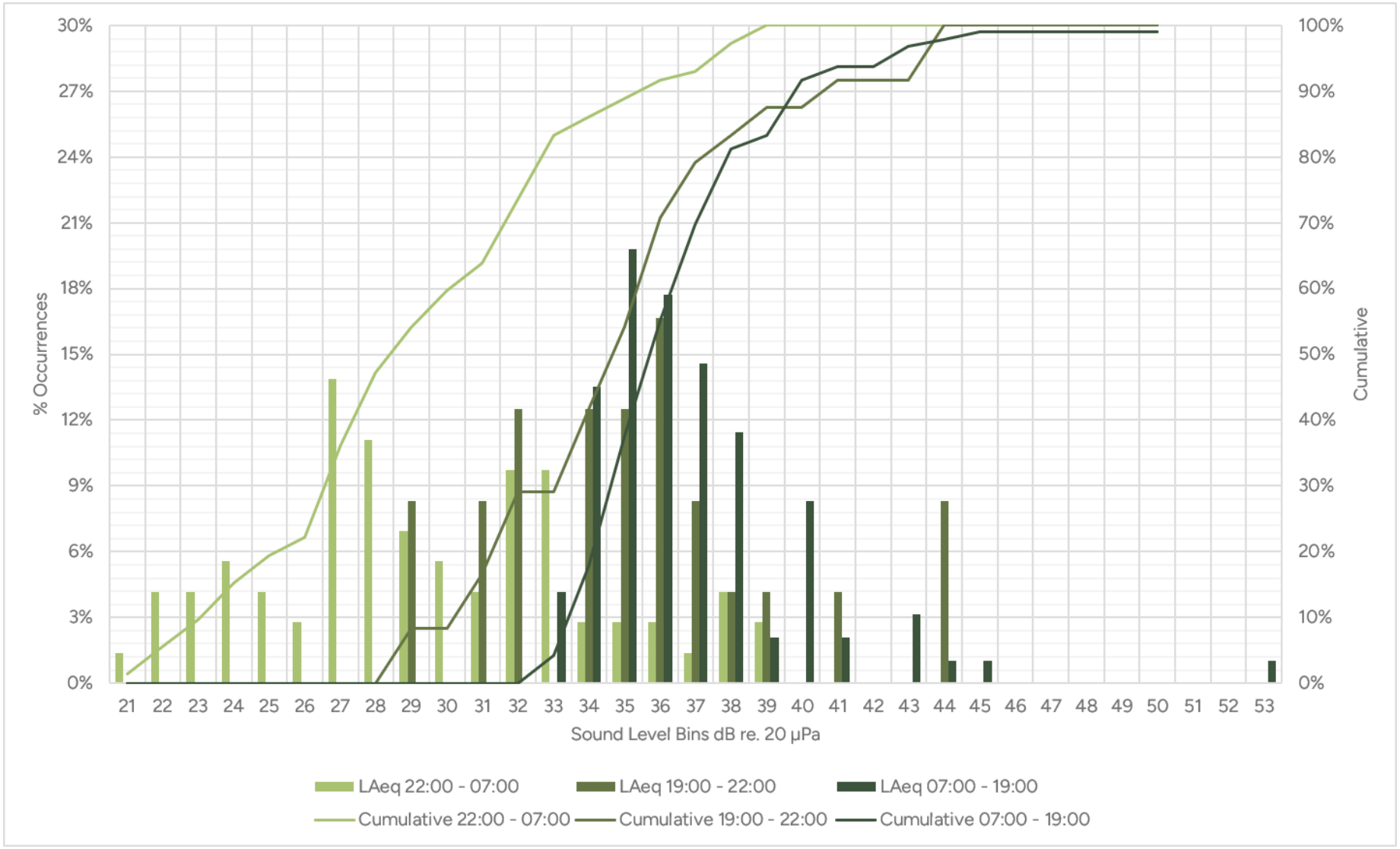
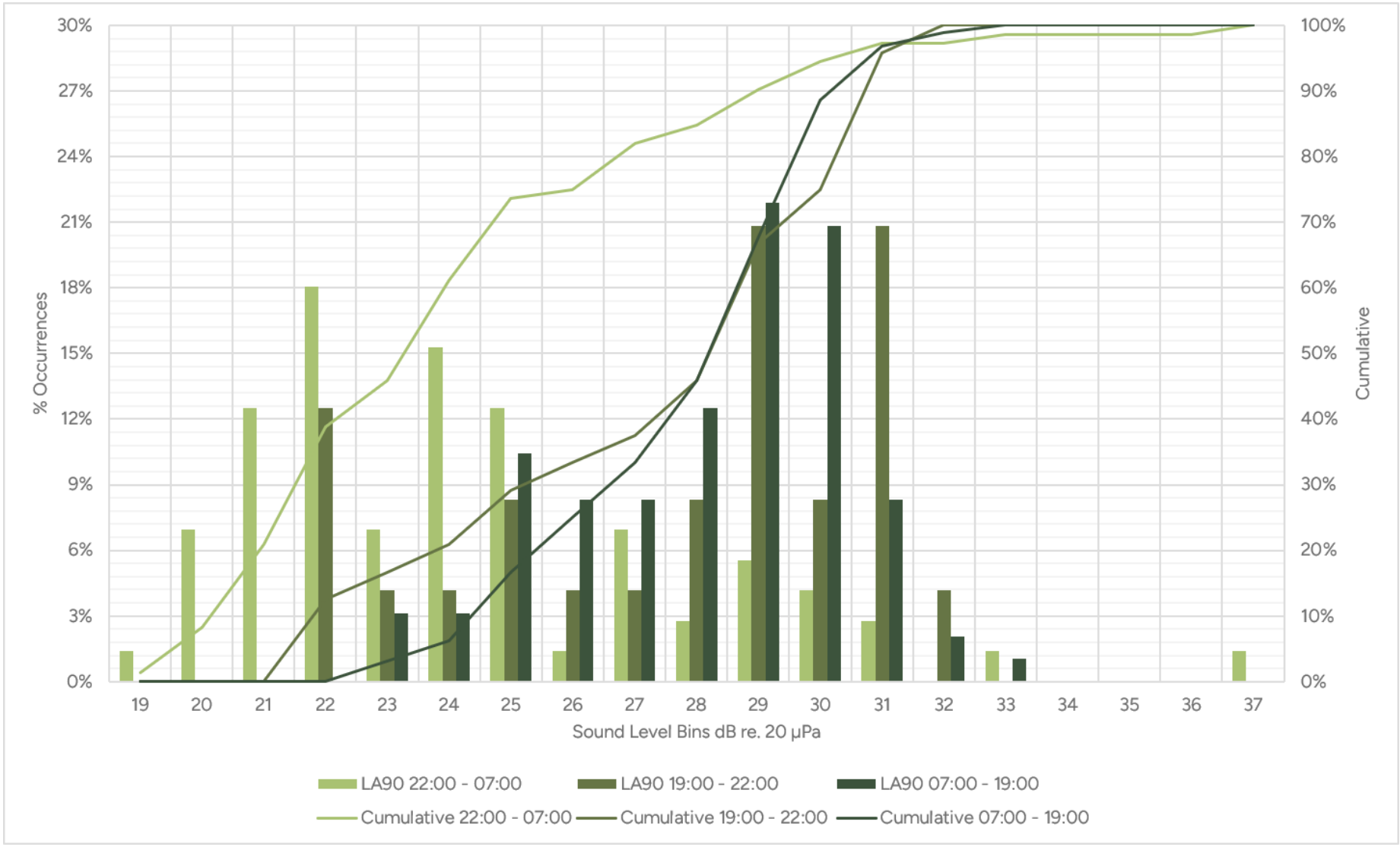


Figure D-30: Histogram of Weekend Background Sound Levels – NMP06, dB



D.7 NMP07 – Boringdon Hall

Figure D-31: Measured Sound Levels – NMP07, dB

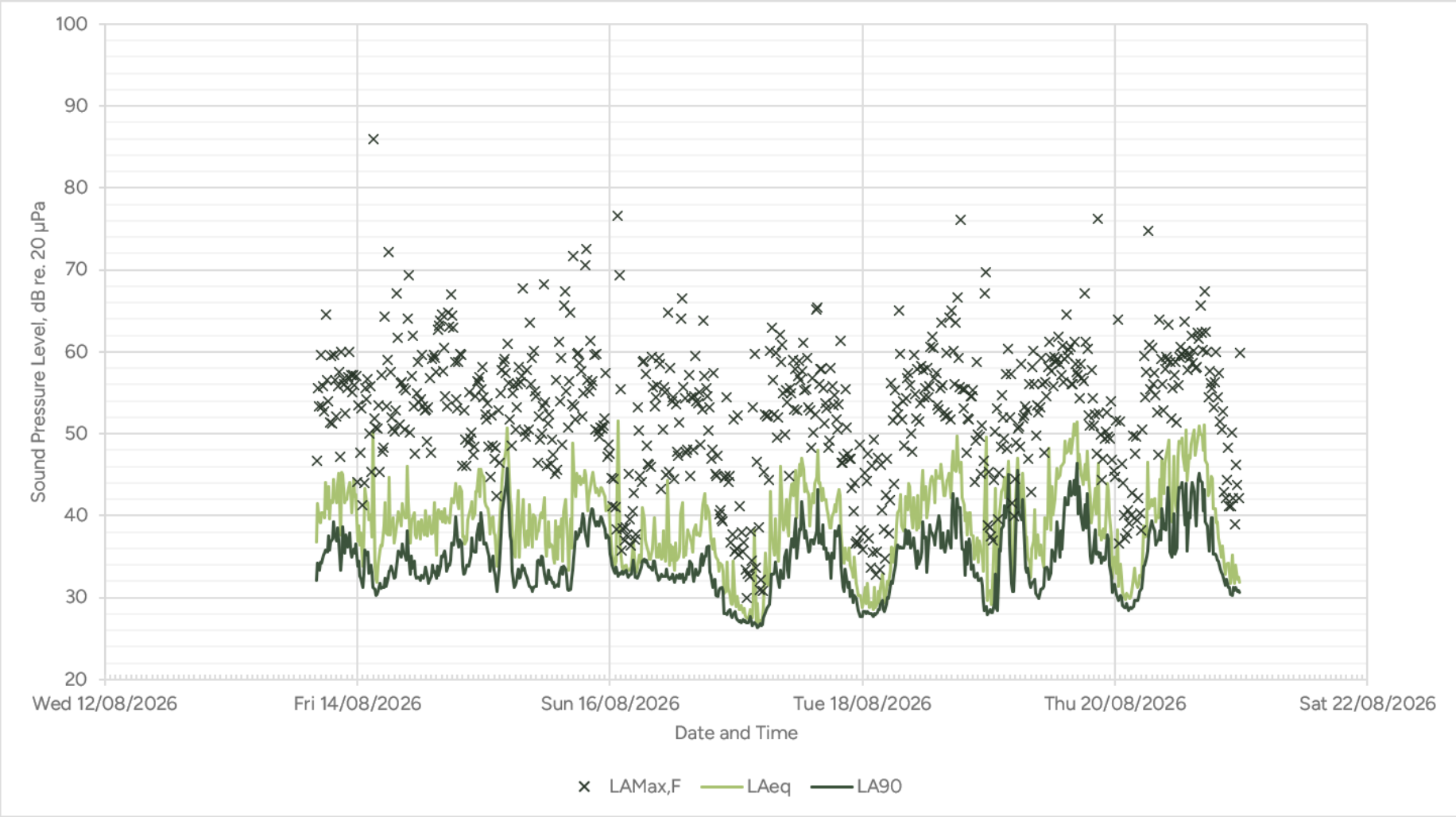


Figure D-32: Histogram of Weekday Ambient Sound Levels – NMP07, dB

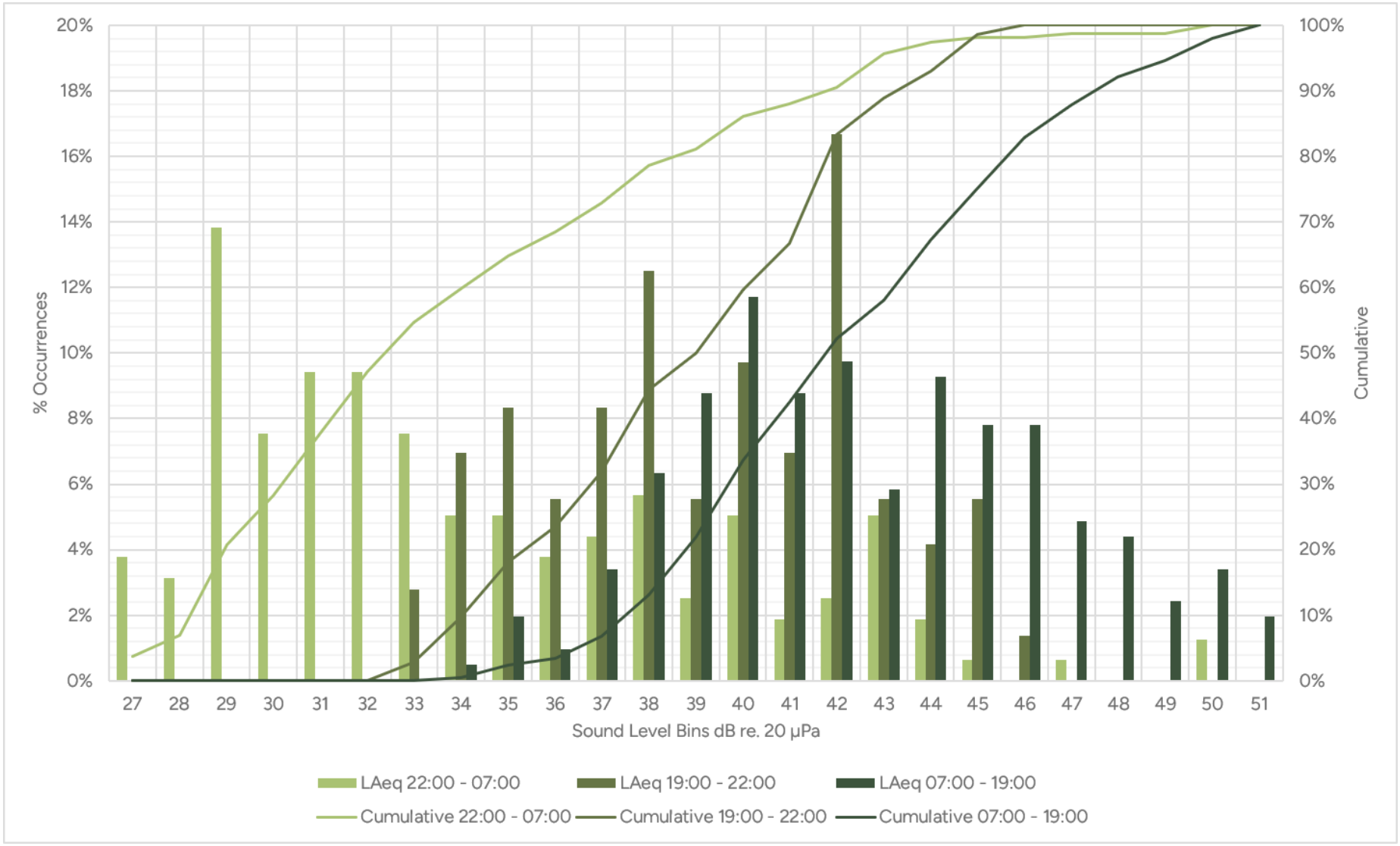


Figure D-33: Histogram of Weekday Background Sound Levels – NMP07, dB

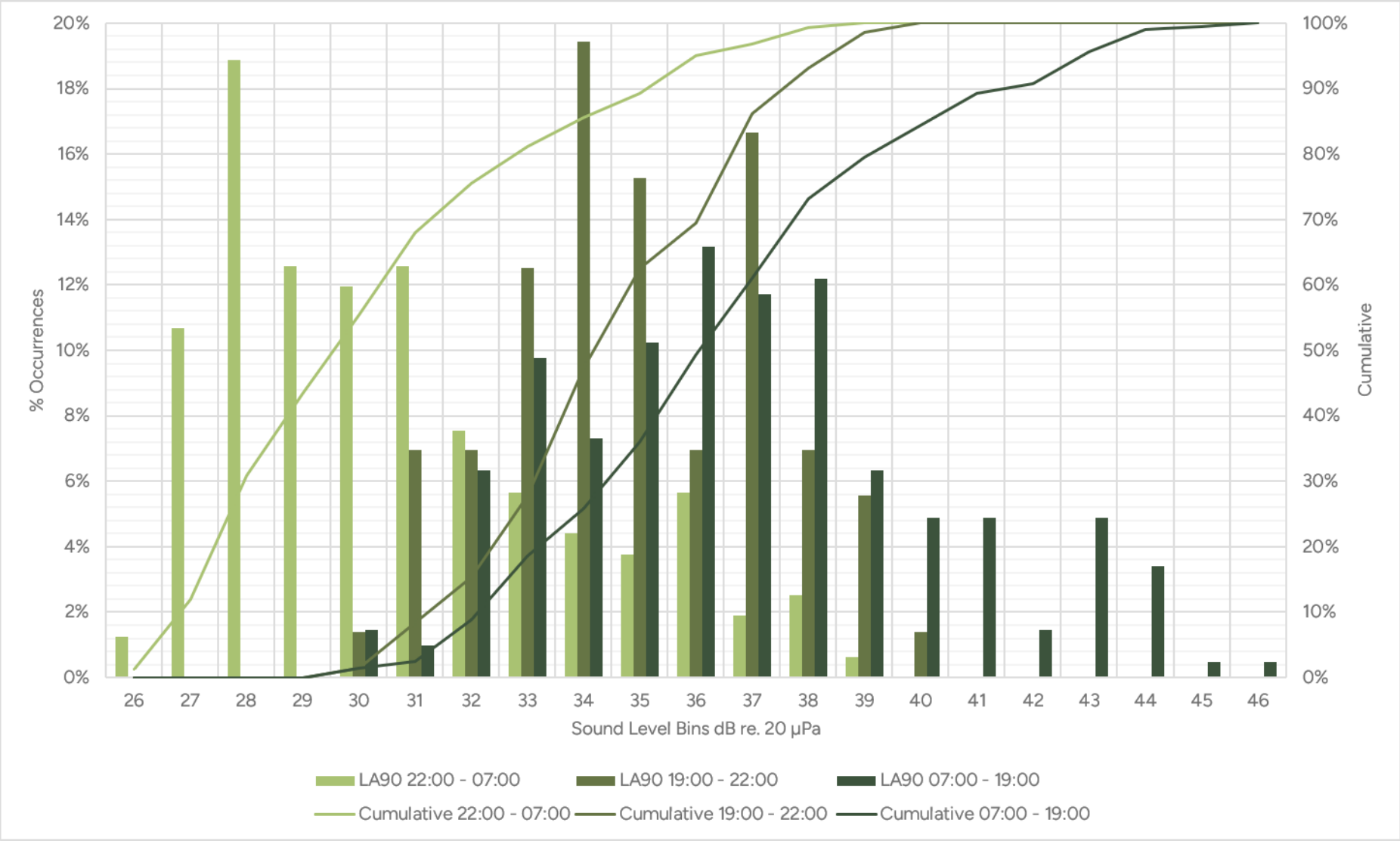


Figure D-34: Histogram of Weekend Ambient Sound Levels – NMP07, dB

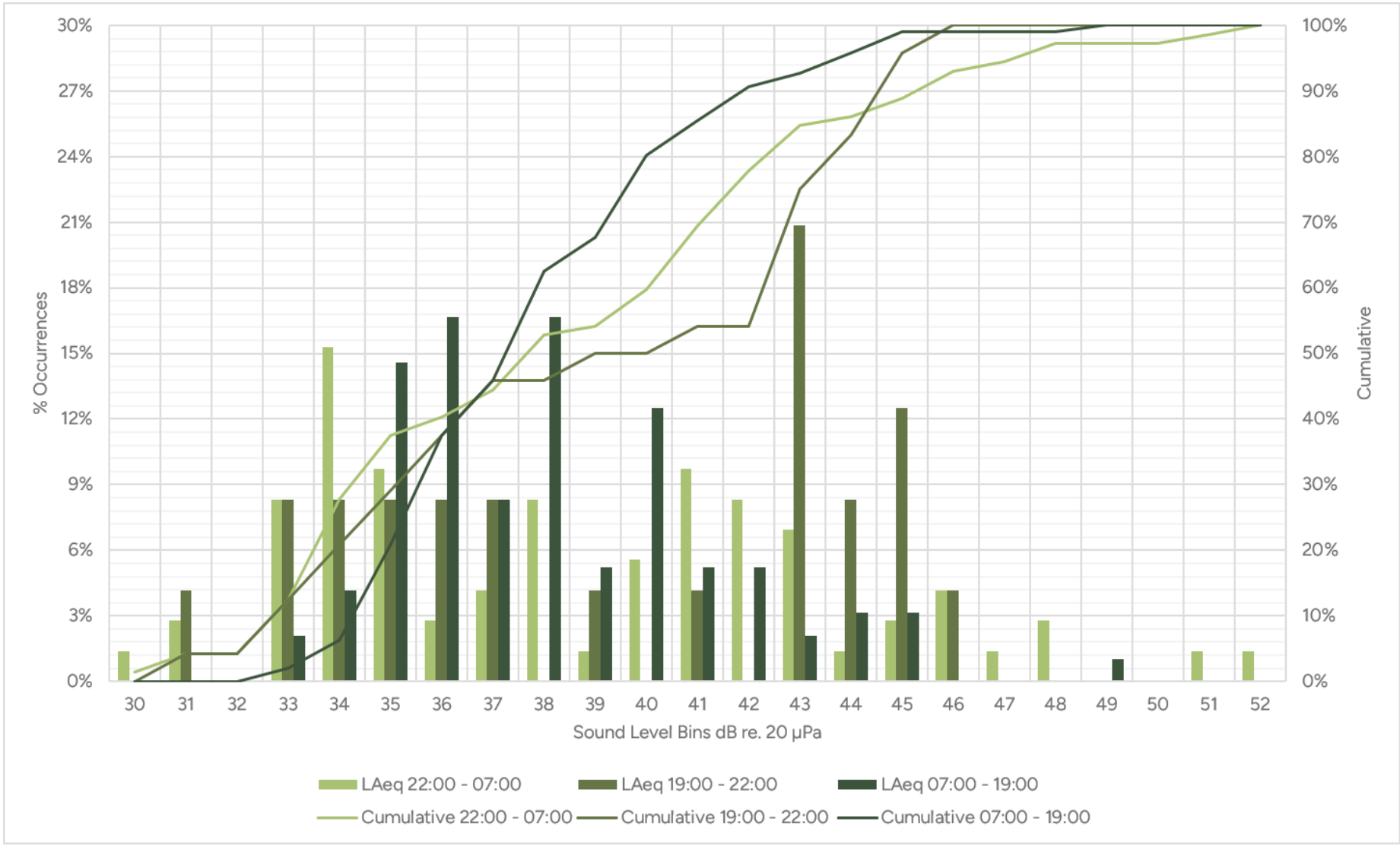
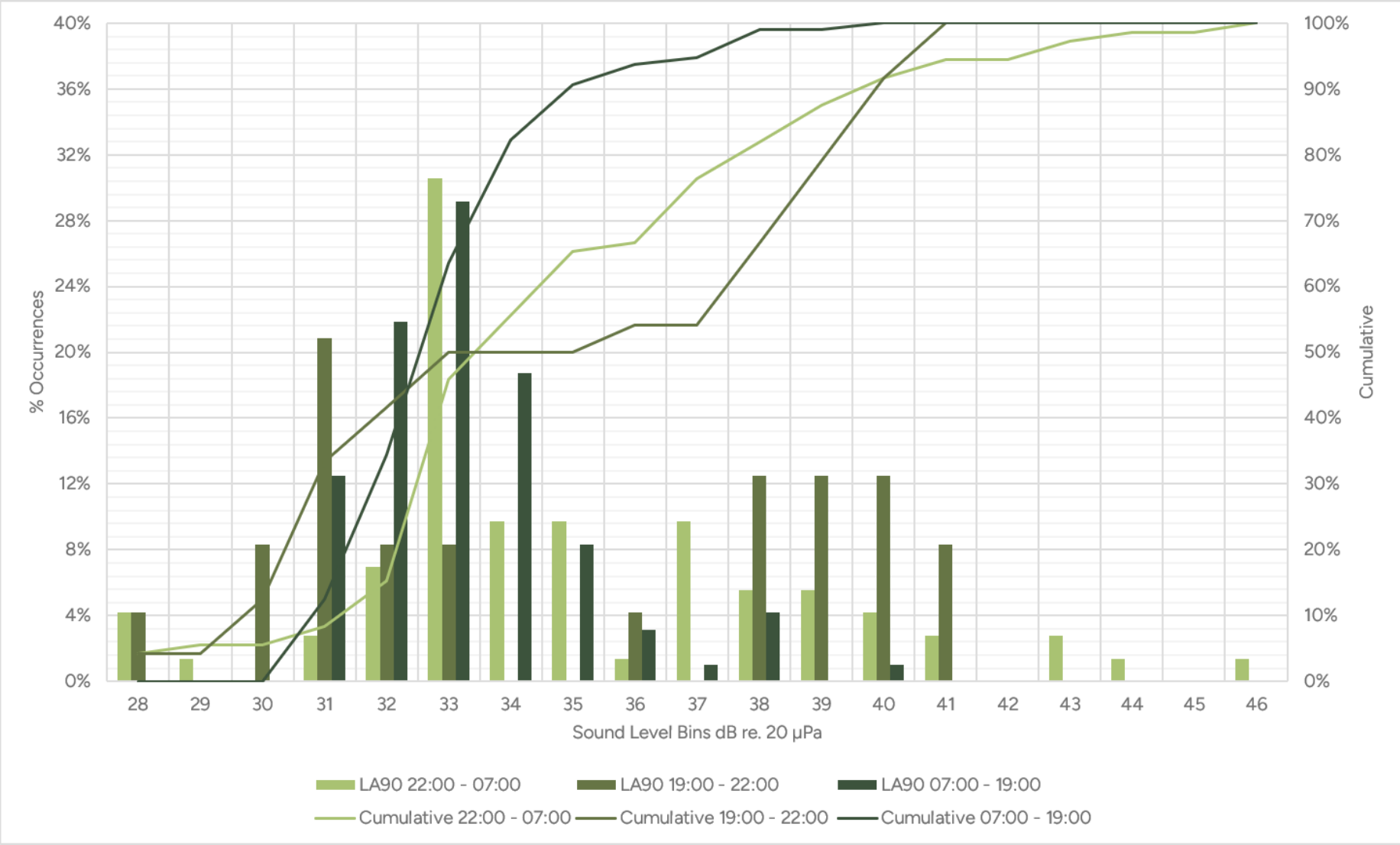


Figure D-35: Histogram of Weekend Background Sound Levels – NMP07, dB



D.8 NMP08 – Portworthy

Figure D-36: Measured Sound Levels – NMP08, dB

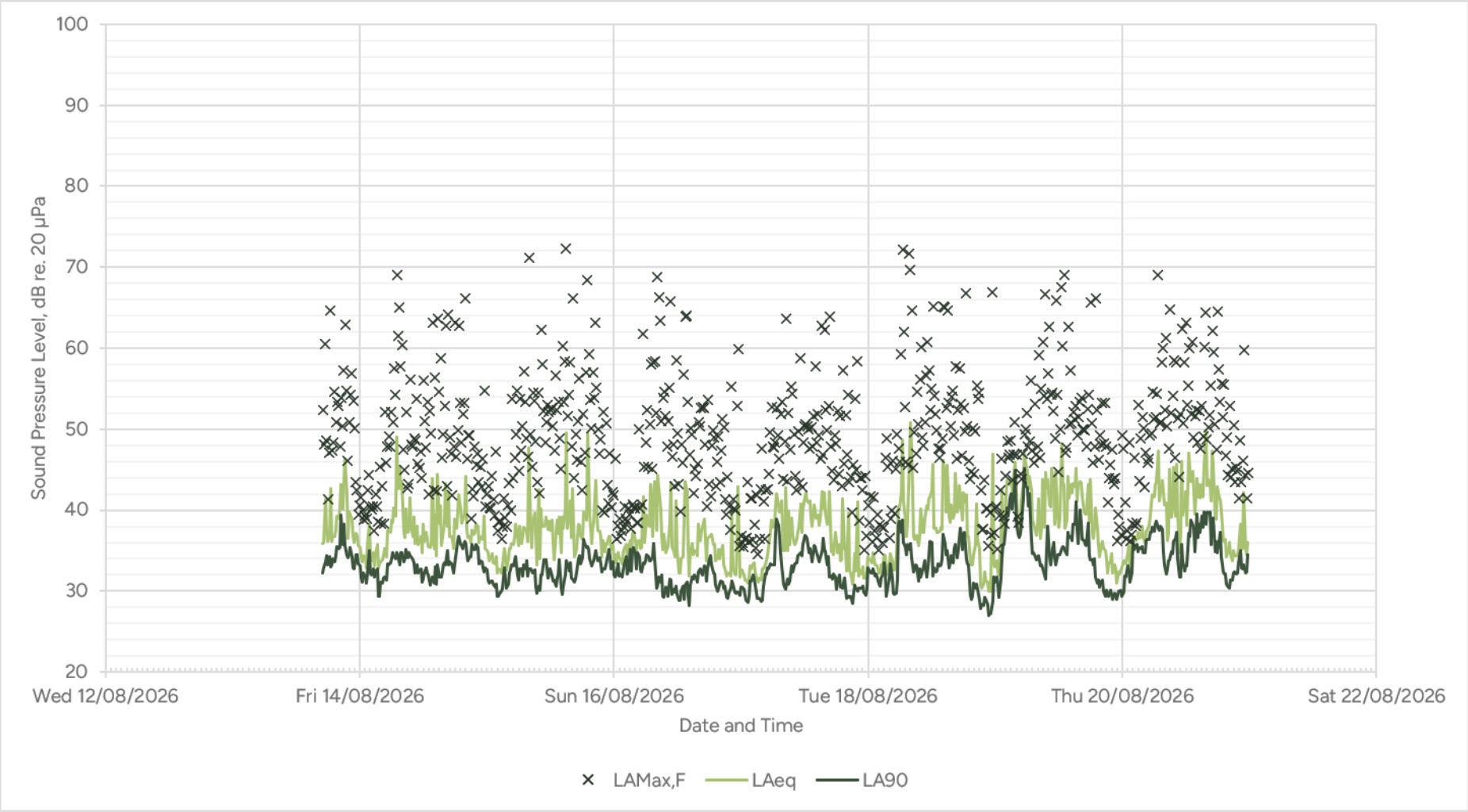


Figure D-37: Histogram of Weekday Ambient Sound Levels – NMP08, dB

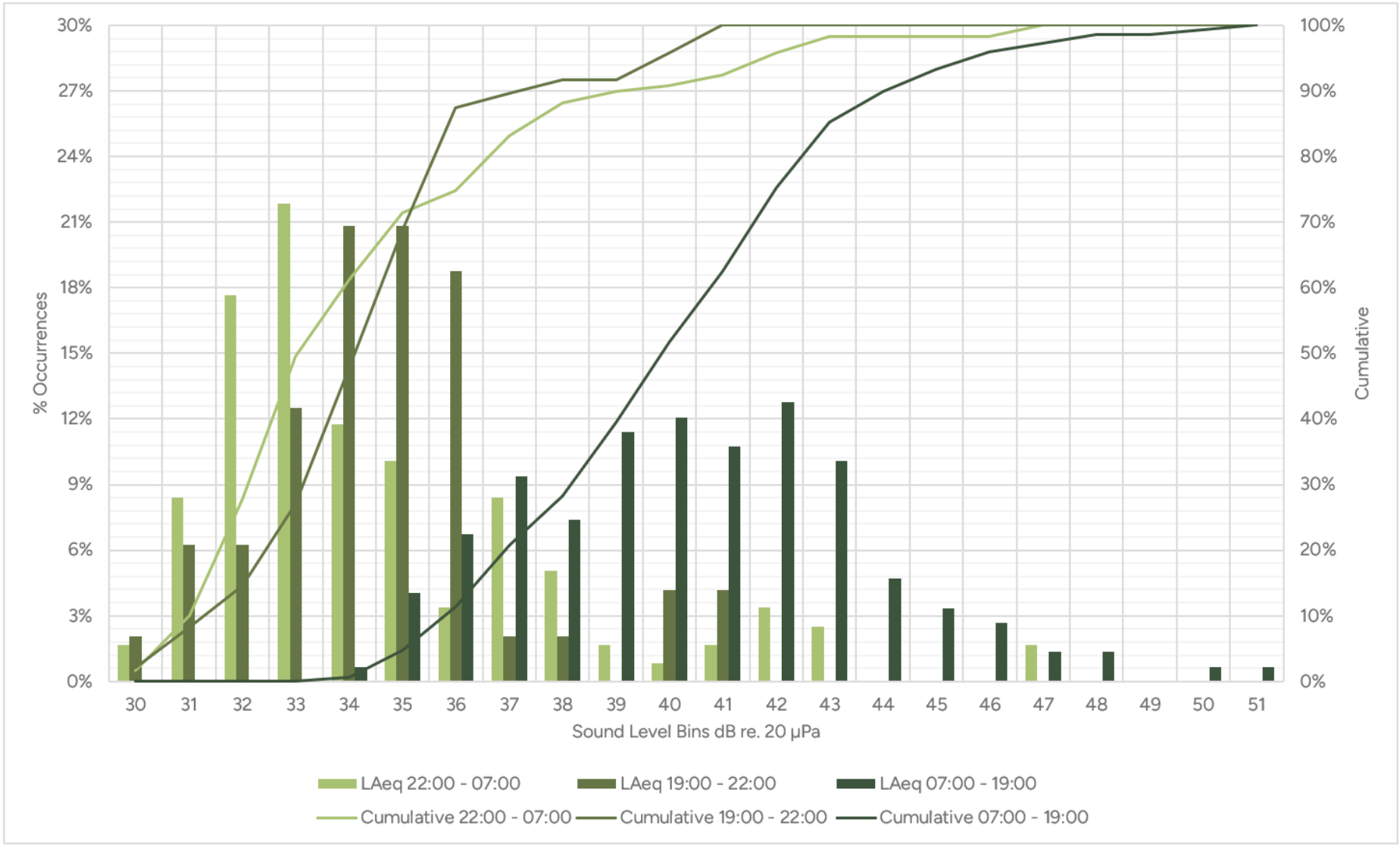


Figure D-38: Histogram of Weekday Background Sound Levels – NMP08, dB

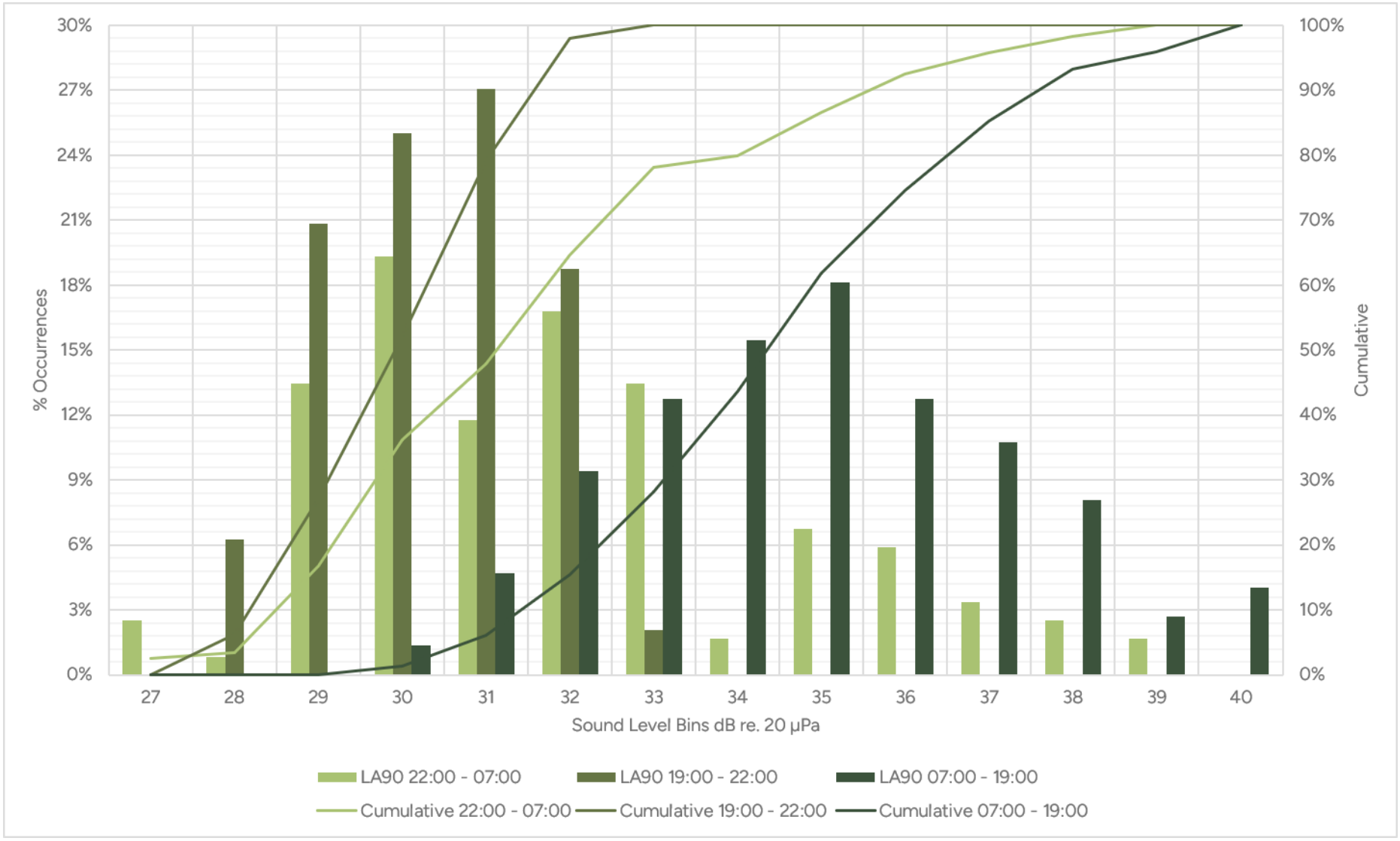


Figure D-39: Histogram of Weekend Ambient Sound Levels – NMP08, dB

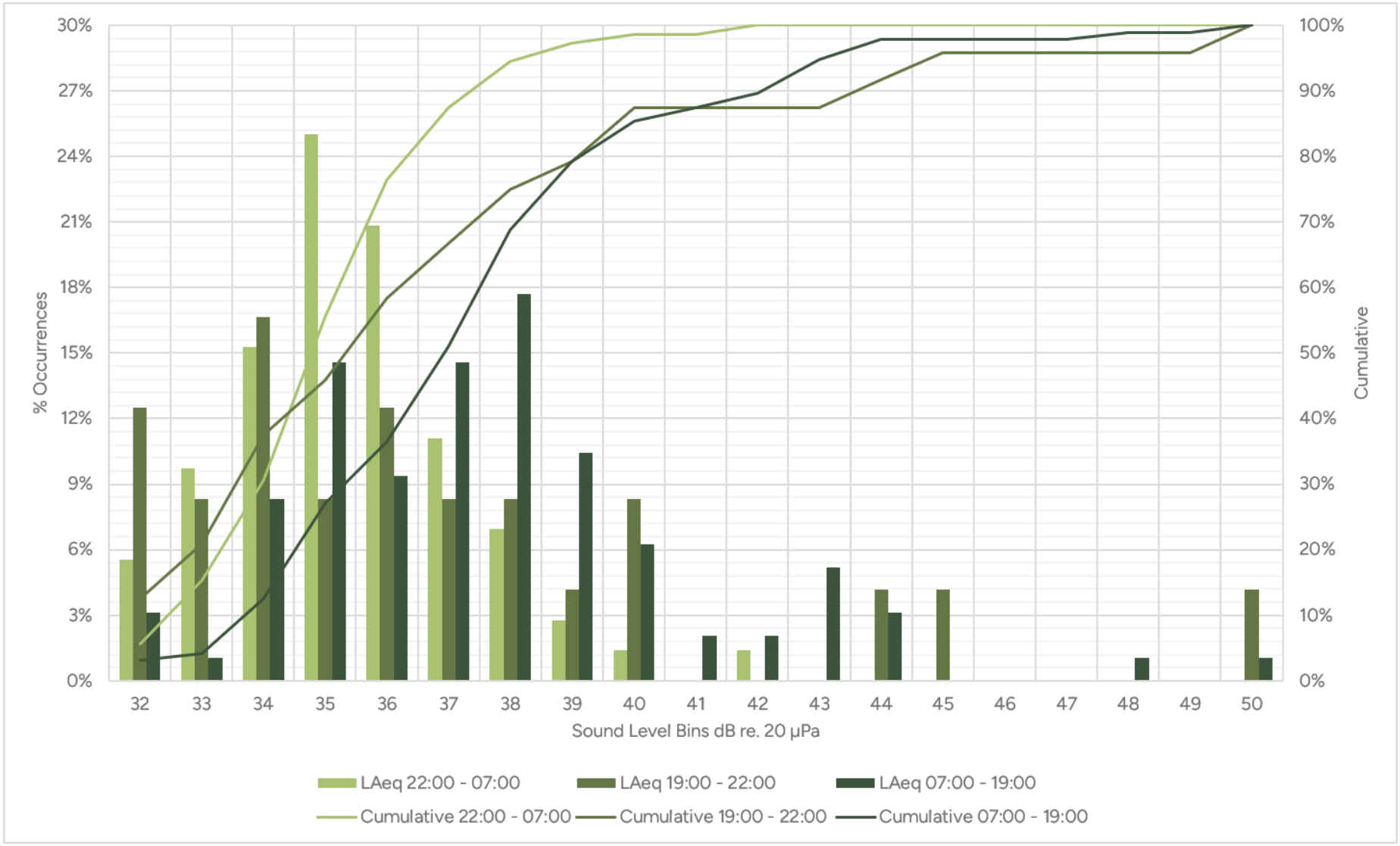
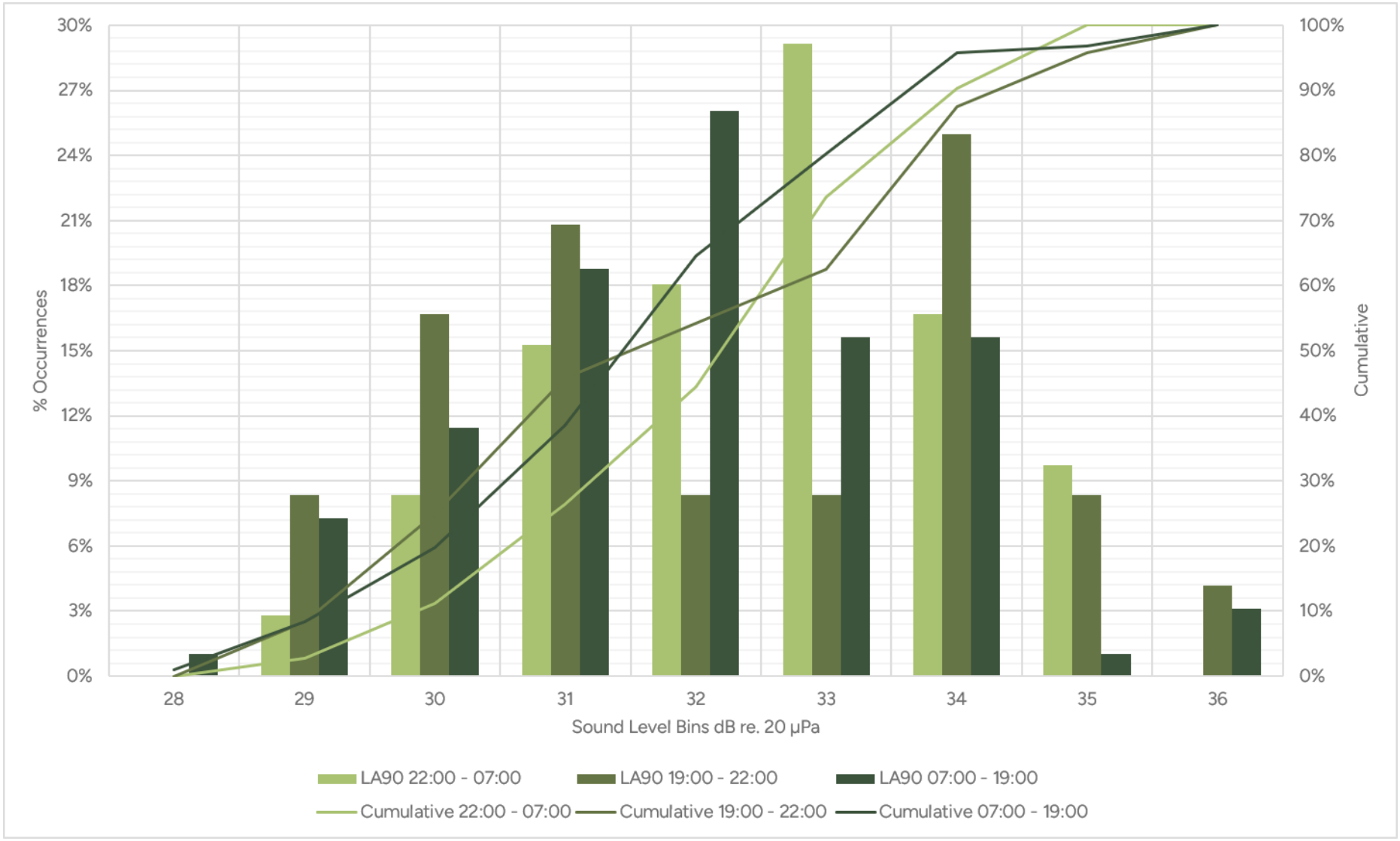


Figure D-40: Histogram of Weekend Background Sound Levels – NMP08, dB



D.9 Weather Data On-Site Locations

Figure D-41: Measured Temperature and Rainfall – On-site Location 1

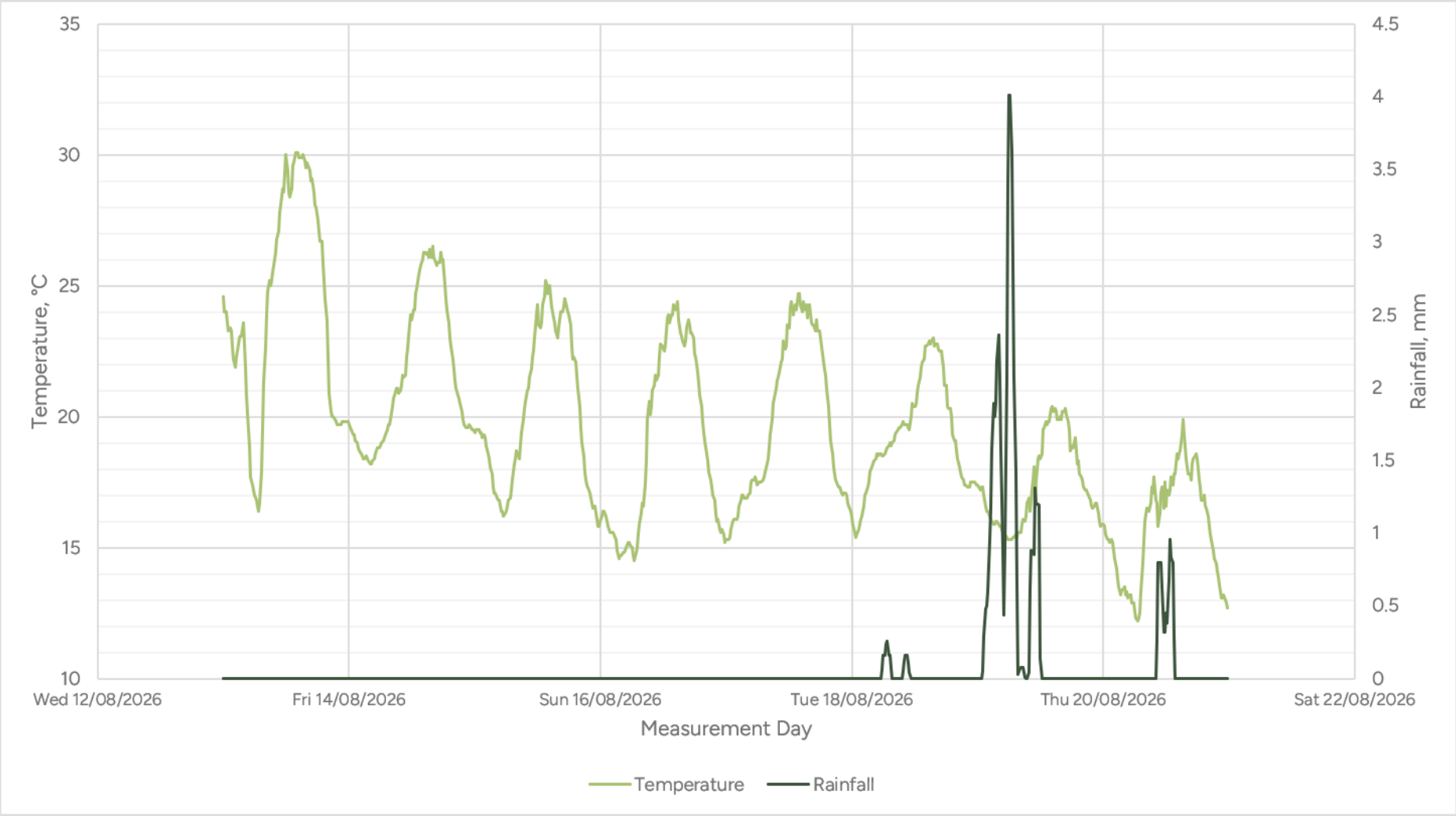


Figure D-42: Measured Wind – On-site Location 1

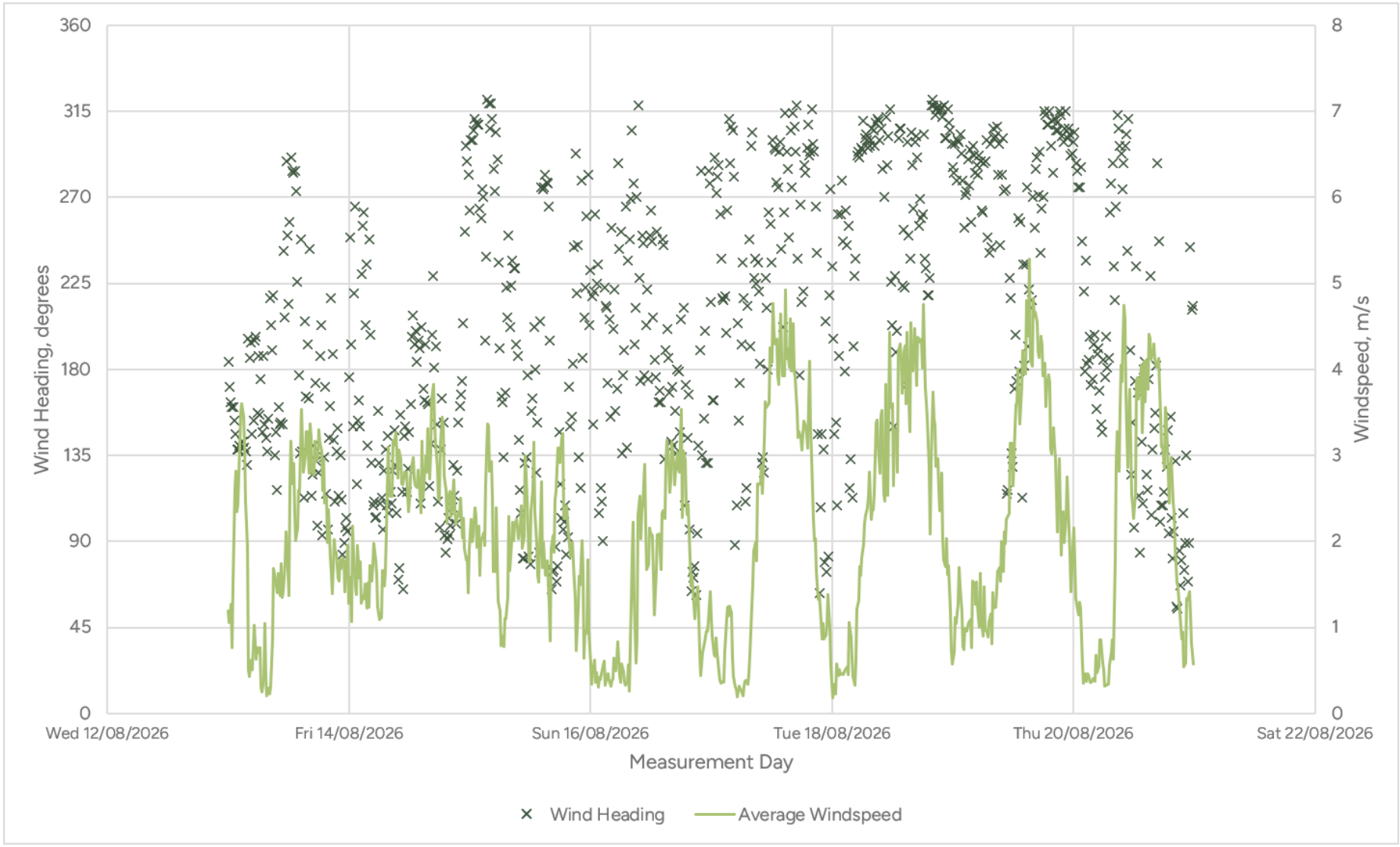


Figure D-43: Measured Temperature and Rainfall – On-site Location 2

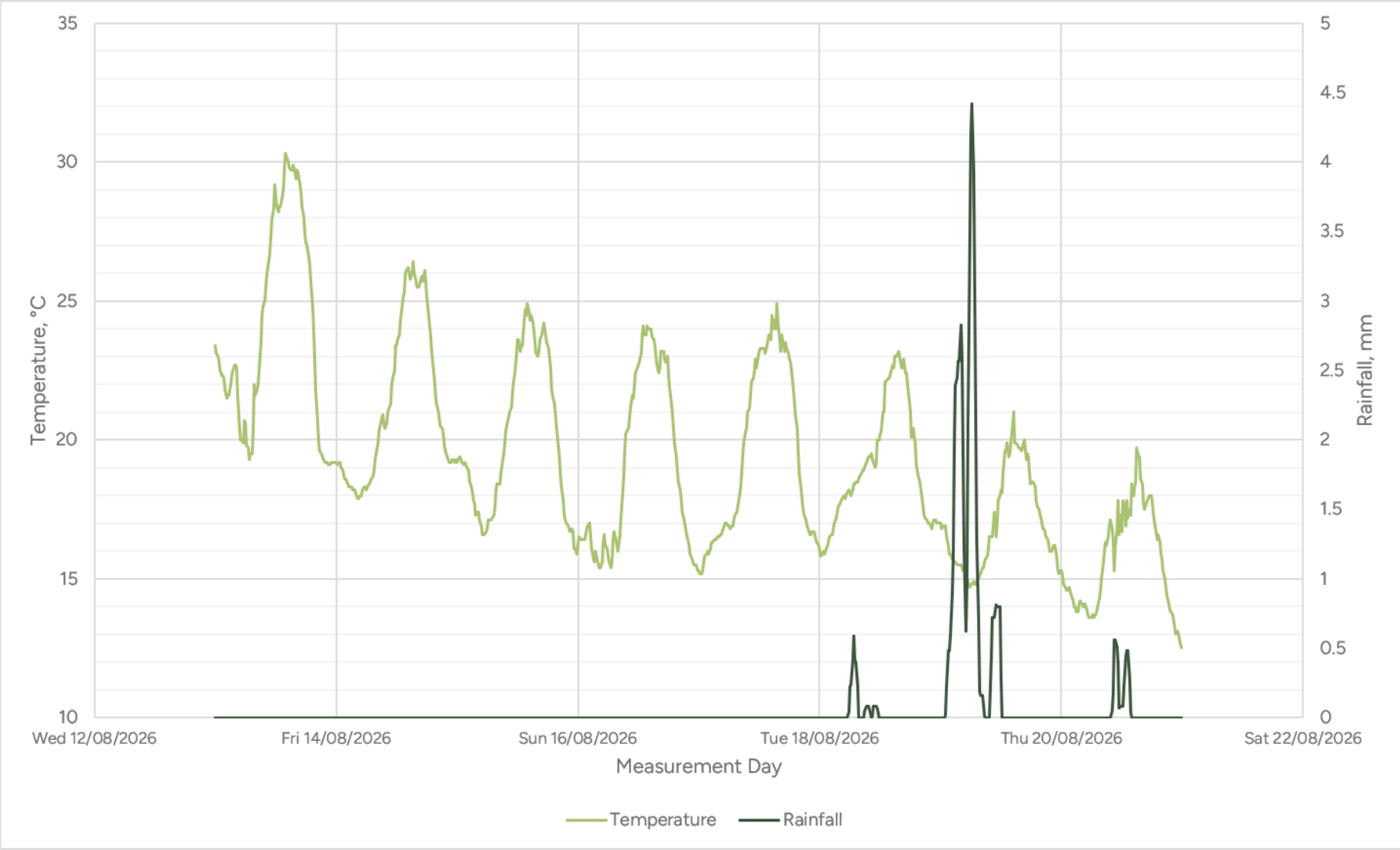


Figure D-44: Measured Wind – On-site Location 2

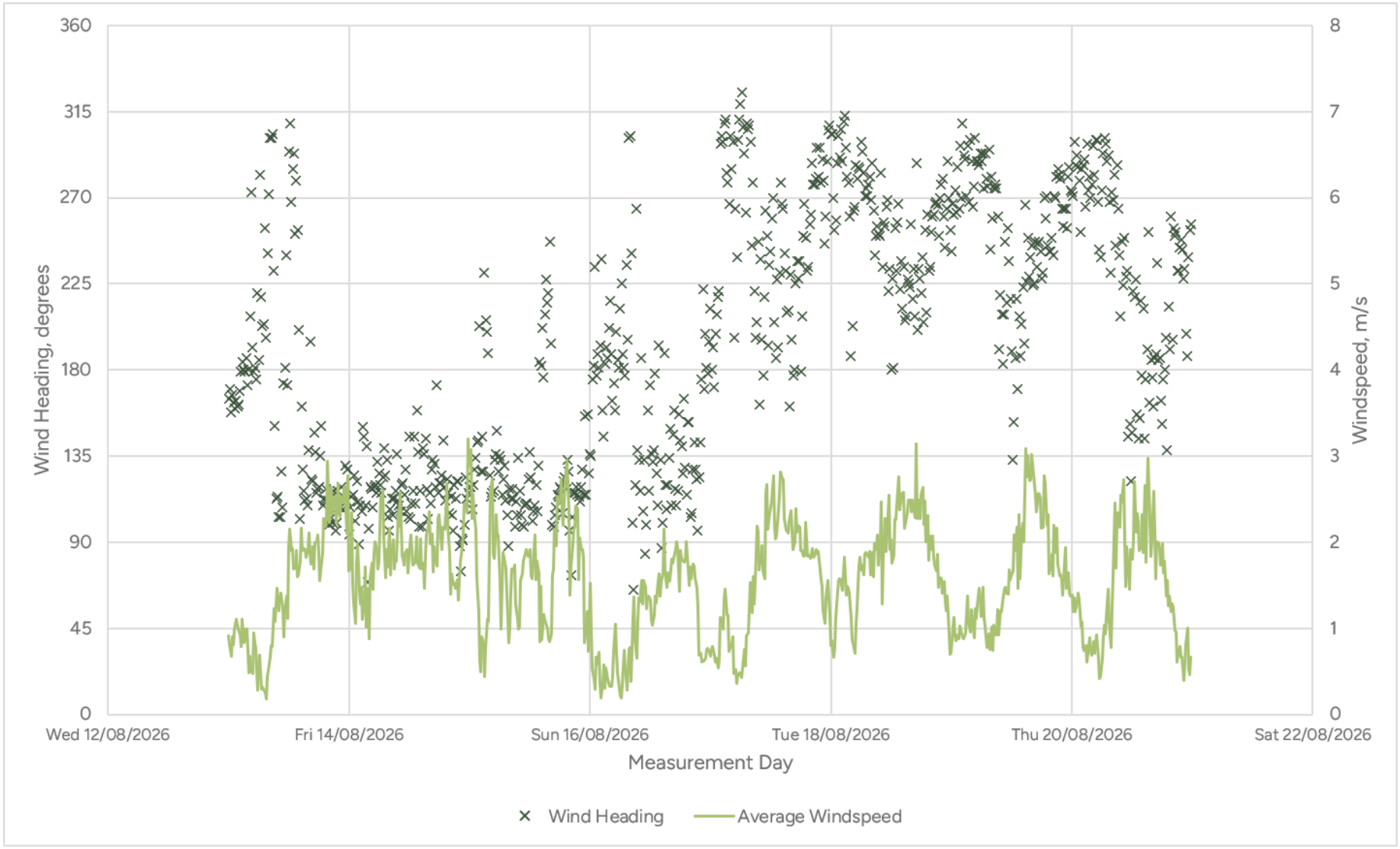


Figure D-45: Measured Temperature and Rainfall – On-Site Location 3

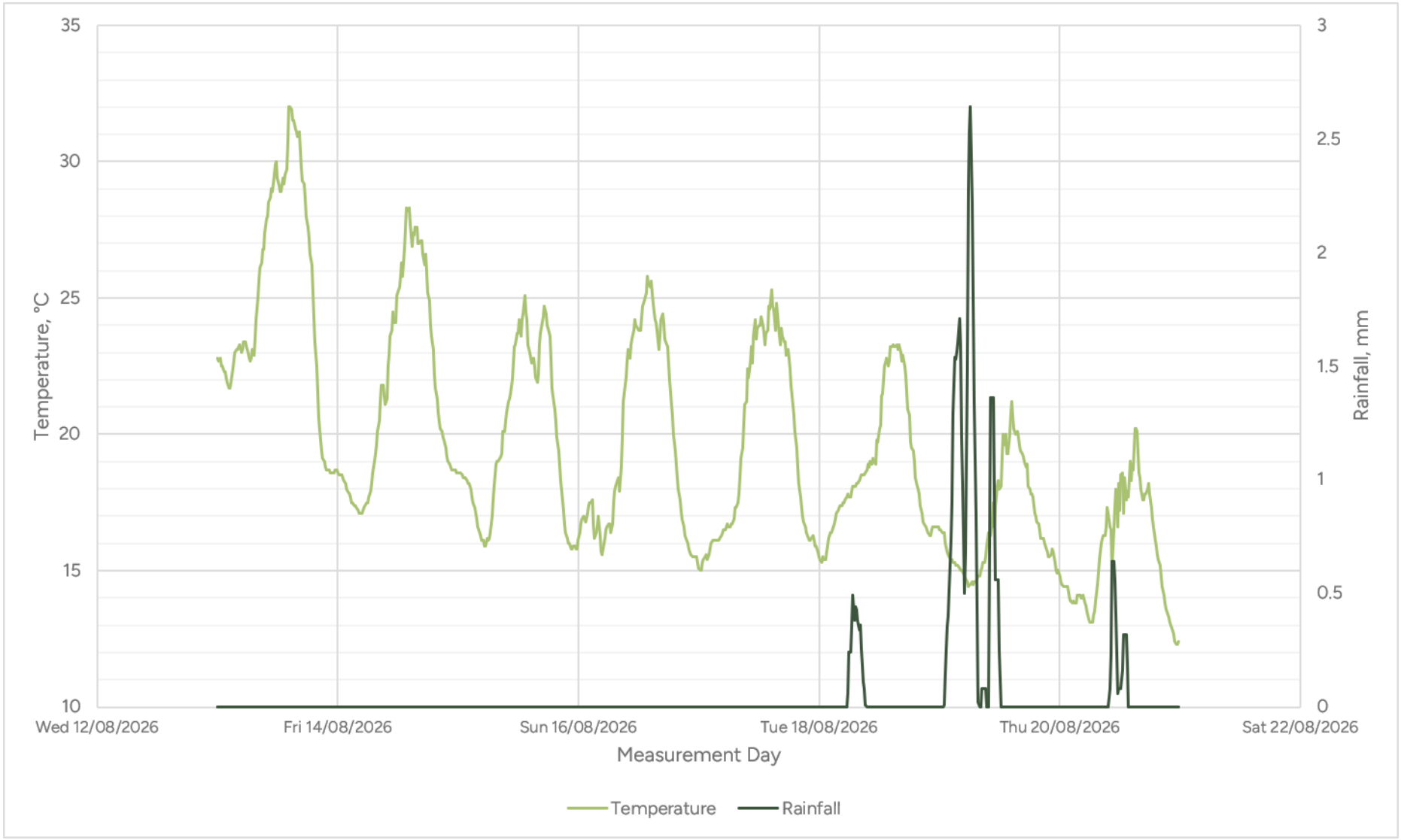


Figure D-46: Measured Wind – On-Site Location 3

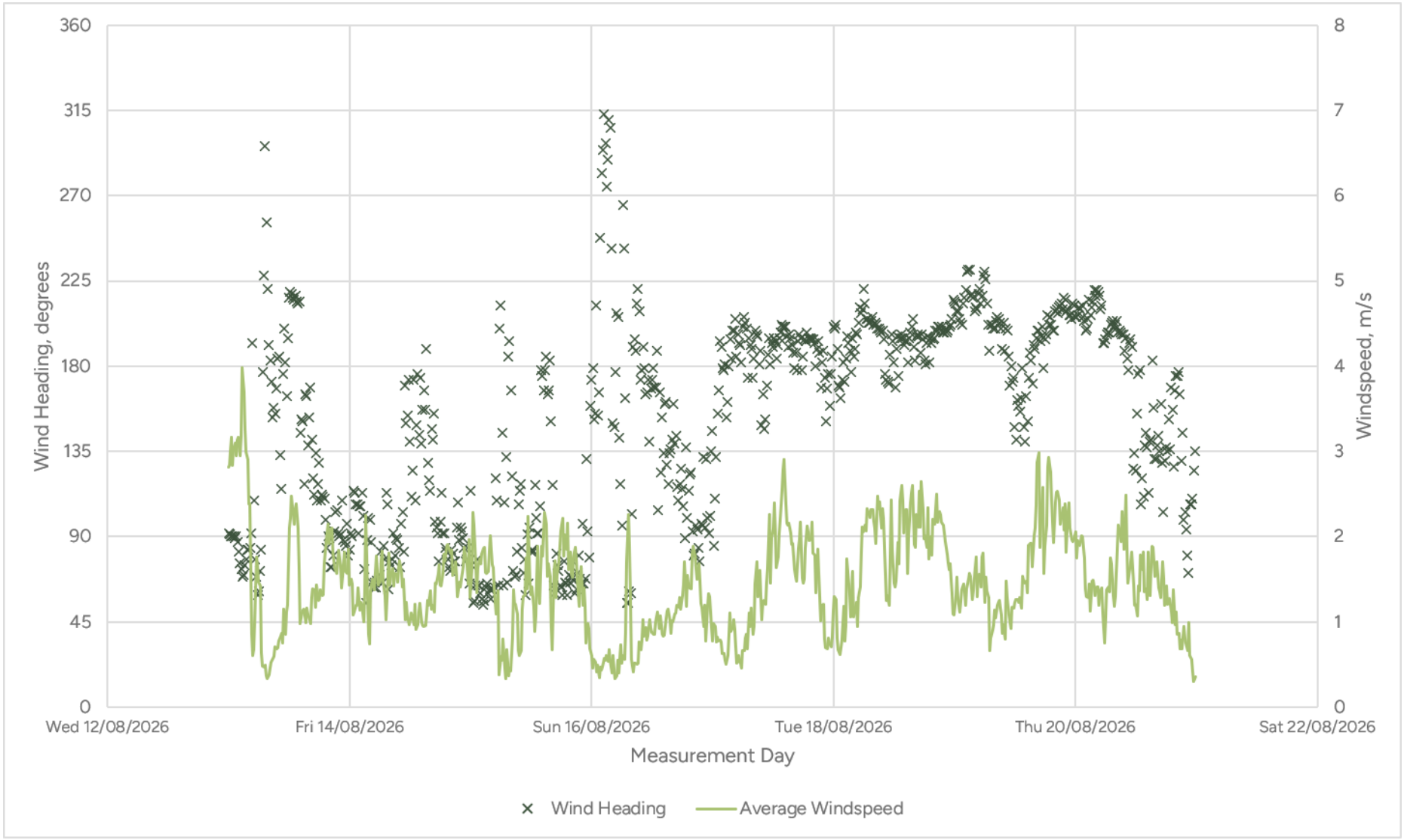


Figure D-47: Measured Temperature and Rainfall – On-Site Location 4

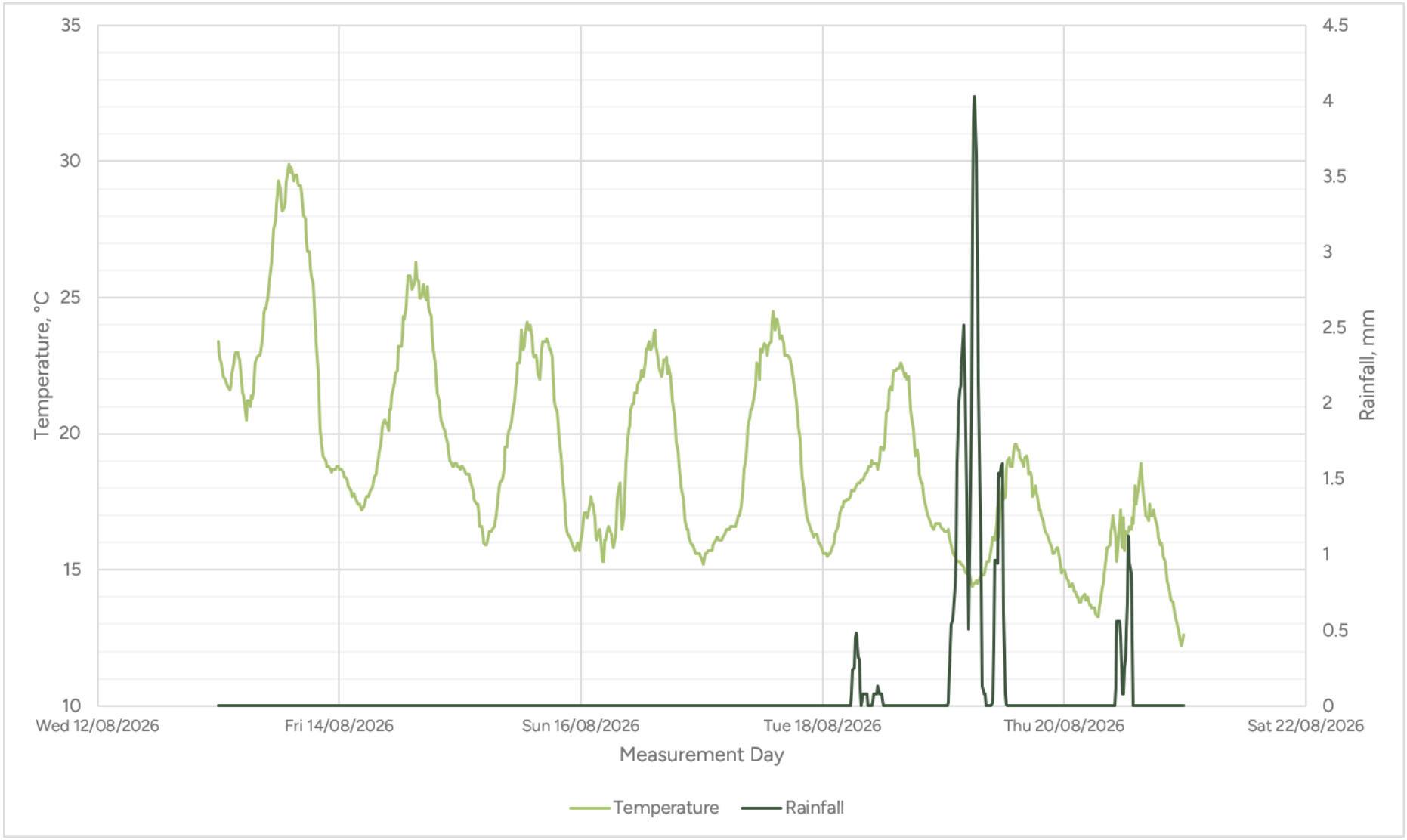
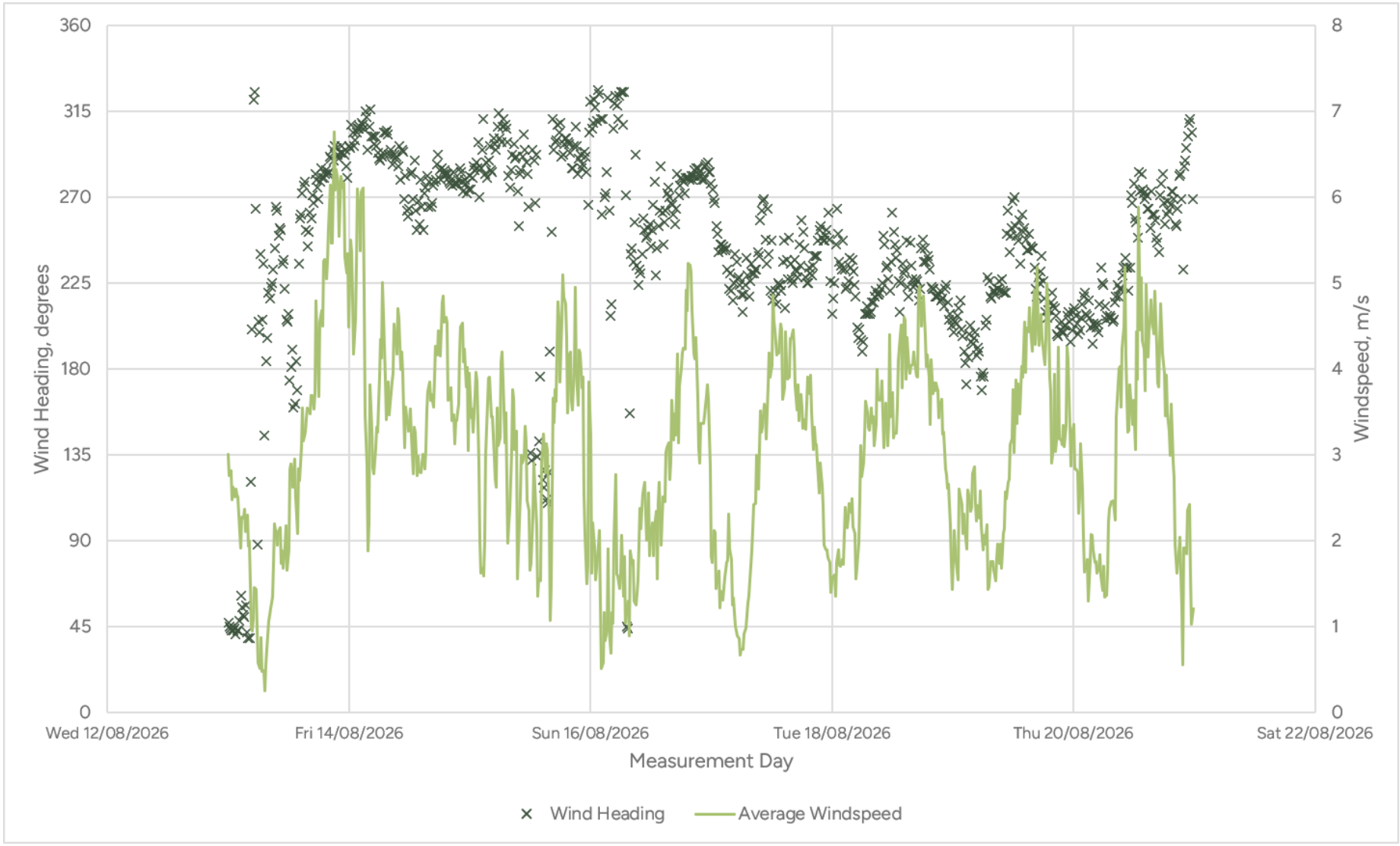
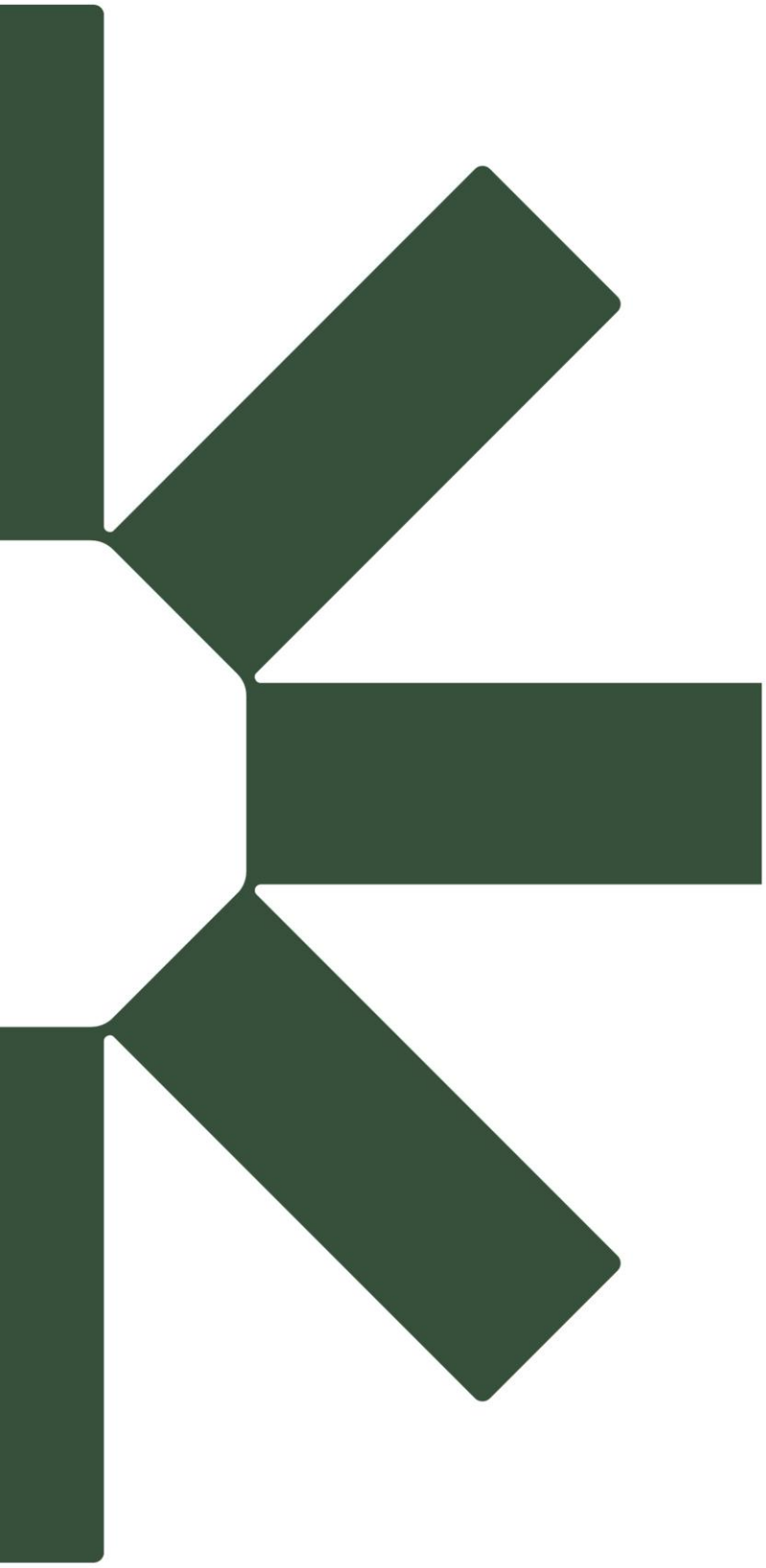


Figure D-48: Measured Wind – On-site Location 4





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