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MOOREBANK INTERMODAL TERMINAL PROJECT

Measurement of Existing Levels of Rail Noise (2018) per Condition 3C

16 July 2019

Tactical Group

TJ741-04F03 Existing Levels of Rail Noise (r3).docx

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Document details

Detail	Reference
Doc reference:	TJ741-04F03 Existing Levels of Rail Noise (r3).docx
Prepared for:	Tactical Group
Address:	
Attention:	[redacted]

Document control

Date	Revision history	Non-issued revision	Issued revision	Prepared	Instructed	Authorised
15.02.2019	Draft Report	0	1	[redacted]		
16.07.2019	Final	2	3			

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1 Introduction

The Moorebank Intermodal Terminal (IMT) involves the development of intermodal freight terminal facilities at Moorebank in south-west Sydney, linked by rail to Port Botany and the interstate rail network. The Project includes the IMT, a rail link connecting the IMT to the Southern Sydney Freight Line (SSFL) and road entry and exit points along Moorebank Avenue.

An Environmental Impact Statement (EIS) for the IMT was prepared and exhibited in 2014. Following the preparation of a Submissions Report and a Supplementary Response to Submissions Report in 2015, the project was approved by the NSW Planning Assessment Commission in 2016. Construction works commenced in 2017.

The final approval for the Moorebank IMT[1] includes conditions which relate to operational noise from freight trains.

This report has been prepared to establish the existing levels of rail noise in accordance with the Rail Infrastructure Noise Guideline (RING). This information will form part of the Rail Noise Management Plan for the Moorebank IMT. The requirements of Mitigation Measure 3C are copied verbatim below. This report addresses the scope shown in **bold** font.

> *3C. A Rail Noise Management Plan (RNMP) (or equivalent) will be prepared prior to operation of the Proposal. The RNMP will include procedures for the application of friction modifiers to the Rail link and measurement and reporting of subsequent rail noise levels should be documented in a Rail Noise Management Plan (RNMP) (or equivalent) to be prepared prior to the operation of the proposal.* **During preparation of the RNMP, background rail noise monitoring will be undertaken to establish existing levels of rail noise levels in accordance with the RING.** *The RNMP will prescribe mitigation measures where modelling predicts and/or operational monitoring shows an exceedance attributable to the Proposal that RING prescribes as a trigger level.*

The work documented in this report was carried out in accordance with the Renzo Tonin & Associates Quality Assurance System, which is based on Australian Standard / NZS ISO 9001. Appendix A contains a glossary of acoustic terms used in this report.

[1] State Significant Development (SSD) Approval 6766, Minister for Planning, 12 December 2016

2 Monitoring locations and dates

Attended and unattended noise measurements have been undertaken to establish the existing levels of rail noise at four locations near the Moorebank IMT development site. These locations are to the west, south-west, south and east of the IMT. The four measurement locations are considered representative of the residential areas potentially most impacted by freight trains accessing the IMT.

Long-term unattended measurements to the west (Glenfield Farm) were undertaken over a 2-week period in August 2017. Additional long-term unattended measurements to the south-west, south and east were undertaken over a 2-week period between 27 November and 10 December 2018. Attended measurements were conducted at each location to confirm the relative contribution of rail traffic and other extraneous noise influencing the measurement results.

A diagram of the track layout is provided in Figure 2-1. Existing rail traffic in the vicinity of the IMT consists of passenger services on the East Hills and Main South Lines and freight traffic on the Southern Sydney Freight Line (SSFL) and Main South Line. The East Hills Line diverges from the Main South Line north of Glenfield Station. At this point the Up track is on viaduct and the Down track is at-grade. Freight trains generally travel on the SSFL north of Glenfield, with occasional freight services on the Main South Line. The SSFL continues north on viaduct from Glenfield for approximately 2 km before returning to grade.

A map of the noise measurement locations in relation to the existing rail lines and IMT is provided in Figure 2-2. The noise measurement periods are summarised in Table 2-1.

Figure 2-1 Track diagram

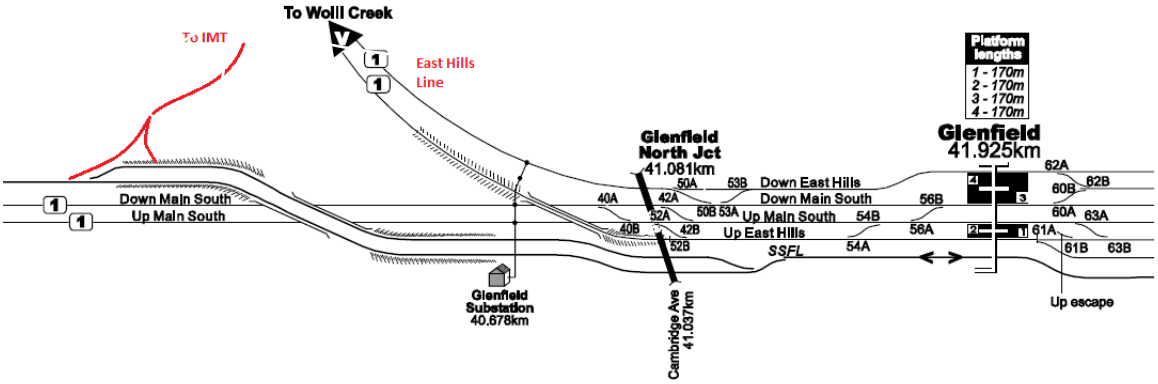


Figure 2-2 Noise measurement locations

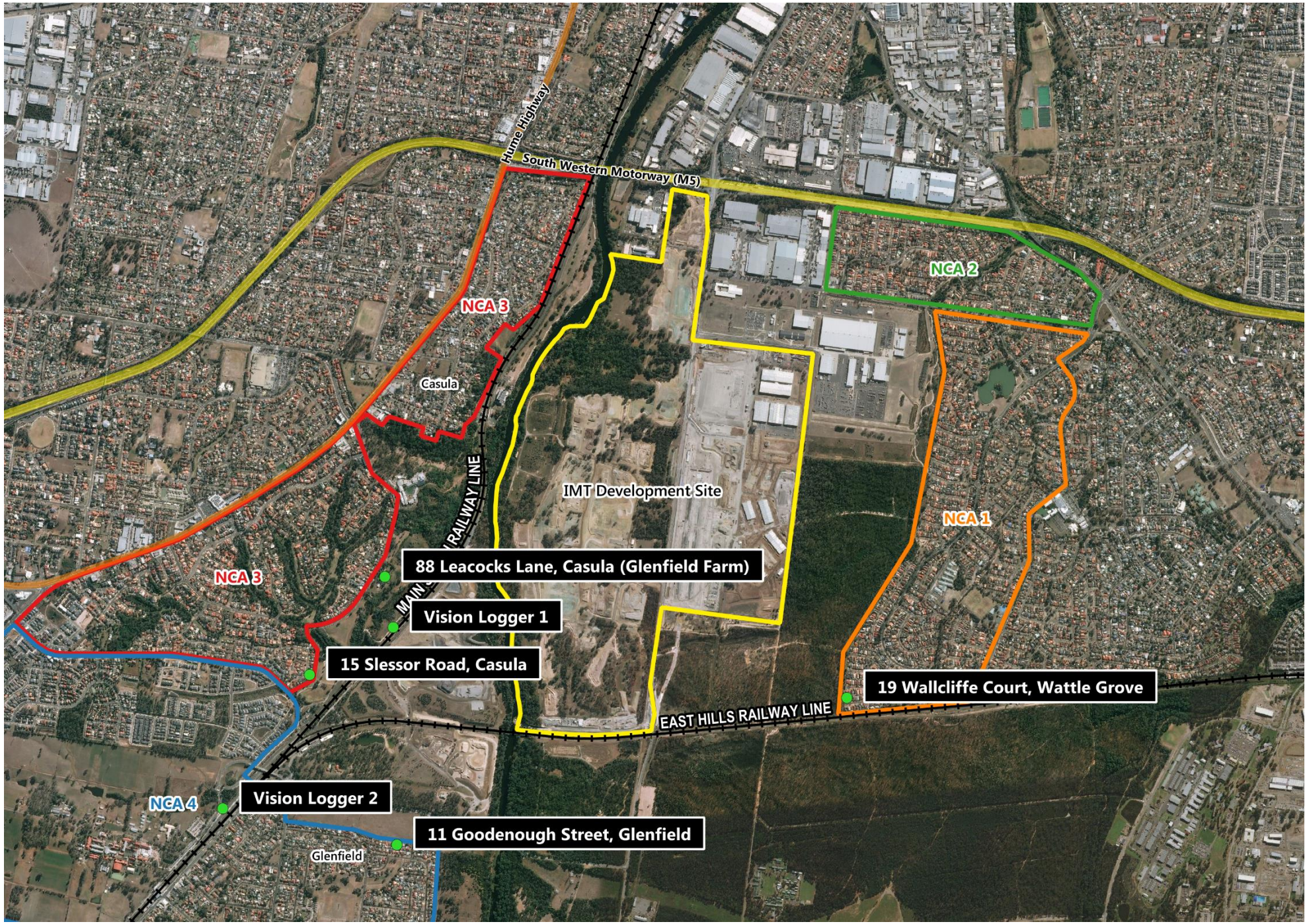


Table 2-1 Noise measurement locations and dates

Location	Direction from the IMT	Unattended measurement period	Attended measurement period
88 Leacocks Lane, Casula (Glenfield Farm)[1]	West[1]	01/08/2017 – 13/08/2017[1]	01/08/2018[1]
15 Slessor Road, Casula	West	27/11/2018 – 10/12/2018	10/12/2018
11 Goodenough Street, Glenfield	South	27/11/2018 – 10/12/2018	10/12/2018
Public area adjacent to 19 Wallcliffe Court, Wattle Grove	East	27/11/2018 – 10/12/2018	10/12/2018

Note: 1. Measurements conducted as part of an expert report prepared by Dr Renzo Tonin (ref 2)

2.1 88 Leacocks Lane, Casula (Glenfield Farm)

Noise measurements to the west of the IMT development site at 88 Leacocks Lane or "Glenfield Farm" were conducted as part of an expert report by Dr Renzo Tonin[2]. Long-term unattended monitoring was conducted between 1 August and 13 August 2017. The noise logger was placed in the rear yard overlooking the Glenfield Waste Facility. The logger was positioned approximately 207 m from the nearest track and 18 m from the nearest façade of the main house. The microphone was at a height of 1.5 m above the local ground level. Attended monitoring was conducted at the same location.

A map of the measurement location is shown in Figure 2-3. A picture of the noise logger and the attended monitoring equipment is provided in Figure 2-4.

[2] Qube Holdings Limited & Minister for Planning ats Residents Against Intermodal Development Moorebank Incorporated – Site: Moorebank Avenue, Moorebank NSW | L&EC Proceedings No 2017/81889 | Expert Report in Acoustics of Renzo Tonin

Figure 2-3 88 Leacocks Lane, Casula (Glenfield Farm) - Noise Measurement Location

Figure 2-4 Leacocks Lane, Casula – Noise Measurement Equipment

2.2 15 Slessor Road, Casula

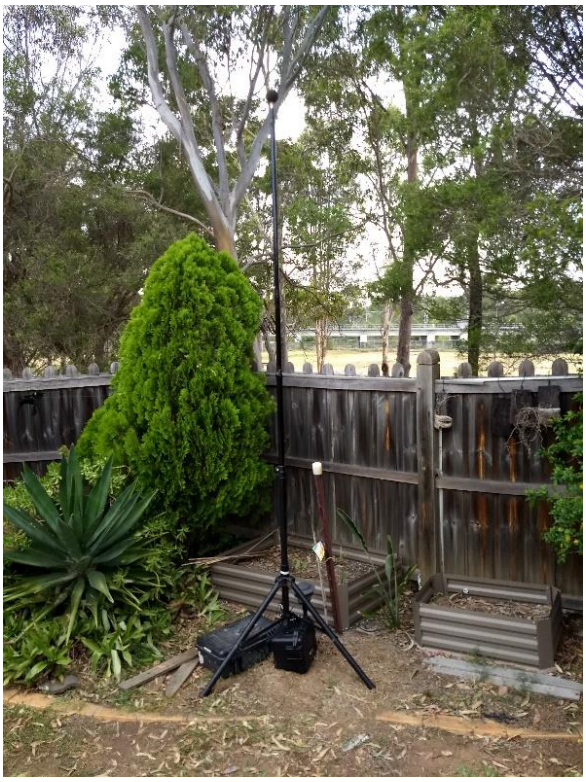
Noise measurements to the south west of the IMT development site were taken at 15 Slessor Road. For long-term unattended monitoring, the noise logger was placed in a position clear of obstructions within the property boundary, approximately 1.3 m from the boundary fence facing the rail corridor and 6.5 m from the nearest façade of the residence. The logger was positioned approximately 132 m from the nearest track. The microphone was placed on an extension pole at a height of 3.2 m above ground (approximately 1 m above the top of the boundary fence).

Attended monitoring was conducted adjacent to the rail corridor in the public near 15 Slessor Road. The microphone was positioned approximately 21 m from the freight viaduct at a height of 1.5 m above the local ground level.

A map of the unattended and attended monitoring locations is shown in Figure 2-5. A picture of the noise logger position is provided in Figure 2-6.

Figure 2-5 15 Slessor Road, Casula - Noise Measurement Locations

Figure 2-6 15 Slessor Road, Casula – Unattended Noise Measurement Equipment



2.3 11 Goodenough Street, Glenfield

Noise measurements to the south of the IMT development site were taken at 11 Goodenough Street. For long-term unattended monitoring, the noise logger was placed in a position clear of obstructions near the property boundary facing the rail corridor. The logger was positioned approximately 620 m from the nearest track and 8 m from the nearest façade of the residence. The microphone was at a height of 1.5 m above the local ground level. Attended monitoring was conducted using the same logger at the same location.

A map of the measurement location is shown in Figure 2-7. A picture of the noise logger used for both unattended and attended measurements is provided in Figure 2-8.

Figure 2-7 11 Goodenough Street, Glenfield – Noise Measurement Location

Figure 2-8 11 Goodenough Street, Glenfield – Noise Measurement Equipment

2.4 19 Wallcliffe Court, Wattle Grove

Noise measurements to the east of the IMT development site were taken at 19 Wallcliffe Court. The unattended monitor was positioned on public land, adjacent to 19 Wallcliffe Court, as access to the residence could not be obtained at the time of installation. The unattended noise logger was positioned approximately 64 m from the nearest track, 23 m from the nearest façade of the residence, and the microphone was 1.5 m above the local ground level. The southern façade of the residence at 19 Wallcliffe Court is 85 m from the nearest track.

Attended measurements were conducted at three positions for the purposes of determining the rate at which noise levels reduce with increasing distance from the East Hills Line. Microphone distances were 26 m from the nearest track (near 30 Wallcliffe Circuit) at a height of 3.2 m, 64 m from the nearest track (unattended logger location) at a height of 1.5 m and 146 m from the nearest track (near 14 Somercotes Circuit) at a height of 1.5 m.

A map of measurement locations is shown in Figure 2-9. Pictures of the noise logger and attended measurement equipment are provided in Figure 2-10.

Figure 2-9 19 Wallcliffe Court, Wattle Grove - Noise Measurement Locations

Figure 2-10 19 Wallcliffe Court, Wattle Grove - Noise Measurement Equipment

3 Measurement methodology

3.1 Details of noise survey and measurement equipment

At each monitoring location, unattended measurement equipment consisted of one RTA Technology noise logger which comprises an NTi Audio XL2 Type 1 sound level meter. Attended measurement equipment also consisted of RTA Technology noise loggers. The calibration of each instrument was verified prior and subsequent to measurements using a Bruel and Kjaer Type 4231 calibrator. In all cases, no significant drift [less than 0.5 dB(A)] in calibration level was observed. Microphones were fitted with windscreens for the entire duration of measurements.

All instrumentation complies with IEC 61672 (parts 1-3) '*Electroacoustics - Sound Level Meters*' and IEC 60942 '*Electroacoustics - Sound calibrators*' and carries current NATA certification.

Table 3-1 Measurement Equipment

Location	Instrument	Make	Model	Serial Number	Last Calibrated
88 Leacocks Lane, Casula (Glenfield Farm)	RTA Technology Noise Logger (RTA 07_018)	NTi	XL2	A2A-12698-E0	22 May 2017
15 Slessor Road, Casula	RTA Technology Noise Logger (RTA 05_006)	NTi	XL2	A2A-04313-D1	20 May 2017
Public area adjacent to 19 Wallcliffe Court, Wattle Grove	RTA Technology Noise Logger (RTA 07_017)	NTi	XL2	A2A-12143-E0	10 March 2017
11 Goodenough Street, Glenfield	RTA Technology Noise Logger (RTA 06_010)	NTi	XL2	A2A-05811-E0	31 Oct 2018
Attended measurements, Park Near 15 Slessor Road, Casula	RTA Technology Noise Logger (RTA 06_010)	NTi	XL2	A2A-05811-E0	31 Oct 2018
Attended measurements, Public area adjacent to 19 Wallcliffe Court, Wattle Grove 26 m from rail	RTA Technology Noise Logger (RTA 05_006)	NTi	XL2	A2A-04313-D1	20 May 2017
Attended measurements, Public area adjacent to 19 Wallcliffe Court, Wattle Grove 64 m from rail	RTA Technology Noise Logger (RTA 07_017)	NTi	XL2	A2A-12143-E0	10 March 2017
Attended measurements, Public area adjacent to 19 Wallcliffe Court, Wattle Grove 146 m from rail	RTA Technology Noise Logger (RTA 06_010)	NTi	XL2	A2A-05811-E0	31 Oct 2018
Attended and Unattended measurement locations	Type 1 Sound Level Meter Calibrator	Bruel & Kjaer	Type 4231	3017534	27 July 2018

3.2 Site features and observations

During set up of the noise loggers and attended measurements, observations of any site features and/or audible characteristics potentially influencing the measurement results were made.

88 Leacocks Lane, Casula (Glenfield Farm)

At 88 Leacocks Lane, noise from passenger and freight train operations on the Main South Line and SSFL was audible. During the day period, noise levels during train passby events were frequently influenced by extraneous noise sources, including noise from birds, sheep, aircraft and equipment operating at the Glenfield Waste Plant.

15 Slessor Road, Casula

At 15 Slessor Road, noise from passenger and freight train operations on the Main South Line and SSFL was audible. Other noise sources included road traffic noise from Glenfield Road and natural noise sources.

11 Goodenough Street, Glenfield

At 11 Goodenough Street, noise emissions were primarily influenced by road traffic noise on Cambridge Avenue, construction noise, aircraft noise and birds. Train passbys were not audible during the day period. During night periods, passbys were occasionally audible (usually freight trains on the Main South Line and SSFL).

19 Wallcliffe Court, Wattle Grove

At the monitoring location adjacent to 19 Wallcliffe Court, all train passbys were passenger rail services on the East Hills Line and were clearly audible. Other noise sources included noise from natural noise sources and construction noise.

3.3 Weather observations

Weather conditions during the noise surveys was based on Bureau of Meteorology results and observations from the noise logging audio and spectra. Weather data from the weather station at Holsworthy Aerodrome was used to assist in identifying periods for data exclusion. Any periods impacted by excessive wind (> 5 m/s) or heavy rain were excluded from the analysis.

3.4 Measurement parameters and data analysis

For long-term monitoring at each location, each noise logger was set up to measure the L_{Aeq} and $L_{Amax,fast}$ noise levels in consecutive 1 second intervals throughout the survey period, and also the statistical noise levels in each 15-minute interval.

For each train passby event, the time period for the noise measurement was determined on the basis of the procedure described in Section 6.6.3 of International Standard ISO3095:2013, whereby the measurement commences when the noise level is at least 10 dB lower than when the front of the train is opposite the microphone and concludes when the noise level is at least 10 dB lower than when the end of the train is opposite the microphone.

Train passbys were identified using the NTi Data Explorer software. This was used to produce a summary of the $L_{Aeq(passby)}$, SEL (L_{AE}) and $L_{Amax,fast}$ noise levels for each passby. For each train passby, the train type (passenger or freight) was determined based on the passby duration and time lapse photography captured from two vision loggers (refer Figure 2-2). The noise measurement results were used to calculate the $L_{Aeq(15hour)}$, $L_{Aeq(9hour)}$ and $L_{AFmax,95\%}$ noise levels for each day and night period for passenger and freight trains.

4 Measurement results

4.1 Overall noise levels

The measurement of overall noise levels was undertaken based on the procedure documented in the NSW Noise Policy for Industry (EPA 2017)[3]. The long-term noise levels were established based on the measured noise levels in consecutive 15-minute intervals after removing weather-affected periods and other extraneous noise. The long-term noise levels include noise contributions from all ambient sources near the monitoring locations, including road traffic noise, rail noise and natural sources. The noise contribution from rail traffic only (refer Section 4.2) will be less than the ambient noise levels from all sources in Table 4-1.

A graphical summary of the 15-minute noise measurement results at each location is provided in APPENDIX C.

Table 4-1 Summary of measured ambient L_{Aeq} noise levels - facade reflected (weekly average)

Location	Measured Daytime (7am to 10 pm) $L_{Aeq(15hour)}$ Noise Levels, dB(A)[2]	Measured Night-time (10pm to 7 am) $L_{Aeq(9hour)}$ Noise Levels, dB(A)[2]
88 Leacocks Lane (Glenfield Farm)	60[1]	55[1]
15 Slessor Road	57	54
11 Goodenough Street	54	50
19 Wallcliffe Court	55	51

Note: 1. Measurements conducted as part of an expert report by Dr Renzo Tonin (Ref 2)

Note: 2. The measured noise levels include noise contributions from all ambient sources near the monitoring locations, including road traffic noise, rail noise and natural sources.

4.2 Rail noise contributions

At each monitoring location, the $L_{Aeq(passby)}$, SEL (L_{AE}) and $L_{Amax,fast}$ noise levels were determined for each train passby as described in Section 3.4. The procedure in Clause 3.4.1.1 of the Rail Infrastructure Noise Guideline (EPA, 2013) was used, together with the number of train passbys during the day and night periods to calculate the $L_{Aeq(15hour)}$ daytime, $L_{Aeq(9hour)}$ night-time and $L_{Amax,95\%}$ noise levels from train passbys.

A summary of the measurement results for each train passby is provided in a spreadsheet format as a separate deliverable.

[3] NSW EPA Noise Policy for Industry – Fact Sheet B: Measurement procedures for determining background noise, 2017

The measurement results for each passby include the following information:

- Date
- Start time of the train passby
- Train type (Passenger or Freight)
- Measurement duration (between approximate 10 dB down points before and after passby)
- SEL (L_{AE}) noise measurement
- L_{AFmax} noise measurement

The $L_{Aeq(15hour)}$ daytime, $L_{Aeq(9hour)}$ night-time and $L_{AFmax,95\%}$ noise levels were calculated at the façade of the four receiver locations for passenger and freight trains separately.

A summary of the daily noise contributions from each train type is provided in APPENDIX B. The weekly logarithmic average L_{Aeq} noise levels (weekday average). This is considered to represent the noise levels associated with the reasonable maximum use, or the 'worst-case' typical day per the requirements of Table Note 9 in the RING. The L_{Aeq} and highest daily $L_{AFmax,95\%}$ noise levels are summarised in Table 4-2.

At 11 Goodenough Street, rail noise was not audible during the equipment setup or attended monitoring. Review of the noise logger data revealed four detectable freight train passbys with L_{AFmax} levels between 47 dB(A) and 52 dB(A) and one detectable passenger train passby with L_{AFmax} of 42 dB(A). All detectable passbys occurred between 12:00 am (midnight) and 3:00 am when background noise levels were lowest.

Table 4-2 Summary of measured train passby noise levels - facade reflected (weekly average)

Location	Measured Daytime Noise Level (7am to 10 pm) $L_{Aeq(15hour)}$, dB(A)			Measured Night-time Noise Level (10pm to 7 am) $L_{Aeq(9hour)}$, dB(A)			Measured $L_{AFmax,95\%}$ (highest daily) Noise Level, dB(A)		
	Passenger	Freight	Total	Passenger	Freight	Total	Passenger	Freight	Total
88 Leacocks Ln	54	52	56	48	50	52	76	85	-
15 Slessor Rd	50	52	54	47	51	52	72	80	-
11 Goodenough St	The noise contribution from existing passenger and freight trains is negligible at this locality. The highest LAmax noise level from freight trains not influenced by ambient noise was 52 dB(A).								
30 Wallcliffe Ct (26 m from rail)	61[3]	n/a	61[3]	58[3]	n/a	58[3]	85[3]	n/a	85[3]
19 Wallcliffe Ct Logger Location (64 m from rail)	53	n/a	53	49	-	49	77	n/a	77
14 Somercotes Ct (146 m from rail)	46[3]	n/a	46[3]	43[3]	n/a	43[3]	69[3]	n/a	69[3]

Note: 1. Measurements conducted as part of a report by Dr Renzo Tonin (Ref 2).

2. Passenger train noise not included.

3. Distance attenuation determined from attended measurements (refer Appendix D).

5 Conclusions

Unattended noise monitoring was undertaken at four representative locations to the west, south west, south and east of the Moorebank IMT development site for a period of 2-weeks at each location.

Rail noise contributions have been calculated at the façade of the representative receivers, consistent with the requirements of the RING. Noise levels have been separately quantified for passenger and freight trains. The weekly average L_{Aeq} and highest daily $L_{AFmax,95\%}$ noise levels at the façade of the nearest residence to each monitoring location is provided in Table 4-2.

APPENDIX A Glossary of terminology

The following is a brief description of the technical terms used to describe noise to assist in understanding the technical issues presented.

Adverse weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
Ambient noise	The all-encompassing noise associated within a given environment at a given time, usually composed of sound from all sources near and far.
Assessment period	The period in a day over which assessments are made.
Assessment point	A point at which noise measurements are taken or estimated. A point at which noise measurements are taken or estimated.
Background noise	Background noise is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation, when extraneous noise is removed. It is described as the average of the minimum noise levels measured on a sound level meter and is measured statistically as the A-weighted noise level exceeded for ninety percent of a sample period. This is represented as the L90 noise level (see below).
Decibel [dB]	The units that sound is measured in. The following are examples of the decibel readings of every day sounds: 0dB The faintest sound we can hear 30dB A quiet library or in a quiet location in the country 45dB Typical office space. Ambience in the city at night 60dB CBD mall at lunch time 70dB The sound of a car passing on the street 80dB Loud music played at home 90dB The sound of a truck passing on the street 100dB The sound of a rock band 115dB Limit of sound permitted in industry 120dB Deafening
dB(A)	A-weighted decibels. The A- weighting noise filter simulates the response of the human ear at relatively low levels, where the ear is not as effective in hearing low frequency sounds as it is in hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter.
dB(C)	C-weighted decibels. The C-weighting noise filter simulates the response of the human ear at relatively high levels, where the human ear is nearly equally effective at hearing from mid-low frequency (63Hz) to mid-high frequency (4kHz), but is less effective outside these frequencies.
Frequency	Frequency is synonymous to pitch. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.
Impulsive noise	Having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise.
Intermittent noise	The level suddenly drops to that of the background noise several times during the period of observation. The time during which the noise remains at levels different from that of the ambient is one second or more.
$L_{Aeq(15hour)}$	The "equivalent A-weighted noise level" is the summation of noise events integrated over the 15 hour daytime period.

$L_{Aeq(9hour)}$	The "equivalent A-weighted noise level" is the summation of noise events integrated over the 9 hour night-time period.
$L_{AFmax,95\%}$	The 95th percentile LAFmax level for train passbys (i.e. the LAFmax level not exceeded by 95% of passbys). The LAFmax level is the maximum A-weighted, fast response sound pressure level measured over a given period
L_{Max}	The maximum sound pressure level measured over a given period.
L_{Min}	The minimum sound pressure level measured over a given period.
L_1	The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.
L_{10}	The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.
L_{90}	The level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L90 noise level expressed in units of dB(A).
L_{eq}	The "equivalent noise level" is the summation of noise events and integrated over a selected period of time.
Reflection	Sound wave changed in direction of propagation due to a solid object obscuring its path.
SEL	Sound Exposure Level (SEL) is the constant sound level which, if maintained for a period of 1 second would have the same acoustic energy as the measured noise event. SEL noise measurements are useful as they can be converted to obtain Leq sound levels over any period of time and can be used for predicting noise at various locations.
Sound	A fluctuation of air pressure which is propagated as a wave through air.
Sound absorption	The ability of a material to absorb sound energy through its conversion into thermal energy.
Sound level meter	An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure levels.
Sound pressure level	The level of noise, usually expressed in decibels, as measured by a standard sound level meter with a microphone.
Sound power level	Ten times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power.
Tonal noise	Containing a prominent frequency and characterised by a definite pitch.

APPENDIX B Daily train noise levels at nearest receiver

Measurements at 88 Leacocks Lane

Table 5-1 88 Leacocks Lane (Glenfield Farm): Daily number of identified passenger and freight trains on track

Date	Day	Daytime (7am to 10 pm)			Night-time (7am to 10 pm)		
		Passenger	Freight	Total	Passenger	Freight	Total
1/08/2017	Tue	120[1]	15[1]	135[1]	34	10	44
2/08/2017	Wed	172	16	188	33	13	46
3/08/2017	Thur	146[2]	19[2]	165[2]	2[2]	7[2]	9[2]
4/08/2017	Fri	Note 3	21	21	Note 3	6	6
5/08/2017	Sat	Note 3	14	14	Note 3	10	10
6/08/2017	Sun	Note 3	13	13	Note 3	10	10
7/08/2017	Mon	Note 3	17	17	Note 3	11	11
8/08/2017	Tue	Note 3	21	21	Note 3	12	12
9/08/2017	Wed	Note 3	15	15	Note 3	13	13
10/08/2017	Thur	Note 3	21	21	Note 3	18	18
11/08/2017	Fri	Note 3	24	24	Note 3	8	8
12/08/2017	Sat	Note 3	20	20	Note 3	12	12
13/08/2017	Sun	Note 3	2[1]	2[1]	Note 3	-[1]	-[1]

Note: 1. Incomplete data set due to start/end time of unattended measurements
2. Incomplete data due to weather events (passbys excluded)
3. Passenger train noise not included in detailed analysis

Table 5-2 88 Leacocks Lane (Glenfield Farm): L_{Aeq} noise levels – at nearest residence – facade reflected

Date	Day	Daytime (7am to 10 pm) $L_{Aeq(15hour)}$			Night-time (7am to 10 pm) $L_{Aeq(9hour)}$			$L_{AFmax,95\%}$		
		Passenger	Freight	Total	Passenger	Freight	Total	Passenger	Freight	Total
1/08/2017	Tue	53.9[1]	49.4[1]	55.2[1]	48.0	49.0	51.5	73.2	78.1	-
2/08/2017	Wed	54.0	50.0	55.5	47.1	48.1	50.6	74.0	74.5	-
3/08/2017	Thur	54.3[1]	51.3[1]	56.1[1]	Weather affected			76.3	79.9	-
4/08/2017	Fri	54.0[3]	50.9	50.9[3]	47.6[3]	48.1	50.9	-	80.3	-
5/08/2017	Sat	Note 4	48.5	-	Note 4	49.8	-	-	77.2	-
6/08/2017	Sun	Note 4	48.5	-	Note 4	50.0	-	-	85.3	-
7/08/2017	Mon	54.0[3]	49.2	45.3	47.6[3]	49.8	51.9	-	75.4	-
8/08/2017	Tue	54.0[3]	54.3	57.2	47.6[3]	51.9	53.2	-	80.4	-
9/08/2017	Wed	54.0[3]	50.1	55.5	47.6[3]	51.4	52.9	-	80.7	-
10/08/2017	Thur	54.0[3]	51.7	56.0	47.6[3]	50.8	52.5	-	83.2	-
11/08/2017	Fri	54.0[3]	52.3	56.3	47.6[3]	48.7	51.2	-	83.7	-
12/08/2017	Sat	Note 4	49.4	-	Note 4	50.8	-	-	73.1	-

Date	Day	Daytime (7am to 10 pm) $L_{Aeq(15hour)}$			Night-time (7am to 10 pm) $L_{Aeq(9hour)}$			$L_{AFmax,95\%}$		
		Passenger	Freight	Total	Passenger	Freight	Total	Passenger	Freight	Total
13/08/2017	Sun	Note 4	39.3[1]	-				-	-	-
Overall		54.0	51.5	56.0	47.6	49.9	51.9	76.3	85.3	-

Note: 1. Due to incomplete data set, calculated noise levels have been normalised to the number of passbys observed on Wed 2/8/2017
2. Incomplete data due to weather events (passbys excluded)
3. Passenger train noise level analysis not undertaken for these days and is assumed to be the same as the values measured on Wed 2/8/2017
4. Passenger train noise analysis not undertaken for Saturday and Sunday but is expected to be lower than the measured noise levels on weekdays
5. Grey shading indicates excluded data for overall noise calculations

Measurements at 15 Slessor Road

Table 5-3 15 Slessor Road: Daily number of identified passenger and freight trains on track

Date	Day	Daytime (7am to 10 pm)			Night-time (7am to 10 pm)		
		Passenger	Freight	Total	Passenger	Freight	Total
27/11/2018	Tue	183[1]	23[1]	206[1]	47[2]	14[2]	61[2]
28/11/2018	Wed	38[2]	5[2]	43[2]	84	15	99
29/11/2018	Thur	246	32	278	85	19	104
30/11/2018	Fri	231	36	267	81	9	90
1/12/2018	Sat	151	28	179	91	10	101
2/12/2018	Sun	78[2]	5[2]	83[2]	69	18	87
3/12/2018	Mon	228	22	250	86	13	99
4/12/2018	Tue	252	18	270	85	14	99
5/12/2018	Wed	242	21	263	81[2]	14[2]	95[2]
6/12/2018	Thur	247	22	269	79	10	89
7/12/2018	Fri	229	29	258	74	10	84
8/12/2018	Sat	144	19	163	81	11	92
9/12/2018	Sun	154	14	168	85	9	94
10/12/2018	Mon	251	21	272	3[1]	0[1]	3[1]

Note: 1. Incomplete data set due to start/end time of unattended measurements
2. Incomplete data due to weather events (passbys excluded)

Table 5-4 15 Slessor Road: L_{Aeq} noise levels – at nearest residence – facade reflected

Date	Day	Daytime (7am to 10 pm) $L_{Aeq(15hour)}$			Night-time (7am to 10 pm) $L_{Aeq(9hour)}$			$L_{AFmax,95\%}$		
		Passenger	Freight	Total	Passenger	Freight	Total	Passenger	Freight	Total
27/11/2018	Tue	48.7[1]	51.3[1]	53.2[1]	44.1[2]	49.6[2]	50.7[2]	68.8[1,2]	77.0[1,2]	72.8[1,2]
28/11/2018	Wed	42.3[2]	42.4[2]	45.3[2]	47.4	52.8	53.9	69.0[2]	77.6[2]	73.1[2]
29/11/2018	Thur	50.8	53.6	55.5	48.2	52.2	53.7	71.3	80.3	74.6
30/11/2018	Fri	49.2	51.7	53.6	46.8	49.3	51.3	70.6	77.3	73.3
1/12/2018	Sat	47.5	50.4	52.2	46.9	49.3	51.2	68.4	76.0	-
2/12/2018	Sun	43.5[2]	42.1[2]	45.8[2]	46.4	51.0	52.3	70.2[2]	78.0[2]	-
3/12/2018	Mon	48.0	49.5	51.8	47.6	50.5	52.3	69.5	78.9	-
4/12/2018	Tue	50.3	51.1	53.8	47.0	49.9	51.7	71.1	77.9	-
5/12/2018	Wed	50.0	52.0	54.1	46.9[2]	51.3[2]	52.7[2]	69.7[2]	79.8[2]	-
6/12/2018	Thur	50.0	52.6	54.5	47.9	50.7	52.5	70.7	80.4	-
7/12/2018	Fri	50.3	51.1	53.7	46.2	48.6	50.6	71.6	77.4	-
8/12/2018	Sat	47.6	50.6	52.4	47.3	50.5	52.2	69.1	78.7	-
9/12/2018	Sun	47.8	49.0	51.4	47.1	48.5	50.9	68.9	77.3	-
10/12/2018	Mon	49.7	50.3	53.0	-	-	-	69.0[1]	78.1[1]	-
Overall		49.9	51.7	53.9	47.4	50.8	52.4	71.6	80.4	-

Note: 1. Incomplete data due to start/end of recording
2. Incomplete data due to weather events (passbys excluded)
3. Grey shading indicates excluded data for overall noise calculations

Measurements at 11 Goodenough Street

Refer Section 4.2

Measurements at 19 Wallcliffe Court

Table 5-5 19 Wallcliffe Court: Daily number of identified passenger and freight trains on track

Date	Day	Daytime (7am to 10 pm)			Night-time (7am to 10 pm)		
		Passenger	Freight	Total	Passenger	Freight	Total
27/11/2018	Tue	107[1]	-[1]	107[1]	26[2]	-[2]	26[2]
28/11/2018	Wed	22[2]	-[2]	22[2]	43	-	43
29/11/2018	Thur	157	-	157	46	-	46
30/11/2018	Fri	158	-	158	49	-	49
1/12/2018	Sat	124	-	124	49	-	49
2/12/2018	Sun	61[2]	-[2]	61[2]	39	-	39
3/12/2018	Mon	152	-	152	45	-	45
4/12/2018	Tue	162	-	162	48	-	48
5/12/2018	Wed	162	-	162	46[2]	-[2]	46[2]
6/12/2018	Thur	156	-	156	51	-	51
7/12/2018	Fri	162	-	162	48	-	48
8/12/2018	Sat	121	-	121	48	-	48
9/12/2018	Sun	124	-	124	44	-	44
10/12/2018	Mon	158	-	158	-[1]	-[1]	-[1]

Note: 1. Incomplete data set due to start/end time of unattended measurements
2. Incomplete data due to weather events (passbys excluded)

Table 5-6 19 Wallcliffe Court: L_{Aeq} noise levels – at logger location 64 m from rail – facade reflected

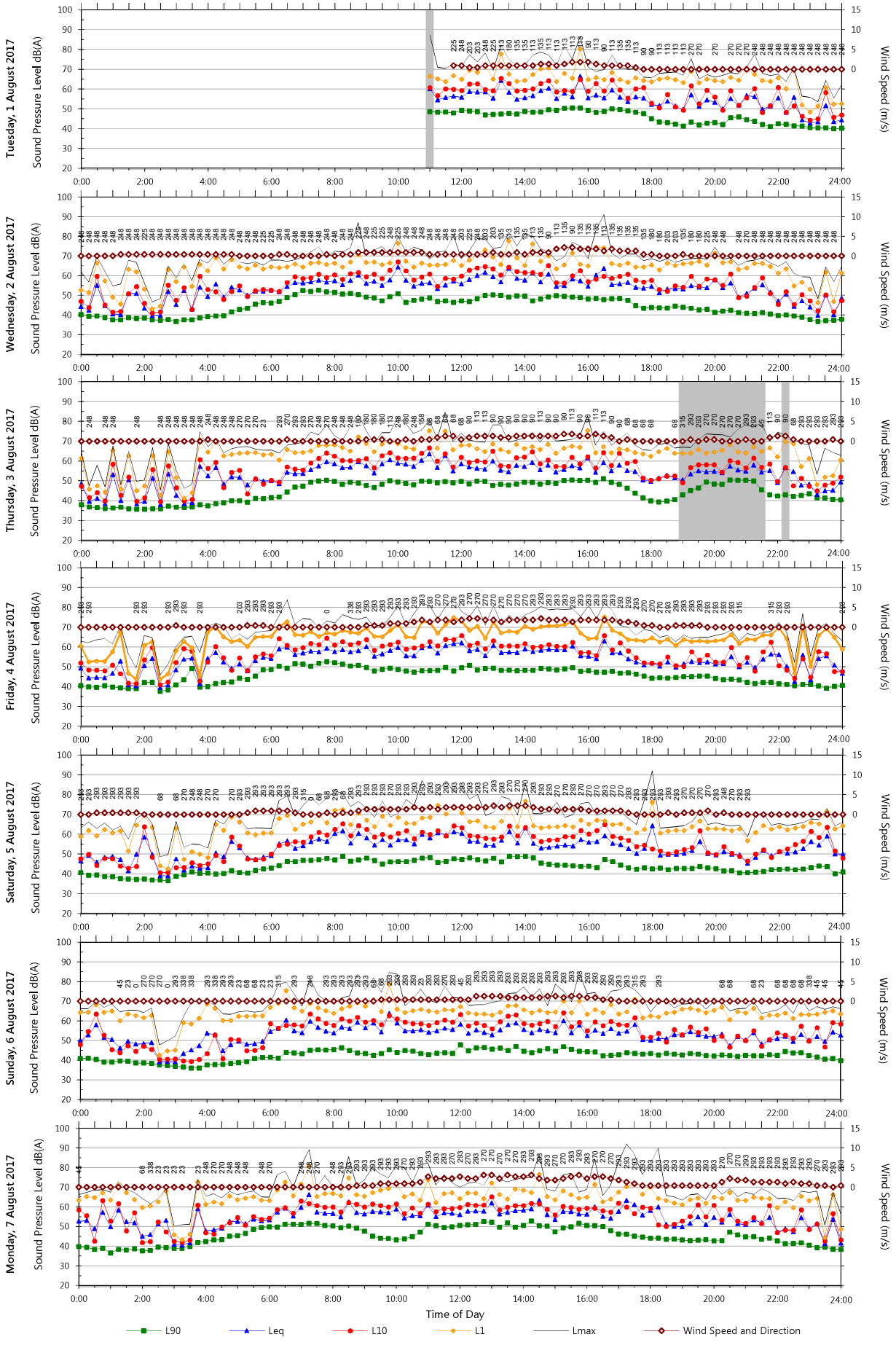
Date	Day	Daytime (7am to 10 pm) $L_{Aeq(15hour)}$			Night-time (7am to 10 pm) $L_{Aeq(9hour)}$			$L_{Afmax,95\%}$		
		Passenger	Freight	Total	Passenger	Freight	Total	Passenger	Freight	Total
27/11/2018	Tue	50.0[1]	-	-	45.6[2]	-	-	74.9[1,2]	-	-
28/11/2018	Wed	45.0[2]	-	-	50.1	-	-	76.4[2]	-	-
29/11/2018	Thur	53.6	-	-	49.5	-	-	76.5	-	-
30/11/2018	Fri	52.5	-	-	49.1	-	-	75.3	-	-
1/12/2018	Sat	50.2	-	-	49.1	-	-	74.6	-	-
2/12/2018	Sun	47.9[2]	-	-	48.9	-	-	75.5[2]	-	-
3/12/2018	Mon	51.9	-	-	50.0	-	-	76.0	-	-
4/12/2018	Tue	52.9	-	-	48.5	-	-	75.7	-	-
5/12/2018	Wed	52.7	-	-	48.4[2]	-	-	75.5[2]	-	-
6/12/2018	Thur	52.0	-	-	50.0	-	-	75.2	-	-
7/12/2018	Fri	51.7	-	-	48.6	-	-	74.9	-	-
8/12/2018	Sat	49.1	-	-	48.6	-	-	74.4	-	-
9/12/2018	Sun	50.0	-	-	48.4	-	-	73.9	-	-
10/12/2018	Mon	52.2	-	-	-	-	-	75.4[1]	-	-
Overall		52.5	-	-	49.4			76.5		

Note: 1. Incomplete data due to start/end of recording
2. Incomplete data due to weather events (passbys excluded)
3. Grey shading indicates excluded data for overall noise calculations

APPENDIX C Long-term 15-minute noise level results

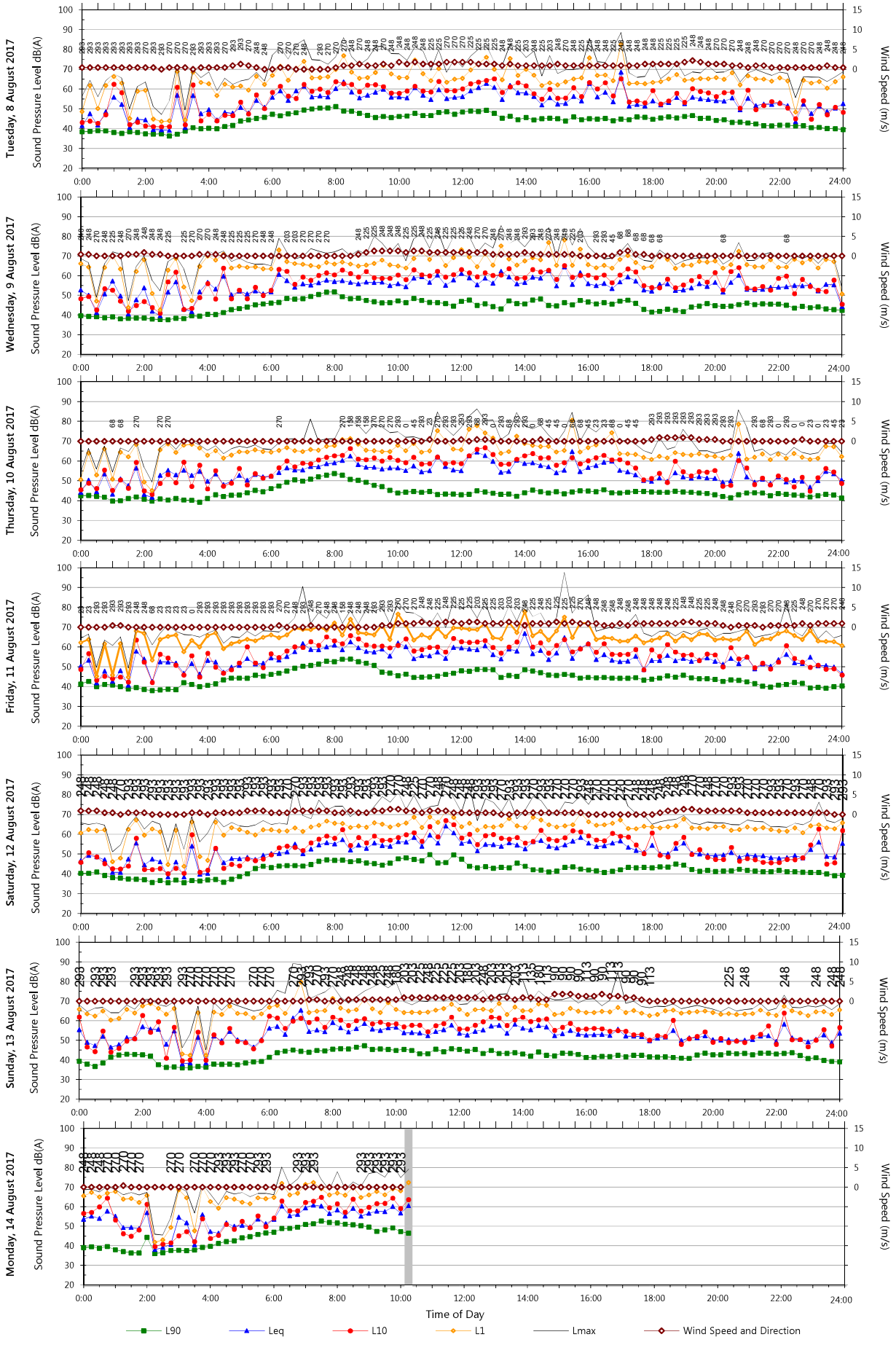
Unattended Monitoring Results

Location: L11 - 88 Leacocks Lane, Casula



Data File: 2017-08-01_SLM_000_123_Rpt_Report.txt

Template: QTE-26 (rev 16) Logger Graphs Program



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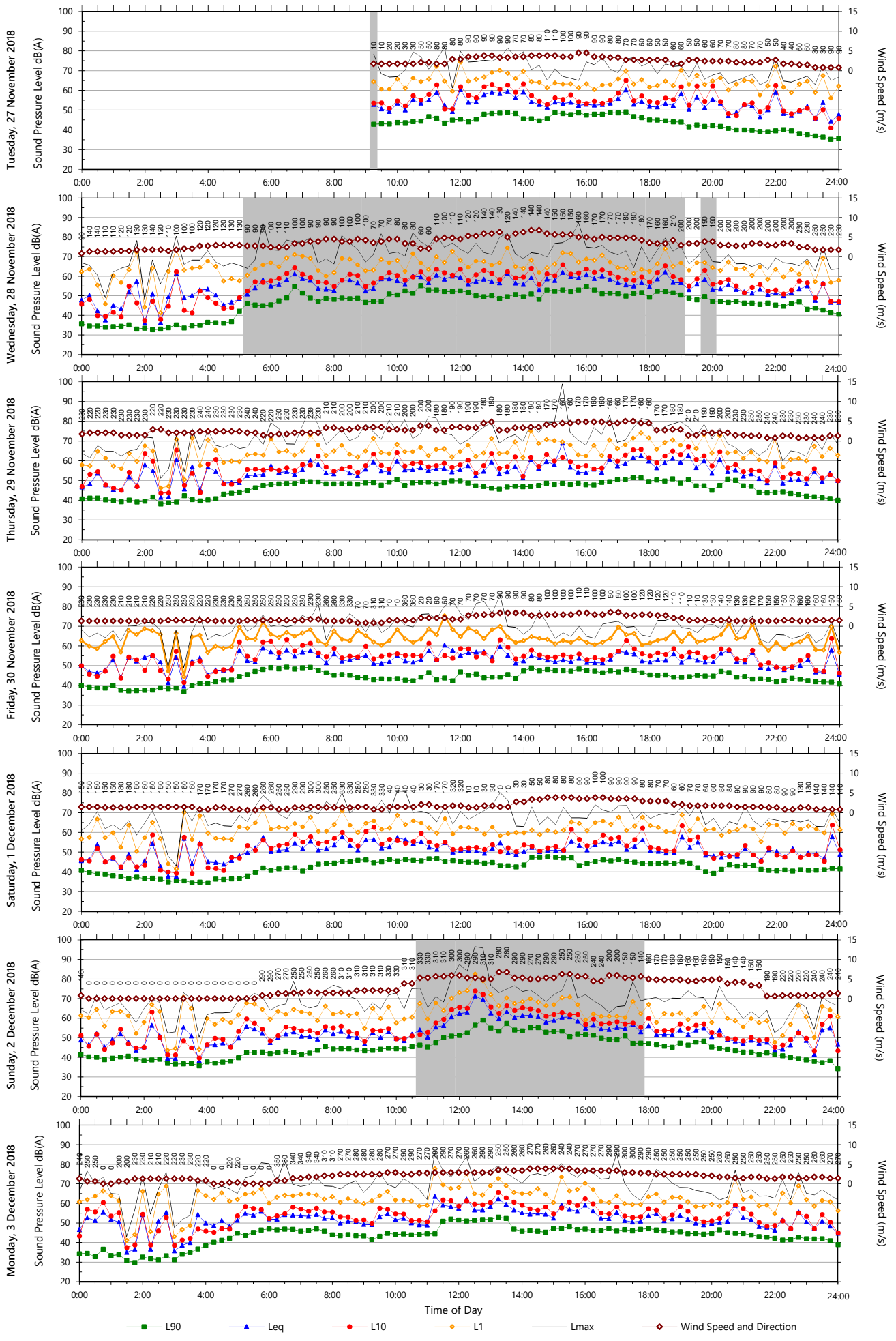

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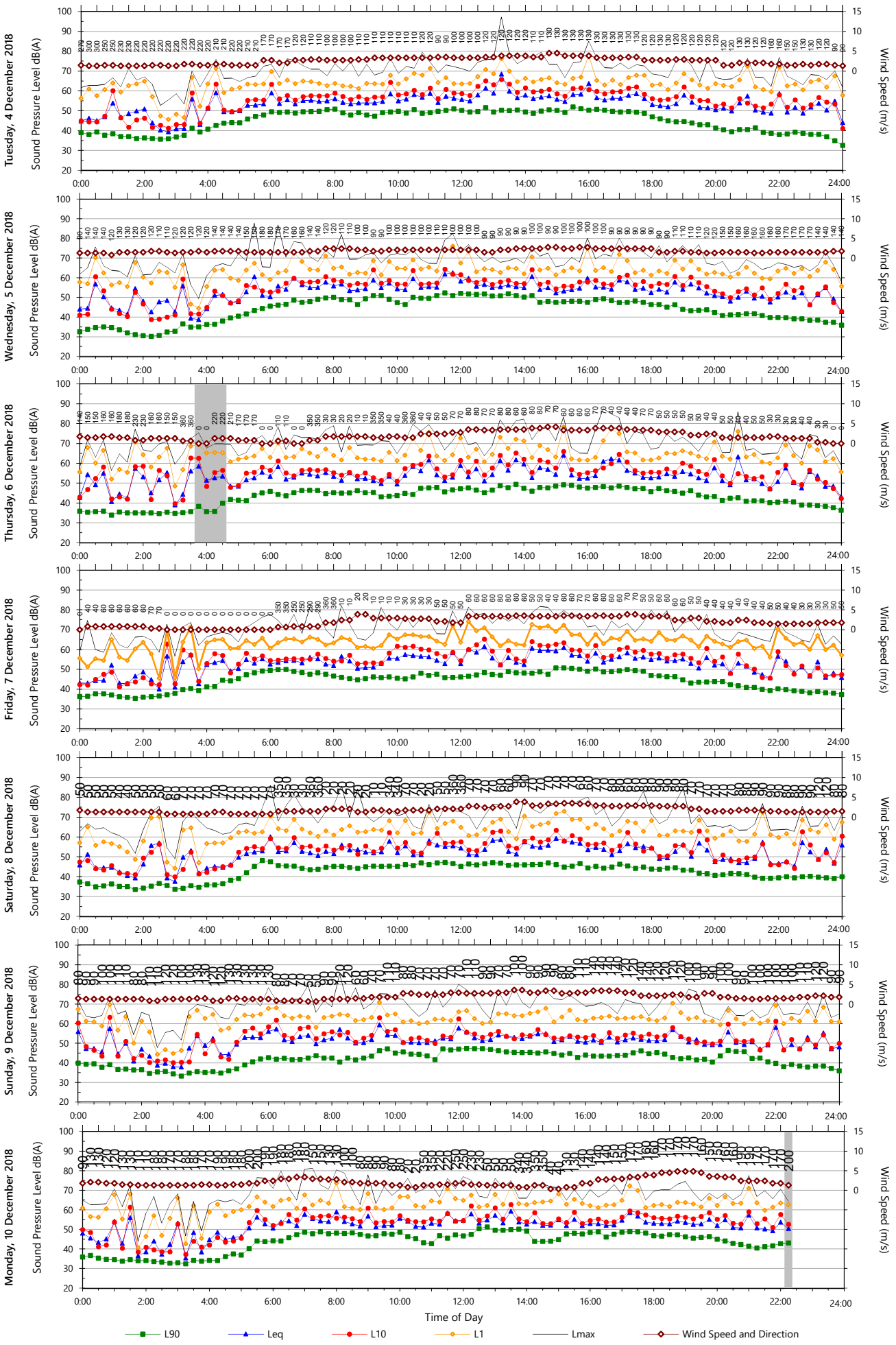

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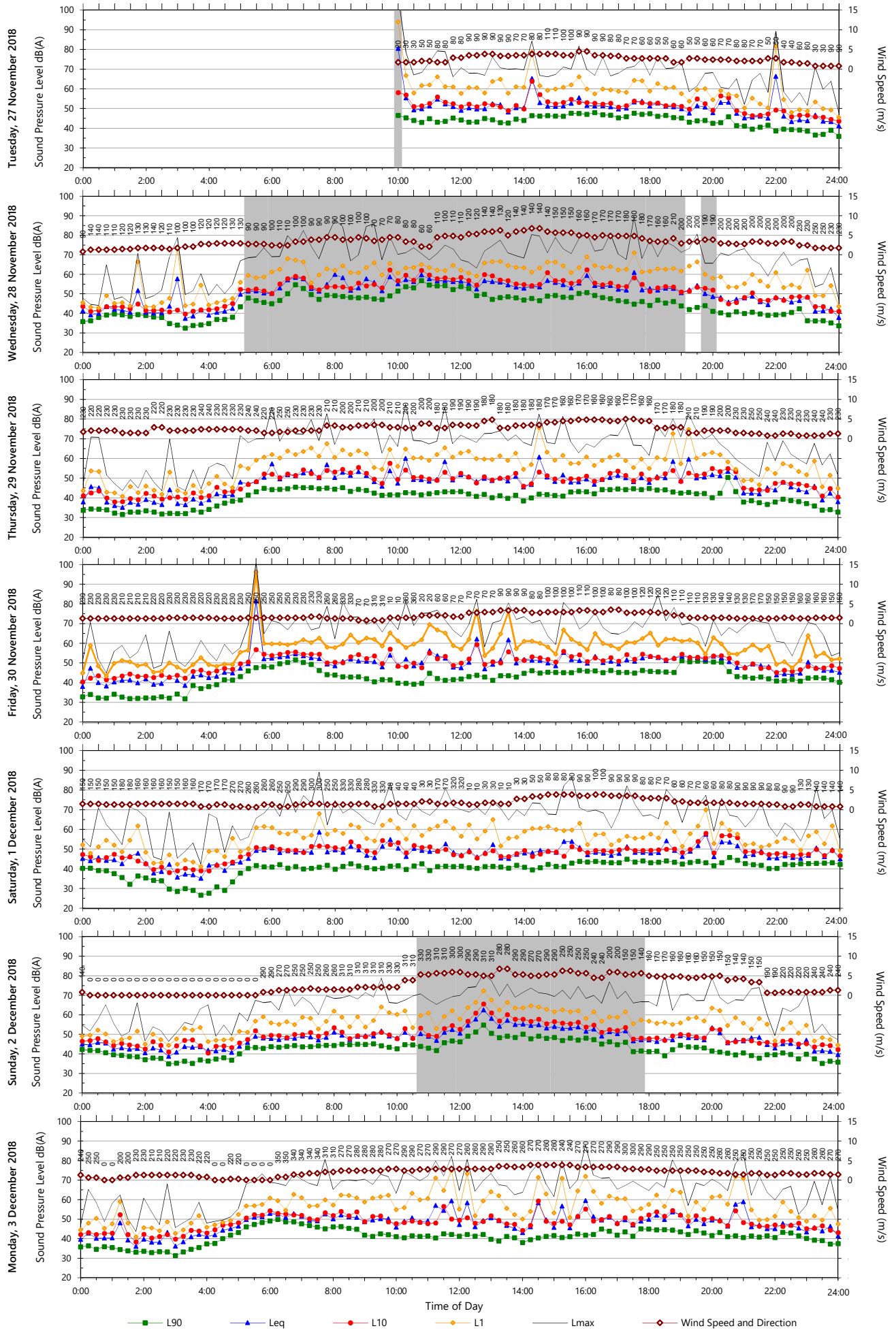

Data File: 2018-11-27_SLM_000_123_Rpt_Report.txt

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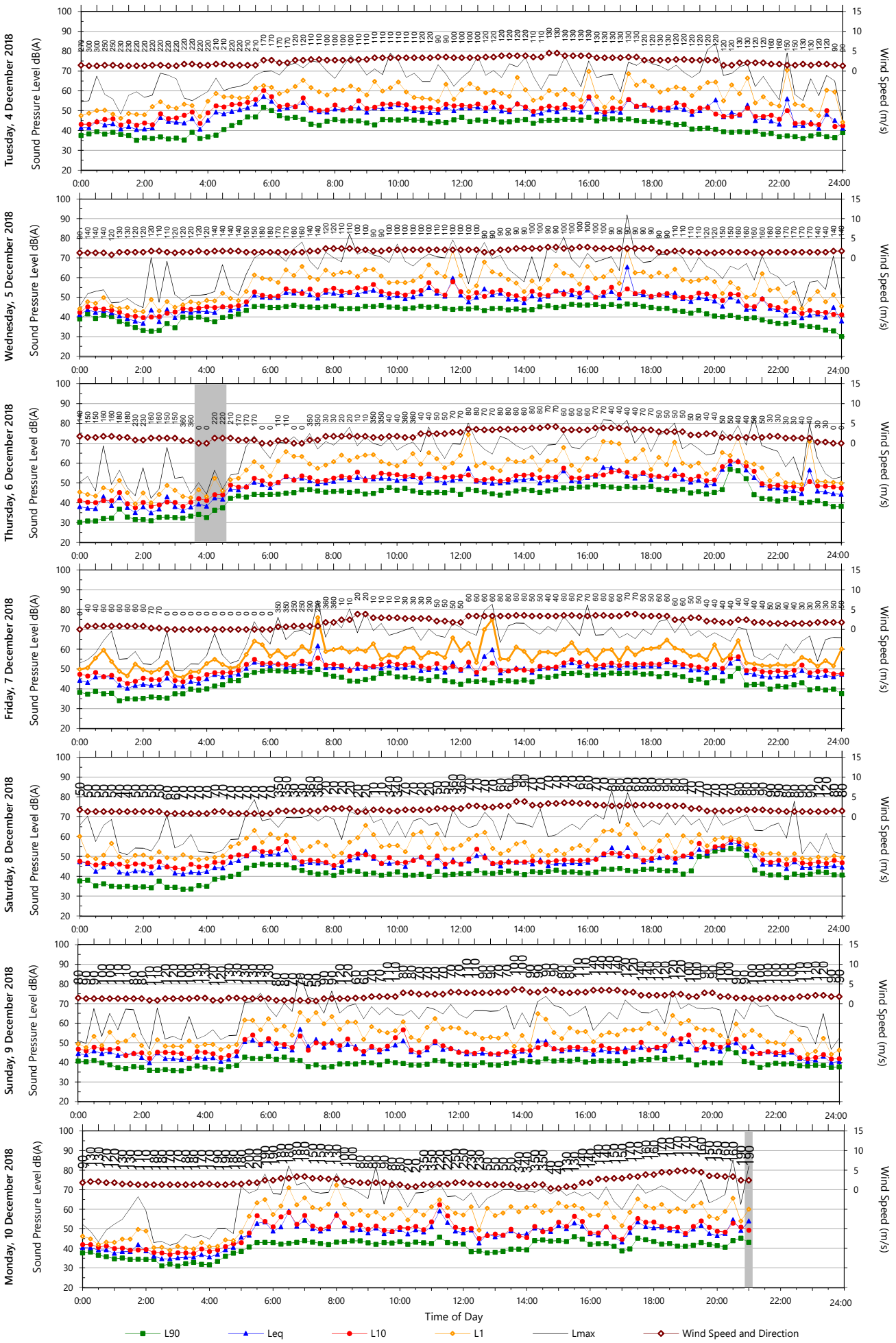
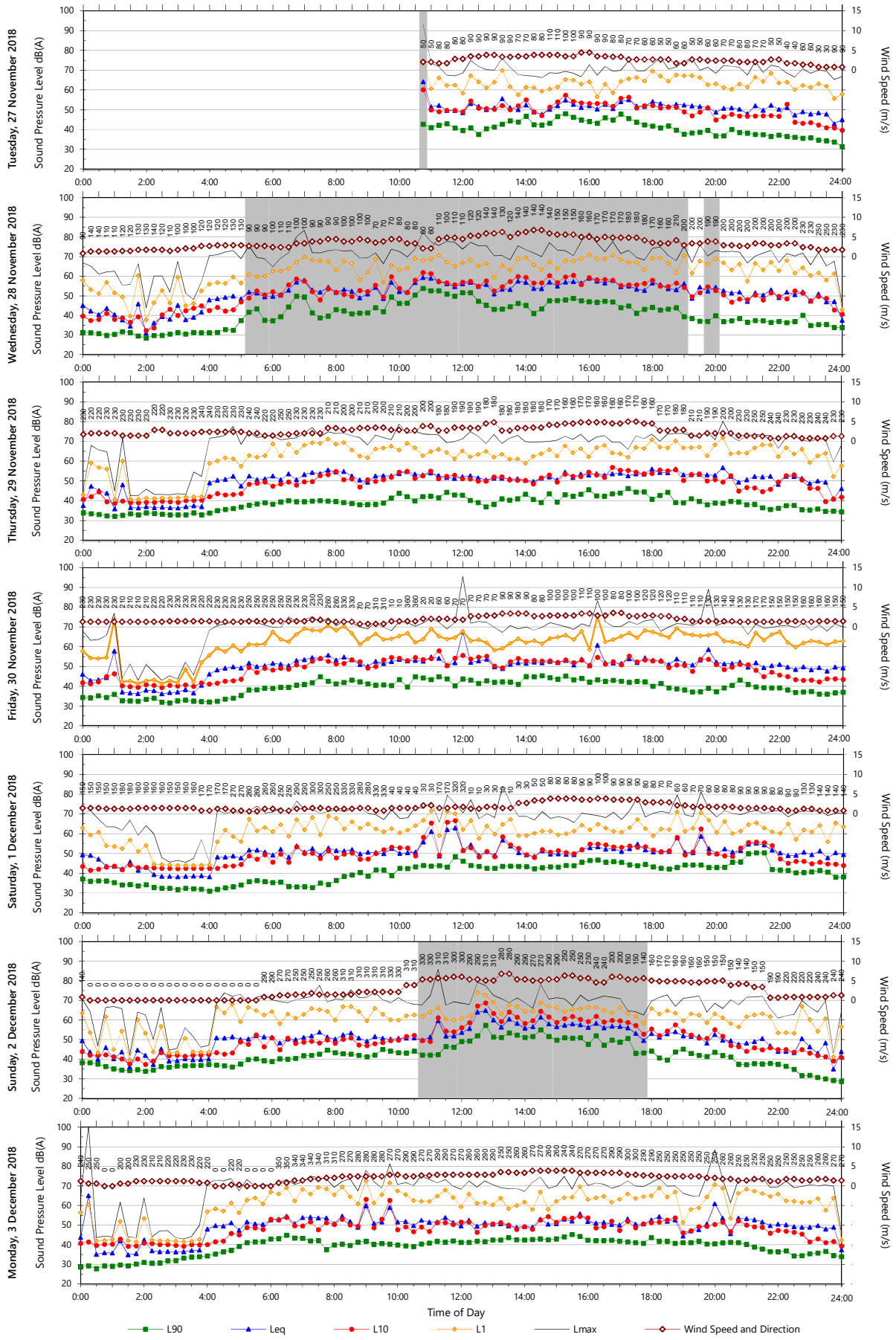


Data File: 2018-11-27_SLM_000_123_Rpt_Report.txt

Template: QTE-26 (rev 23) Logger Graphs Program

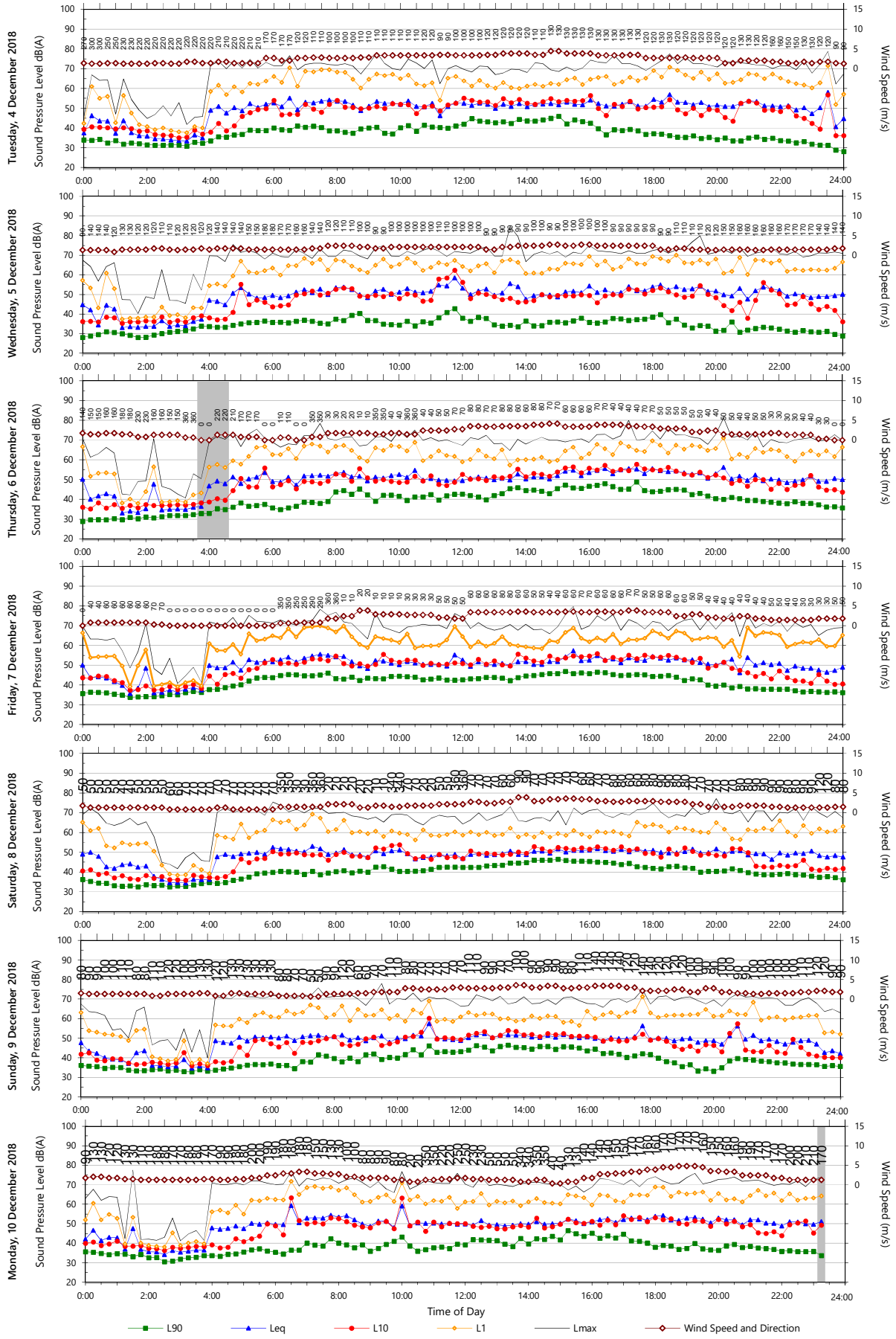
Unattended Monitoring Results **Location: Public area adjacent to 19 Wallcliffe Court, Wattle Grove**



Data File: 2018-11-27_SLM_001_123_Rpt_Report.txt

Template: QTE-26 (rev 23) Logger Graphs Program

Unattended Monitoring Results **Location: Public area adjacent to 19 Wallcliffe Court, Wattle Grove**



Data File: 2018-11-27_SLM_001_123_Rpt_Report.txt

Template: QTE-26 (rev 23) Logger Graphs Program

APPENDIX D Distance Attenuation – 19 Wallcliffe Court

Attended measurements were conducted at three positions for the purposes of determining the rate at which noise levels reduce with increasing distance from the East Hills Line.

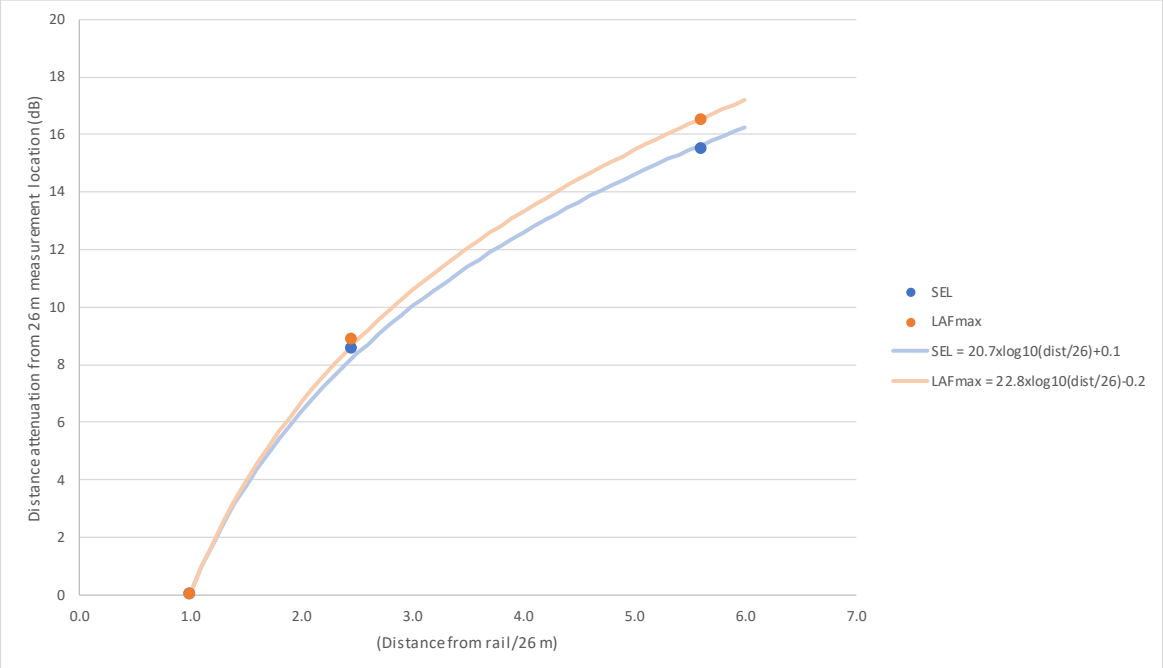
In the area near 19 Wallcliffe Court, attended measurements were conducted at three locations with increasing distance from the rail (see Figure 2-9) to determine the rate at which noise levels reduce with increasing distance from the East Hills Line.

The attended measurements were conducted on 10 December between 23:20 and 00:15 during 5 representative train passbys. A summary of the logarithmic average SEL noise levels and average L_{AFmax} noise levels is provided in Figure 5-1.

Table 5-7 19 Wallcliffe Court – Distance attenuation measurement results

Distance from Rail	Logarithmic average SEL noise level, dB(A)	SEL noise level reduction compared with near location, dB(A)	Average L_{AFmax} Noise Level, dB(A)	L_{Amax} noise level reduction compared with near location, dB(A)
26 m	82.3	0	74.7	0
64 m	73.8	8.6	65.9	8.9
146 m	66.8	15.5	58.2	16.5

Figure 5-1 19 Wallcliffe Court – Distance attenuation measurement results



B.13 Rail Noise Levels at Glenfield Farm (2020)

Renzo Tonin & Associates Report TL116-05F05 Rail Link Noise Monitoring (r1)

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MOOREBANK INTERMODAL TERMINAL PROJECT

Rail Link Noise Monitoring per Approval Condition G7B of SSD 6766

15 September 2020

Tactical Group

TL116-05F05 Rail Link Noise Monitoring (r1).docx

35 1982-2017 ACOUSTIC ENGINEERING EXCELLENCE

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Document details

Detail	Reference
Doc reference:	TL116-05F05 Rail Link Noise Monitoring (r1).docx
Prepared for:	Tactical Group
Address:	Level 15, 124 Walker Street North Sydney NSW 2060
Attention:	[redacted]

Document control

Date	Revision history	Non-issued revision	Issued revision	Prepared	Instructed	Reviewed / Authorised
19.08.2020	First Issue	0	1	[redacted]		

Contents

List of tables

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1 Introduction

The Moorebank Intermodal Terminal involves the development of intermodal freight terminal facilities at Moorebank in south-west Sydney, linked by rail to Port Botany and the interstate rail network. The Project includes a new rail link, connecting the Intermodal Terminal to the Southern Sydney Freight Line (SSFL).

This report has been prepared to determine if current noise levels from train movements on the new rail link comply with noise limit in State Significant Development (SSD) Approval SSD 6766. The requirements of condition G7B are copied verbatim below.

> *G7B. The Applicant shall:*
>
> *(a) not less than three months and not more than twelve months from commencement of operation, engage an appropriately qualified and experienced acoustic engineer to undertake a night-time noise survey at Glenfield Farm (or an equivalent location if access is denied).*
>
> *(b) the noise survey shall be conducted in accordance with the EPA's Rail Infrastructure Noise Guideline 2013 to determine:*
>
> > *(i) the contribution of any new rail traffic travelling to and from the development; and,*
> >
> > *(ii) the increase in the total rail traffic noise level caused by any new rail traffic to and from the development.*
>
> *(c) the noise survey shall be conducted for not less than 12 contiguous days in the winter months (July, August or September).* [Note that this should be June, July and August]
>
> *(d) if as a result of the noise survey there is a sustained increase in the total rail traffic noise level due to the noise level from rail traffic travelling to and from the development of more than 2dB(A) for more than 30% of nights surveyed, the Applicant shall:*
>
> *within twelve months, construct a noise barrier along the relevant sections of rail link in accordance with the specifications provided by an appropriately qualified and experienced acoustic engineer so as to limit the increase in the total rail traffic noise level at Glenfield Farm caused by any new rail traffic to and from the development to not exceed 2dB(A).*
>
> *(e) the report of the noise survey including the results and recommendations shall be provided to the Secretary.*

The existing level of rail traffic noise prior to construction of the new rail link is documented in Renzo Tonin & Associates Report TJ741-04F03 (*Moorebank Intermodal Terminal Project - Measurement of Existing Levels of Rail Noise (2018) per Condition 3C*, dated 16 July 2019).

Renzo Tonin & Associates is a member firm of the Association of Australian Acoustical Consultants (AAAC). The work documented in this report was carried out in accordance with the Renzo Tonin & Associates Quality Assurance System, which is based on Australian Standard / NZS ISO 9001.

Appendix A contains a glossary of acoustic terms used in this report.

2 Timing of night-time noise survey

Approval Condition G7B requires that the timing of the noise measurements to be performed:

- not less than three months from the commencement of operations;
- not more than twelve months from the commencement of operations;
- for not less than 12 contiguous days in the winter months

The commencement of rail operations on the new rail link occurred in November 2019 (spring). Noise compliance measurement are therefore required to be performed in winter 2020.

Noise monitoring was performed over 22 contiguous days between 13 August and 4 September 2020 in accordance with the above requirements. Due to the small number of train movements on the rail link during night-time periods, the monitoring was extended beyond the minimum requirement, including four days in spring.

3 Noise monitoring locations

Approval Condition G7B requires night-time measurements to be performed at Glenfield Farm (or an equivalent location if access is denied).

Permission was sought from the resident of the Glenfield Farm to perform the required noise monitoring in accordance with Approval Condition G7B. As permission was denied, an equivalent location in the publicly accessible area immediately north of the Glenfield Farm was selected. The alternative location has an equivalent noise exposure to the rail link and is positioned at the same distance from the nearest track.

The location of the Glenfield Farm and equivalent noise measurement location in relation to the new rail link is provided in Figure 1. A picture of the attended measurement location is provided in Figure 2.

At the alternative measurement location, there was no secure location to perform unattended noise measurements over a contiguous noise monitoring period of two or more weeks. In lieu of performing unattended noise monitoring, the following approach was adopted:

- Attended noise measurements were performed at the equivalent noise monitoring location during night-time periods when QUBE advised that a freight train movement on the new rail link was proposed to occur (to or from the Intermodal Terminal).
- Contiguous unattended noise measurements were performed at a position adjacent to the new rail link between 13 August and 4 September 2020 to capture all passby events. The noise monitoring data at this location can be referred to in the event that freight train movements occur outside the advised schedule and are not captured by the attended measurements.

The unattended noise measurements adjacent the new rail link were performed at two locations. The measurements at Unattended Location 1 were performed between 13 and 28 August. The unattended noise logger was moved to an alternative position (Unattended Location 2) between 28 August and 4 September, to determine if there was any change in the source noise characteristics. The unattended noise measurement positions are shown in Figure 1.

Figure 1 Glenfield Farm, equivalent noise measurement location and Intermodal Terminal rail link

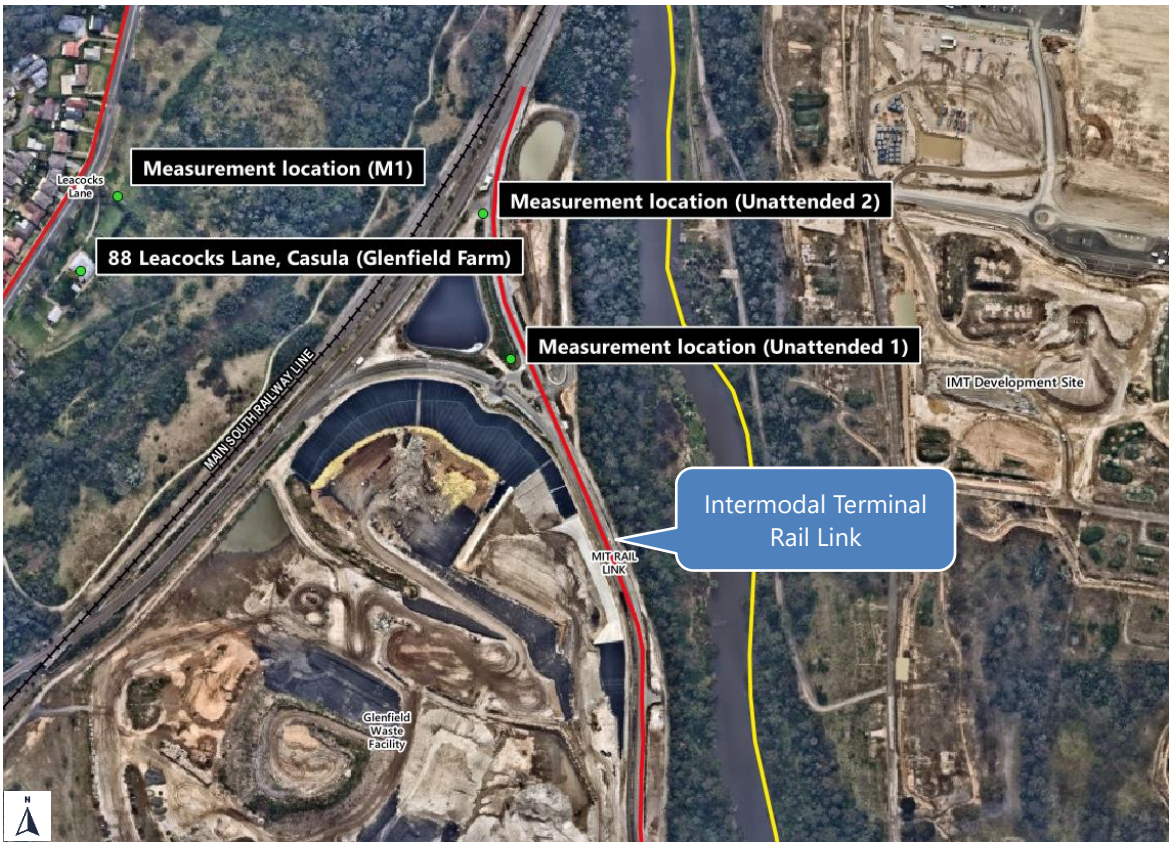
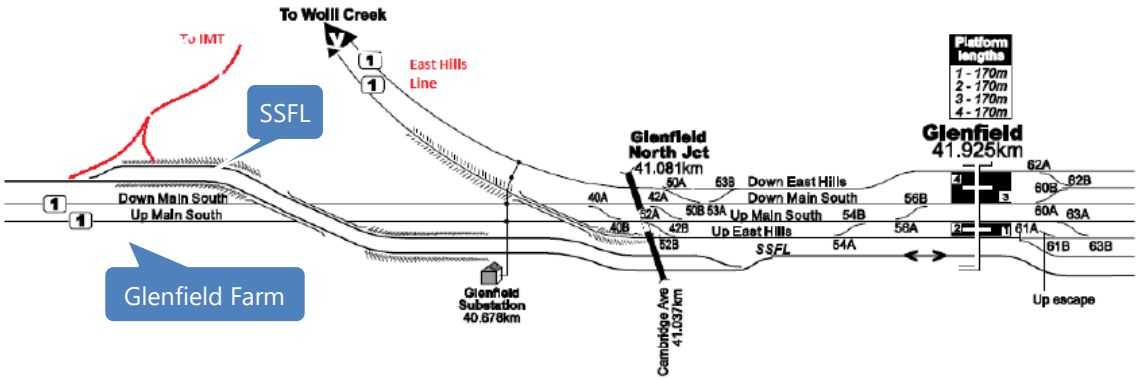


Figure 2 Measurement location adjacent Glenfield Farm

4 Summary of rail movements

A rail network schematic is provided in Figure 3 and illustrates the approximate location of Glenfield Farm in relation to the Intermodal Terminal rail link, the existing Southern Sydney Freight Line (SSFL), the Main South Line and the East Hills Line.

Figure 3 Rail network schematic



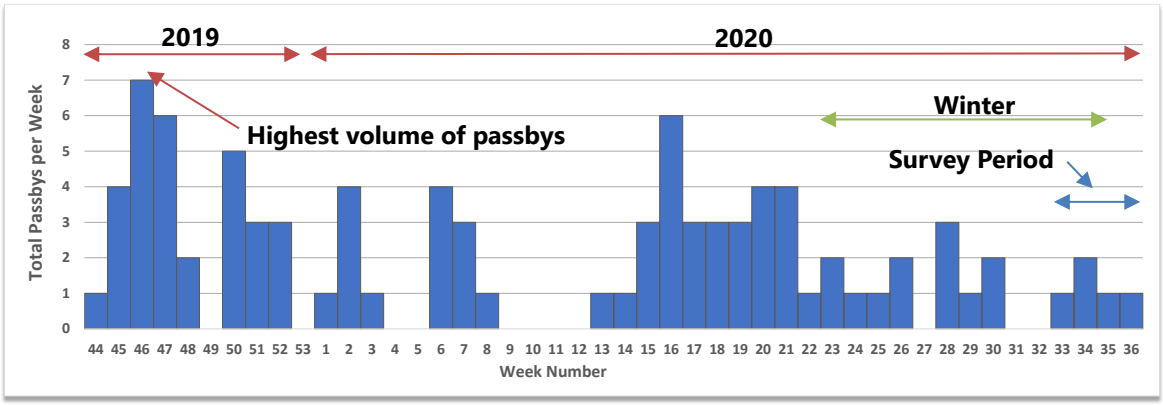
The East Hills Line is an electric passenger train only line. The Main South Line includes electric passenger trains, diesel passenger trains and diesel freight trains. The SSFL includes diesel freight trains only. These existing lines carry frequent rail traffic during the daytime and night-time periods.

The Intermodal Terminal rail link includes diesel freight trains only, operating to and from the Intermodal Terminal. The commencement of rail operations occurred in November 2019 and includes movements during the daytime (7am to 10pm) and night-time (10pm to 7am) periods. A summary of the number of night-time train movements per week on the new rail link, between November 2019 and September 2020, is shown in Figure 4. These movements have been derived from the permanent rail noise monitoring system results. The following observations are noted:

- The highest number of night-time passbys per week since the commencement of operations was seven. This occurred during week 46 of 2019 (week ending Sunday 3 November)
- The average number of night-time passbys since the commencement of operations was two per week
- There are eleven weeks where no night-time rail movements occurred to or from the Intermodal Terminal
- During the 22 day survey period in this report, there was a total of five train movements to or from the Intermodal Terminal. This corresponds to an average of less than two train movements per week and is representative of the average number of train movements during the winter period.

Approval Condition G7B requires the construction of a noise barrier if there is a sustained increase in total rail traffic noise levels greater than 2 dB(A) for more than 30% of nights surveyed. This equates to a noise increase greater than 2 dB(A) for two or more nights per week.

Figure 4 Summary of weekly night-time train passbys on new Intermodal Terminal rail link



5 Measurement methodology

Approval Condition G7B requires the noise survey to be conducted in accordance with the EPA's *Rail Infrastructure Noise Guideline* (RING, 2013) to determine the noise contribution from new rail traffic travelling to and from the Intermodal Terminal, and the total increase in rail traffic noise.

The measurement methodology in the following sections is consistent with the requirements in Section 3.4 (measuring existing levels of rail noise and vibration), of the RING.

5.1 Details of noise survey and measurement equipment

The equipment used for noise measurements comprised NTi Audio Type XL2 precision sound level analysers, which are class 1 instruments having and accuracy suitable for field and laboratory use. All instruments were calibrated prior to and subsequent to each measurement using a Bruel & Kjaer Type 4231 calibrator. No significant drift in calibration was observed.

All instrumentation complies with IEC 61672 (parts 1-3) '*Electroacoustics - Sound Level Meters*' and IEC 60942 '*Electroacoustics - Sound calibrators*' and carry current NATA certification (or if less than 2 years old, manufacturers certification). For all measurements, the microphone was positioned at a height of 1.5 m above ground level.

A summary of the equipment used in the noise surveys is provided in Table 1.

Table 1 Summary of monitoring equipment

Instrument	Make	Model	Serial Number	Last Calibrated
Sound level meter / analyser	NTi	XL2	A2A-07815-E0	09 Nov 2018
			A2A-08520-E0	14 Mar 2019
			A2A-02386-D2	08 July 2019
			A2A-13529-E0	20 Dec 2019
Field Calibrator	Bruel & Kjaer	Type 4231	3017534	30 June 2020
			1821397	7 Aug 2020
			2677710	16 Mar 2020

5.2 Measurement parameters and data analysis

For the attended measurement, the sound level meter was set up to measure the L_{AFmax} and single event sound exposure level (SEL) noise levels for each train passby.

The time period of train passbys measurements was determined using the procedure described in Section 6.6.3 of International Standard ISO3095:2013, whereby the measurement commences when the noise level is at least 10 dB lower than when the front of the train is opposite the microphone and

concludes when the noise level is at least 10 dB lower than when the end of the train is opposite the microphone.

The procedure in Clause 3.4.1.1 of the RING was used, together with the number of train passbys during night-time periods to calculate the $L_{Aeq(9hour)}$ night-time noise levels from train passbys on the new rail link.

For the unattended noise measurements adjacent the new rail link, the sound level meter was set up to record the L_{AFmax} and SEL noise levels in consecutive 1-second intervals. The measurement results were post-processed to identify train passby events on the new rail link and to determine the L_{AFmax} and SEL noise levels for each night-time train passby. The near-field noise measurement results were normalised to a reference measurement distance of 15 m.

6 Summary of existing rail noise levels

Approval Condition G7B requires the construction of a noise barrier if there is a sustained increase in total rail traffic noise levels greater than 2 dB(A). This increase is based on the total rail noise levels in the absence of the new rail link.

The existing level of rail noise at the Glenfield Farm is documented in Renzo Tonin & Associates Report TJ741-04F03 (*Moorebank Intermodal Terminal Project - Measurement of Existing Levels of Rail Noise (2018) per Condition 3C*, dated 16 July 2019). This is based on measurements performed over a 2-week period in August 2017. A summary of the measurement results is provided in Table 2.

Table 2 Summary of existing passenger and freight train noise levels at Glenfield Farm (2017) - facade reflected

Date	Night-time (7am to 10 pm) $L_{Aeq(9hour)}$, dB(A)			$L_{AFmax,95\%}$, dB(A)		
	Passenger	Freight	Total	Passenger	Freight	Total
1/08/2017	48.0	49.0	51.5	73.2	78.1	-
2/08/2017	47.1	48.1	50.6	74.0	74.5	-
3/08/2017	Weather affected			76.3	79.9	-
4/08/2017	47.6[1]	48.1	50.9	-	80.3	-
5/08/2017	Note 2	49.8	-	-	77.2	-
6/08/2017	Note 2	50.0	-	-	85.3	-
7/08/2017	47.6[1]	49.8	51.9	-	75.4	-
8/08/2017	47.6[1]	51.9	53.2	-	80.4	-
9/08/2017	47.6[1]	51.4	52.9	-	80.7	-
10/08/2017	47.6[1]	50.8	52.5	-	83.2	-
11/08/2017	47.6[1]	48.7	51.2	-	83.7	-
12/08/2017	Note 2	50.8	-	-	73.1	-
Overall	**47.6**	**49.9**	**51.9**	**76.3**	**85.3**	**-**

Note: 1. Passenger train noise level analysis not undertaken for these days and is assumed to be the same as the values measured on Wed 2/8/2017
2. Passenger train noise analysis not undertaken for Saturday and Sunday but is expected to be lower than the measured noise levels on weekdays
3. Grey shading indicates excluded data for overall noise calculations
4. All noise levels are facade corrected

The results in the above table indicate that the overall $L_{Aeq(9hour)}$ noise levels from existing passenger and freight train passbys is 52 dB(A). The $L_{AFmax,95\%}$ noise level from existing freight trains is 85 dB(A).

7 Intermodal Terminal rail link noise levels

7.1 Noise levels adjacent Glenfield Farm

During the 22 day measurement period between 13 August and 4 September 2020, there were five freight train movements to or from the Intermodal Terminal. For three of these passby events, attended noise measurements were performed at the measurement location adjacent Glenfield Farm.

A summary of the noise measurement results is provided in Table 3.

Table 3 Summary of Intermodal Terminal freight train noise levels adjacent Glenfield Farm (2020) - facade reflected

Date / time	Measured SEL noise level, dB(A)	Night-time (7am to 10 pm) $L_{Aeq(9hour)}$, dB(A)	Measured $L_{AFmax,95\%}$, dB(A)
	Intermodal Terminal Freight	Intermodal Terminal Freight	Intermodal Terminal Freight
15/08/2020 1:40 am	81	36	69
17/08/2020 06:42 am	Train not captured as arrived early		
22/08/2020 02:05 am	74	29	63
27/08/2020 02:10 am	Train not captured as arrived two hours late		
04/09/2020 04:33 am	73	28	63

Note: 1. All noise levels are facade corrected

The results in the above table show that the measured $L_{Aeq(9hour)}$ noise levels were between 28-36 dB(A) for the three train passby events measured, compared with an existing $L_{Aeq(9hour)}$ noise level of 52 dB(A). For current operations, the maximum increase in rail noise levels during the night-time period is calculated to be 0.1 dB(A), compared with the 2 dB(A) allowance in Approval Condition G7B.

For noise levels to increase by 2 dB(A) or more at the Glenfield Farm noise monitoring position, an SEL noise level of 95 dB(A) is required (assuming one train per night). The maximum measured SEL of 81 dB(A) is 14 dB(A) below this requirement.

The results in the above table show that the measured L_{AFmax} noise levels were between 63-69 dB(A) for the three train passby events measured. It can be seen that L_{AFmax} noise levels from train passbys on the new rail link are well below the existing L_{AFmax} noise levels in Table 2.

7.2 Noise levels adjacent new rail link (15 m)

A summary of the noise measurement results adjacent the new rail link, normalised to a reference measurement distance of 15 m is provided in Table 4.

Table 4 Summary of near-field Intermodal Terminal freight train noise levels – reference distance of 15 m

Date / time	Measured SEL noise level, dB(A)	Measured $L_{AFmax,95\%}$, dB(A)
	Intermodal Terminal Freight	Intermodal Terminal Freight
15/08/2020 1:40 am	94	87
17/08/2020 06:42 am	95	93
22/08/2020 02:05 am	100	93
27/08/2020 02:10 am	86	82
04/09/2020 04:33 am	95	92

The measurement results in the above table show that the passby noise levels for the freight trains on 17/08/2020 and 27/08/2020, which were not captured at the measurement location adjacent Glenfield Farm, are consistent with the remaining noise measurement results. On this basis, it is concluded that the two train passbys that were not captured at the measurement location adjacent Glenfield Farm are likely to have similar measurement results to the other three train passbys that were captured.

8 Conclusion

This report has been prepared to determine if current noise levels from train movements on the new rail link comply with noise limit in State Significant Development (SSD) Approval SSD 6766. Specifically, noise measurements have been performed at a location adjacent the Glenfield Farm to determine if the overall noise increase from train passbys on the Moorebank Intermodal Terminal Rail Link are generating a sustained noise level increase of more than 2 dB(A).

Noise monitoring was performed over 22 contiguous days between 13 August and 4 September 2020. During this period, a total of five freight trains travelled on the new rail link to or from the Intermodal Terminal.

The measured $L_{Aeq(9hour)}$ noise levels during the 10pm to 7am night-time period varied between 28-36 dB(A), compared with a total rail noise level of 52 dB(A) from existing train operations.

For current operations on the Moorebank Intermodal Terminal Rail Link, the maximum increase in overall rail noise levels was 0.1 dB(A) compared with the 2 dB(A) allowance in Approval Condition G7B. The maximum SEL passby noise level on the new rail link was 14 dB(A) lower than the required level to generate an overall noise increase of 2 dB(A) or more.

On this basis, the measured noise levels comply with the requirements in the Approval Condition and the construction of a noise barrier along relevant sections of rail link is not required.

APPENDIX A Glossary of terminology

The following is a brief description of the technical terms used to describe noise to assist in understanding the technical issues presented.

Adverse weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
Ambient noise	The all-encompassing noise associated within a given environment at a given time, usually composed of sound from all sources near and far.
Assessment period	The period in a day over which assessments are made.
Assessment Point	A point at which noise measurements are taken or estimated. A point at which noise measurements are taken or estimated.
Background noise	Background noise is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation, when extraneous noise is removed. It is described as the average of the minimum noise levels measured on a sound level meter and is measured statistically as the A-weighted noise level exceeded for ninety percent of a sample period. This is represented as the L90 noise level (see below).
Decibel [dB]	The units that sound is measured in. The following are examples of the decibel readings of common sounds in our daytime environment:

threshold of hearing	0 dB	The faintest sound we can hear
	10 dB	Human breathing
almost silent	20 dB	
	30 dB	Quiet bedroom or in a quiet national park location
generally quiet	40 dB	Library
	50 dB	Typical office space or ambience in the city at night
moderately loud	60 dB	CBD mall at lunch time
	70 dB	The sound of a car passing on the street
loud	80 dB	Loud music played at home
	90 dB	The sound of a truck passing on the street
very loud	100 dB	Indoor rock band concert
	110 dB	Operating a chainsaw or jackhammer
extremely loud	120 dB	Jet plane take-off at 100m away
threshold of pain	130 dB	
	140 dB	Military jet take-off at 25m away

dB(A)	A-weighted decibels. The A- weighting noise filter simulates the response of the human ear at relatively low levels, where the ear is not as effective in hearing low frequency sounds as it is in hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter.
dB(C)	C-weighted decibels. The C-weighting noise filter simulates the response of the human ear at relatively high levels, where the human ear is nearly equally effective at hearing from mid-low frequency (63Hz) to mid-high frequency (4kHz), but is less effective outside these frequencies.

Frequency	Frequency is synonymous to pitch. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.
Impulsive noise	Having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise.
Intermittent noise	The level suddenly drops to that of the background noise several times during the period of observation. The time during which the noise remains at levels different from that of the ambient is one second or more.
L_{Max}	The maximum sound pressure level measured over a given period.
L_{Min}	The minimum sound pressure level measured over a given period.
L_1	The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.
L_{10}	The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.
L_{90}	The level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L90 noise level expressed in units of dB(A).
L_{eq}	The "equivalent noise level" is the summation of noise events and integrated over a selected period of time.
Reflection	Sound wave changed in direction of propagation due to a solid object obscuring its path.
SEL	Single Event Sound Exposure Level (SEL) is the constant sound level which, if maintained for a period of 1 second would have the same acoustic energy as the measured noise event. SEL noise measurements are useful as they can be converted to obtain Leq sound levels over any period of time and can be used for predicting noise at various locations.
Sound	A fluctuation of air pressure which is propagated as a wave through air.
Sound absorption	The ability of a material to absorb sound energy through its conversion into thermal energy.
Sound level meter	An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure levels.
Sound pressure level	The level of noise, usually expressed in decibels, as measured by a standard sound level meter with a microphone.
Sound power level	Ten times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power.
Tonal noise	Containing a prominent frequency and characterised by a definite pitch.

B.14 Curve Noise Monitoring Report

Renzo Tonin Report TL116-02F02 Curve noise monitoring report (r1)

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MOOREBANK INTERMODAL TERMINAL RAIL LINK

Curve Noise Monitoring Report

6 March 2020

Tactical

TL116-02F02 Curve noise monitoring report (r1).docx

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Document details

Detail	Reference
Doc reference:	TL116-02F02 Curve noise monitoring report (r1).docx
Prepared for:	Tactical
Attention:	[redacted]

Document control

Date	Revision history	Non-issued revision	Issued revision	Prepared	Instructed	Authorised
24.02.2020	Draft	0	1	[redacted]		

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1 Introduction

Renzo Tonin & Associates was engaged by Tactical to monitor rail noise levels on curves along the Moorebank Intermodal Terminal rail link. Noise levels from freight train passbys were monitored at six curve locations between 27 September 2019 and 16 December 2019.

Two rail friction modifier systems were installed on the rail link on 22 November 2019. The noise monitoring results were analysed to quantify the overall rail noise levels and squealing noise events that occurred during the passbys. 13 passbys were analysed for the period before installation of the rail friction modifier systems and a further 16 passbys were analysed afterwards. The results before and after the installation of the friction modifiers have been compared to quantify the effectiveness of the systems.

A description of technical acoustic terms used within this report is provided in Appendix A.

The work documented in this report was carried out in accordance with the Renzo Tonin & Associates Quality Assurance System, which is based on Australian Standard / NZS ISO 9001. Appendix A contains a glossary of acoustic terms used in this report.

2 Methodology

Continuous unattended noise monitoring was performed at the six curves along the Moorebank Intermodal Terminal (MIMT) Rail Link. The designation of each curve along the rail link is presented in Figure 1. Details of the measurement equipment are provided in Table 1 with the location of the noise logger at each curve shown in APPENDIX B. All locations selected had an unobstructed view of the rail line and no significant reflective objects nearby.

2.1 Monitoring locations and equipment

Figure 1 Curves along the Intermodal Terminal Rail Link

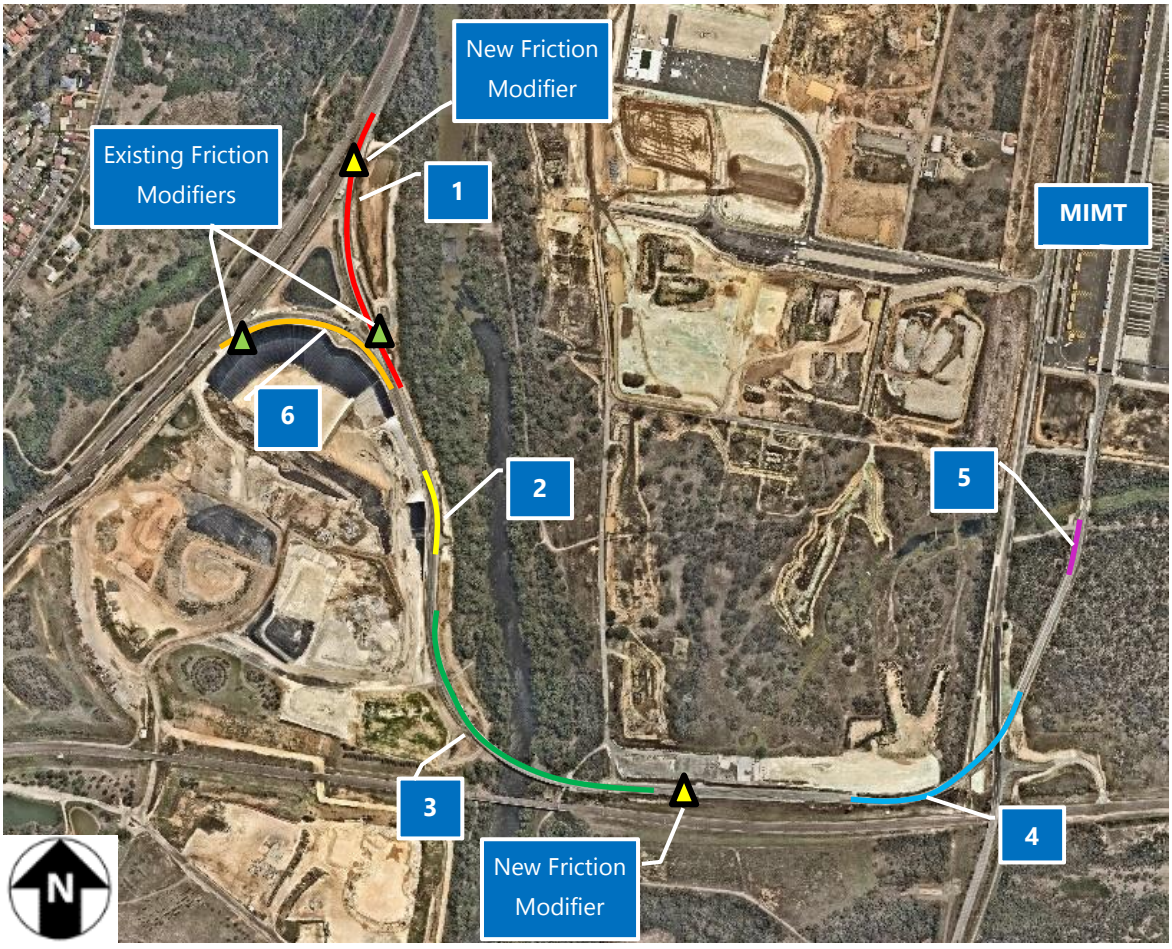


Table 1 Measurement equipment

Location	Curve radius (m)	Curve length (m)	Chainage	Distance to near track centreline (m)	Noise logger	Serial number	Last calibrated
Curve 1	275	214	39.580 km	8.2	NTi XL2	RTA07-021	20/12/2019
Curve 2	260	56	40.390 km	3.1	NTi XL2	RTA07-018	01/05/2019
Curve 3	245	280	40.345 km	7.4	NTi XL2	RTA07-020	14/12/2017
Curve 4	200	243	41.470 km	8.0	NTi XL2	RTA07-017	15/02/2019

Location	Curve radius (m)	Curve length (m)	Chainage	Distance to near track centreline (m)	Noise logger	Serial number	Last calibrated
Curve 5	200	52	41.870 km	3.3	NTi XL2	RTA07-008	14/03/2019
Curve 6	160	297	40.087 km	5.7	NTi XL2	RTA07-022	20/12/2019

The noise loggers used were NTi XL2 precision sound level analysers which are Class 1 instruments having accuracy suitable for field and laboratory use. The noise loggers were calibrated prior and subsequent to the measurements using a Brüel & Kjær Type 4231 calibrator. No significant drift in calibration was observed. All instrumentation complies with IEC 61672 (parts 1–3) '*Electroacoustics - Sound Level Meters*' and IEC 60942 '*Electroacoustics - Sound calibrators*' and carry current NATA certification (or if less than 2 years old, manufacturers certification).

2.2 Friction modifiers

Two existing friction modifiers were in operation for the duration of monitoring, positioned on the MIMT North Track at Chainage 39.840 km on the MIMT South Track at Chainage 39.580 km (shown as green triangles in Figure 1). Lubrication was manually applied to both rails along Curve 4 on 13 September 2019. Two new friction modifiers were installed on 23 November 2019 on the MIMT North track at Chainage 39.611 km and 41.000 km, both on the Up rail (shown as yellow triangles in Figure 1). One of the installed friction modifiers is shown in Figure 2.

Figure 2 Existing friction modifier installed on Curve 1

2.3 Weather observations

Weather conditions during each train passby were based on measurement data from the nearest Bureau of Meteorology weather station at Holsworthy Military Airfield. Passbys during any periods impacted by excessive wind (> 18 km/h) or heavy rain were checked to determine if weather events contributed to noise levels during the passby. For all passbys it was found that weather events did not adversely affect the passby noise results.

2.4 Measurement parameters and analysis

The XL2 noise loggers were set up to measure the L_{Aeq}, $L_{Amax,fast}$ and L_{AE} noise levels in consecutive 0.1 second intervals throughout the measurement period. The loggers also recorded noise levels in one-third octave centre frequency bands between 10 Hz and 20 kHz.

Train passbys were identified manually using the NTi Data Explorer software and verified with the passbys recorded from the temporary G7a passby noise monitoring results. Train passbys affected by other extraneous noise sources and safety devices such as horns were excluded from the results.

In accordance with the requirements of International Standard ISO 3095:2013 *Acoustics - Railway applications - Measurement of noise emitted by railbound vehicles*, measurements were commenced as the train noise rose above the ambient level and concluded when the train noise returned to the ambient level.

All passbys were processed using the NTi Data Explorer software to manually identify the following types of noise events:

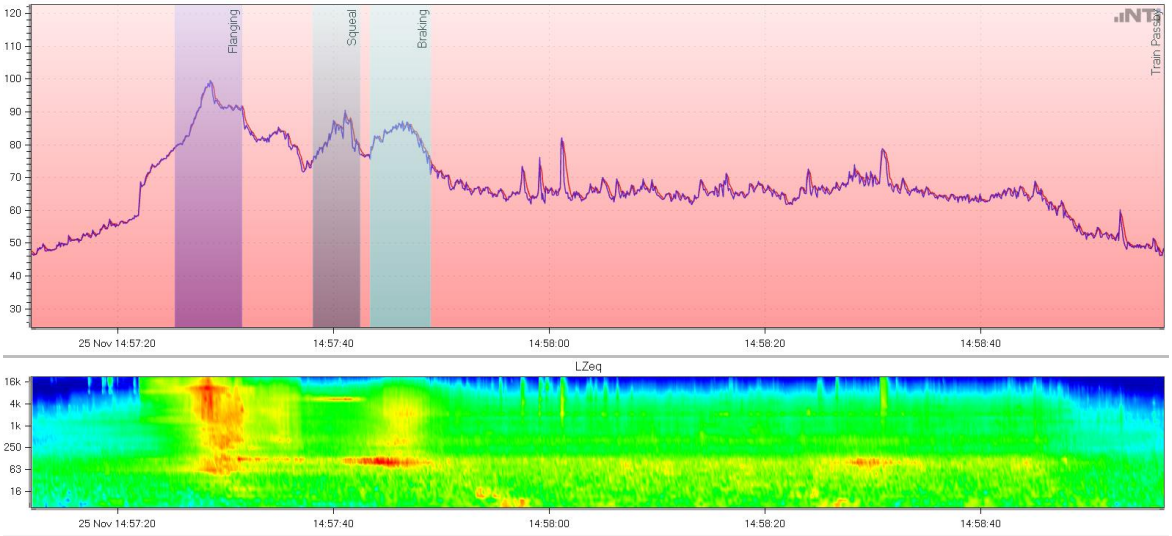
- Squealing - high frequency tonal noise events due to wheel squeal on curved sections
- Flanging – mid to high frequency noise events due to wheel flange and rail gauge face contact
- Braking – low frequency noise events due to the rubbing of brake components

An example of a passby marked up with squealing, flanging and braking events is shown in Figure 3.

Due to an absence of passbys, this report does not include noise measurement results for Curve 6.

Analysis of the noise measurement data was performed in accordance with ISO 3095 *Measurement of noise emitted by railbound vehicles* and the NSW EPA *Rail Infrastructure Noise Guideline* (RING). The measured noise levels were normalised to a reference distance of 15 m.

Figure 3 Example of a passby and associated events analysed using NTI Data Explorer Software



3 Results

3.1 Rail noise levels

Using the NTI Data Explorer software, the maximum A-weighted sound pressure level (L_{AFmax}) and the A -weighted sound exposure level (L_{AE}) were obtained for each passby. Using this data, the $L_{AFma,95\%}$, and average L_{AE} levels for all passbys were calculated, normalised to a reference distance of 15 m. The results for each curve monitoring location are presented in Table 2.

Both the $L_{AFma,95\%}$, and L_{AE} noise levels were slightly higher on Curves 1, 3 and 4. These are longer curves, compared to Curves 2 and 5, which are short.

Table 2 Overall passby noise levels at 15m reference distance – all passbys

Curve	Average passby L_{AE} dB(A)	Passby $L_{AFmax,95\%}$ dB(A)
1	102	104
2	101	101
3	103	106
4	105	104
5	102	101

The $L_{AFma,95\%}$, and average L_{AE} noise levels for squealing, flanging and braking events were calculated, normalised to a reference distance of 15 m. The percentage of passbys that experienced at least one of these types of events was calculated. The results for each curve monitoring location are presented in Table 3.

The noise levels and occurrence of flanging events were highest, followed by squealing events and then braking.

Table 3 Overall passby noise levels at 15m reference distance and percentage of passbys affected by squealing, flanging and braking events

Curve	Squealing event dB(A)			Flanging event dB(A)			Braking event dB(A)		
	L_{AE}	$L_{AFmax,95\%}$	% of passbys	L_{AE}	$L_{AFmax,95\%}$	% of passbys	L_{AE}	$L_{AFmax,95\%}$	% of passbys
1	95	98	31%	100	103	50%	90	85	4%
2	98	99	17%	100	101	48%	92	89	14%
3	97	100	38%	100	102	73%	88	85	12%
4	99	100	45%	102	103	66%	-	-	0%
5	94	93	38%	101	101	48%	80	71	7%

Curve 4, which is the longest curve, had the highest noise levels and occurrence of wheel squeal. In contrast Curve 2 has the lowest occurrence of wheel squeal and Curve 5 had the lowest noise levels. Flanging noise levels were consistent for all curve monitoring locations and featured in least half of all passbys. Brake noise was caused by outbound trains on Curve 3 and inbound trains on Curves 2 and 5.

Detailed results for each passby and noise event are presented in APPENDIX C.

3.2 Effect of friction modifiers

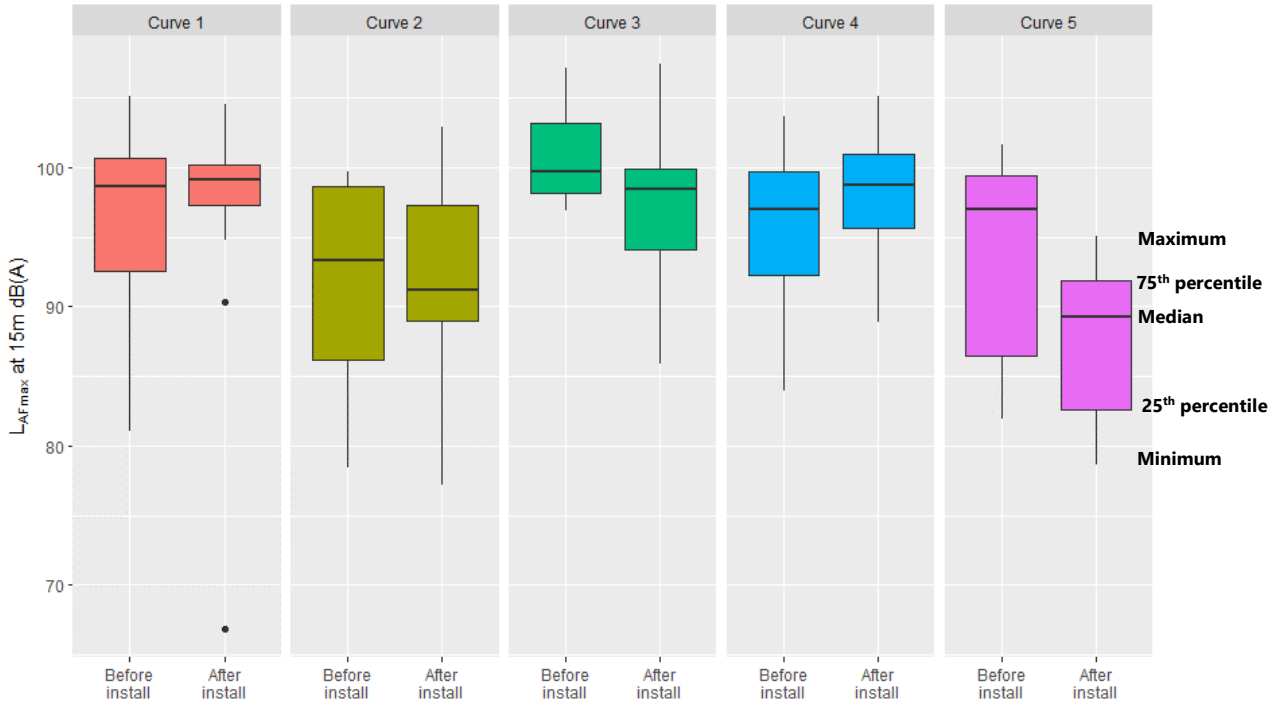
The noise levels at each curve were compared before and after the installation of two new friction modifiers. The distance normalised L_{AE} and L_{AFmax} levels are presented in Table 4 and the statistical distribution of the L_{AFmax} levels is shown in Figure 4.

The results do not show a significant reduction in noise levels after the implementation of the new friction modifiers. The change in median noise levels before and after installation was generally within 2 dB. Similarly, the noise levels and occurrence of wheel squeal events did not significantly reduce after the installation of the friction modifiers.

Table 4 Passby noise levels at 15m reference distance before and after installation of new friction modifiers on Curve 1 and between Curves 3 and 4

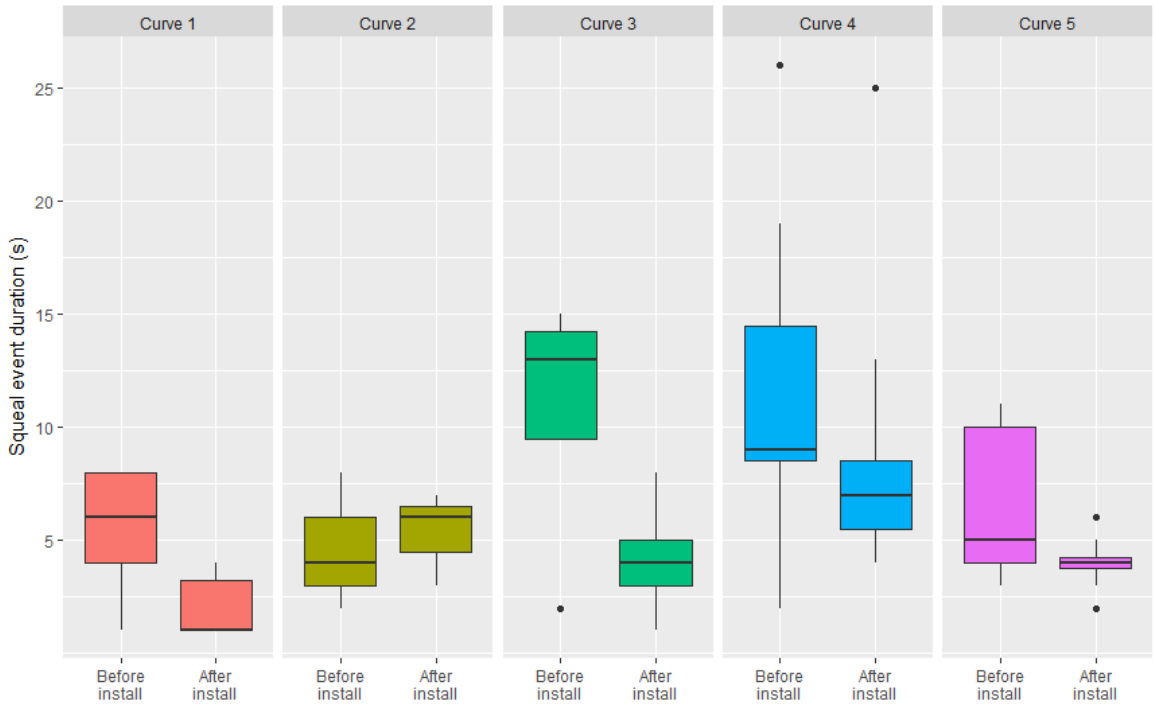
Curve	Median passby L_{AE} dB(A)		Median passby L_{AFmax} dB(A)	
	Before installation	After installation	Before installation	After installation
1	100	102	99	99
2	100	99	93	91
3	104	102	100	98
4	104	104	97	99
5	105	97	97	89

Figure 4 Overall L_{AFmax} passby noise levels at 15m reference distance before and after the installation of new friction modifiers on Curve 1 and between Curves 3 and 4



The duration of squealing events was found to be reduced after installation of the friction modifiers. The duration of squealing events was reduced at all locations except Curve 2 (which experienced the lowest rate of wheel squealing before and after installation).

Figure 5 Duration of wheel squeal noise events before and after the installation of new friction modifiers on Curve 1 and between Curves 3 and 4



4 Discussions

There was no significant difference in the rail noise levels at the five monitored curves and all measured noise levels were within a range of ±5 dB.

The results demonstrate that wheel squeal is not a dominant source of noise on the curves of the MIMT Rail Link. The measured noise levels and rate of occurrence of squealing events shows that squealing noise did not contribute significantly to the overall L_{Aeq} and L_{AFmax} noise levels. Rail passby noise levels were controlled by wagon wheel-rail noise, locomotive noise and flanging noise. Between 48% and 73% of passbys experienced flanging noise and in many cases, flanging noise controlled the overall L_{AFmax} noise levels. Flanging noise was particularly evident on the locomotives, leading to high L_{AFmax} noise levels that included both flanging and engine noise.

Of the 29 passbys analysed, there was only one passby that experienced wheel squeal with a L_{AFmax} noise level greater than 120 dB(A) at 1.2 m from the near track (TfNSW's criteria for a "severe squeal event"[1]).

The occurrence and severity of flanging and squealing events was slightly higher on Curves 1, 3 and 4 which are greater than 250 m long, compared to Curves 2 and 5 which are less than 100 m long.

There was no significant reduction in the overall rail noise levels after the installation of two new friction modifiers. A significant reduction in overall passby noise levels would not be expected as the dominant noise sources are wagon wheel-rail noise and locomotive noise, which are unaffected by the application of a friction modifier.

Squealing or flanging noise did not reduce after the installation of the new friction modifiers. However, the duration of squealing events was reduced at four of the five monitoring locations after the installation of two new friction modifiers. Note that the noise levels of wheel squeal events were already relatively low prior to the installation of the new systems. The friction modifiers may have been ineffective in reducing the noise levels and occurrence of wheel squeal and flanging because the lubricant was not being adequately spread along the rail and/or the systems were only applying the lubricant to one rail of the track.

No clear relationship was found between the measured noise levels or occurrence of squealing and weather conditions or time of day.

[1] Jiang J., Hanson D. & Dowell B., Wheel Squeal: Insights from Wayside Condition Monitoring, TfNSW, IWRN 12

5 Conclusion

This report presents the results of unattended noise monitoring conducted adjacent to the six curves on the Moorebank Intermodal Terminal rail link. Noise monitoring results from freight train passbys entering and leaving the terminal were analysed to quantify the overall noise levels and occurrences of wheel squeal, flanging and braking. The overall rail noise and squeal events were compared before and after the installation of two rail friction modifier systems to evaluate the effectiveness of the systems.

Wheel squeal did not contribute significantly to the overall passby noise levels and only one passby experienced severe squealing. Rail passby noise levels are controlled by wagon wheel-rail noise, locomotive noise and flanging noise.

The results of the unattended monitoring indicate that there is little variation in overall rail noise levels or squealing noise levels with the installation of the friction modifier systems. The new systems may have been effective in reducing the duration of squealing events.

APPENDIX A Glossary of terminology

The following provides a brief description of the technical terms used within this report to assist in understanding the technical issues presented.

Technical Term	Description
Attenuation	A reduction in amplitude of noise or vibration due to increasing distance or other means such as noise barriers, materials or mitigation measures.
Adverse weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
Airborne noise	Noise that propagates through the air between source and receiver. Most relevant for noise from surface railway tracks or stationary facilities.
Alignment	The position of the railway tracks in three dimensions along their length.
Ambient noise	The all-encompassing noise within a given environment at a given time, usually composed of sound from all sources near and far.
Assessment period	The period in a day over which assessments are made. Assessment periods may be daytime, evening, night-time, 24-hour or busiest 1-hour period (when in use). Time periods associated with each assessment period are defined in the relevant section of this report and differ for rail operations and stationary facilities.
Assessment point	A point at which noise or vibration measurements are taken or calculated.
Background noise	Background noise is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation, when extraneous noise is removed. It is described as the average of the minimum noise levels measured on a sound level meter and is measured statistically as the A-weighted noise level exceeded for ninety percent of a sample period. This is represented as the L_{90} noise level (see below).
Braking noise	Noise due to the rubbing of brake components of a rail vehicle
Chainage	Refers to the distance, along the railway tracks, from Central Station, usually given in kilometres or metres. Down direction refers to trains travelling away from Central Station. Up direction refers to trains travelling towards Central Station.
Decibel [dB]	A unit of measure commonly used to express noise and vibration. For sound, a reference level of 20 µPa is used. For vibration, a variety of reference levels are used. Vibration levels in this report use a reference level of 1 nm/s for vibration velocity and 1 $\mu m/s^2$ for vibration acceleration.

Technical Term	Description
dB(A)	A-weighted decibels. The ear is not as effective in hearing low frequency sounds as it is hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter. The following are examples of the decibel readings of every day sounds: 0dB(A) The faintest sound we can hear 30dB(A) A quiet library or in a quiet location in the country 45dB(A) Typical office space. Ambience in the city at night 60dB(A) CBD mall at lunch time 70dB(A) The sound of a car passing on the street 80dB(A) Loud music played at home 90dB(A) The sound of a truck passing on the street 100dB(A) The sound of a rock band 115dB(A) Limit of sound permitted in industry 120dB(A) Deafening
EIS	Environmental Impact Statement
EPA	NSW Environmental Protection Authority
FEM	Finite element modelling
Flanging noise	Mid to high frequency noise due to contact between wheel flanges of a rail vehicle and the rail gauge face
Frequency	Frequency is synonymous to pitch. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.
GIS	Geographic Information System
HV	High Voltage
HVAC	Heating, Ventilation and Air-conditioning equipment
RING	Rail Noise Infrastructure Guideline
Impulsive noise or vibration	Having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise or vibration.
INP	NSW Industrial Noise Policy
Intermittent noise or vibration	The level suddenly drops to that of the background noise several times during the period of observation. The time during which the noise or vibration remains at levels different from that of the ambient is one second or more.
LAE	The A-weighted Sound Exposure Level (or SEL) is the constant sound level which, if maintained for a period of 1 second would have the same acoustic energy as the measured noise event. SEL noise measurements are useful as they can be converted to obtain Leq sound levels over any time period and can be used for predicting noise at various locations.
L_{Max}	The maximum sound pressure level measured over a given period.
L_{Min}	The minimum sound pressure level measured over a given period.
L_1	The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.
L_{10}	The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.
L_{90}	The level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L90 noise level expressed in units of dB(A).
L_{eq}	The "equivalent noise level" is the summation of noise events and integrated over a selected period of time.

Technical Term	Description
$L_{eq(9h)}$	Equivalent noise level for the 9 hour night-time period, defined as 10pm to 7am.
$L_{eq(15h)}$	Equivalent noise level for the 15 hour daytime period, defined as 7am to 10pm.
LEP	Local environmental plan
LGA	Local government area
MEP	Mechanical and electrical plant
NCA	Noise catchment area
ONVR	Operational Noise and Vibration Review
RBL	Rating background level
Reflection	Sound wave changed in direction of propagation due to a solid object obscuring its path.
Receiver	A location or dwelling that is exposed to noise and/or vibration. A sensitive receiver refers to a building that has noise and/or vibration criteria that is required to be met.
SEL	Sound Exposure Level (SEL) is the constant sound level which, if maintained for a period of 1 second would have the same acoustic energy as the measured noise event. SEL noise measurements are useful as they can be converted to obtain Leq sound levels over any time period and can be used for predicting noise at various locations.
SI Unit	Units adopted as a standard for International use, for example, metres for distance, seconds for time, kilogram for mass, etc.
Sound	A fluctuation of air pressure which is propagated as a wave through air
Sound absorption	The ability of a material to absorb sound energy through its conversion into thermal energy
Sound level meter	An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure levels
Sound pressure level	The level of noise, usually expressed in decibels, as measured by a standard sound level meter with a microphone
Sound power level	Ten times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power
Source	Point from which noise and/or vibration is emitted
SSI	State Significant Infrastructure
TfNSW	Transport for NSW
Tonal noise	Containing a prominent frequency and characterised by a definite pitch
Track form	Consists of the rails, fasteners, sleepers, bed and foundations of the railway tracks
Wheel squeal	High frequency tonal noise that may occur when a rail vehicle negotiates a tight curve

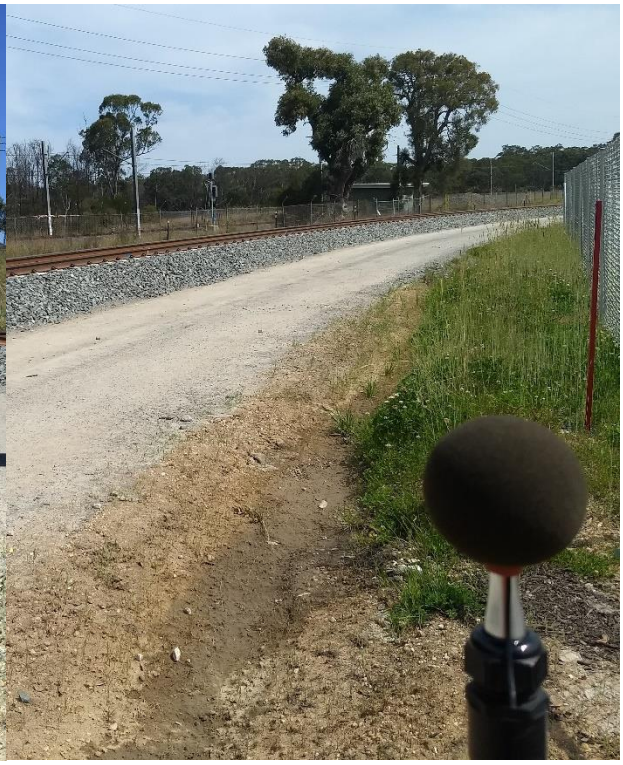
APPENDIX B Noise monitoring locations

B.1 Curve 1

B.2 Curve 2

B.3 Curve 3

B.4 Curve 4



B.5 Curve 5

B.6 Curve 6


N
Logger


RAIL
CROSS
WAY
2 TRACKS
STOP
LOOK
FOR
TRAINS
AUTHORISED
VEHICLES
ONLY

APPENDIX C Detailed passby and noise event results

ID	Location	Passby	Direction	Distance to track centre (m)	Comment	Start Date and Time	Temperature (°C)	Relative humidity (%)	Rain (mm)	Wind (km/h)	Duration (m:s)	Measured noise level dB(A) LAeq	Measured LAE	Measured LAFmax	Noise level at 15m dB(A) LAeq	15m LAE	15m LAFmax
C1PB01	Curve 1	PB01	IN	8.2		15/10 16:36:35	25	42	0	24.1	01:19	88.2	107.2	106.8	87.3	106.3	105.1
C2PB01	Curve 2	PB01	IN	8.3		15/10 16:37:23	25	42	0	24.1	01:31	82.5	102.1	100.2	81.7	101.3	98.6
C3PB01	Curve 3	PB01	IN	7.4		15/10 16:37:51	25	42	0	24.1	02:14	88.1	109.4	109.8	86.8	108.1	107.2
C4PB01	Curve 4	PB01	IN	8		15/10 16:40:24	25	42	0	24.1	02:49	86.3	108.6	98.1	85.3	107.6	96.2
C5PB01	Curve 5	PB01	IN	3.3		15/10 16:42:07	25	42	0	24.1	02:00	90.3	111.1	108.6	85.5	106.3	99.0
C1PB02	Curve 1	PB02	OUT	8.2		16/10 08:09:32	16.2	97	0	5.4	01:11	80.4	98.9	100.3	79.5	98.0	98.6
C2PB02	Curve 2	PB02	OUT	3.1		16/10 08:08:42	16.2	97	0	5.4	01:17	74.9	93.8	88.8	69.8	88.7	78.6
C3PB02	Curve 3	PB02	OUT	12.6	Power fail												
C4PB02	Curve 4	PB02	OUT	8		16/10 08:05:51	16.2	97	0	5.4	02:07	76.5	97.6	91	75.5	96.6	89.1
C5PB02	Curve 5	PB02	OUT	3.3		16/10 08:04:45	16.2	97	0	5.4	02:11	79.9	101	96.3	75.1	96.2	86.7
C1PB03	Curve 1	PB03	IN	8.2		25/10 02:21:24	13.9	91	0	5.4	01:12	82.5	101.1	98.5	81.6	100.2	96.8
C2PB03	Curve 2	PB03	IN	8.3		25/10 02:22:02	13.9	91	0	5.4	01:24	83.7	103	98.3	82.9	102.2	96.7
C3PB03	Curve 3	PB03	IN	7.4	Power fail												
C4PB03	Curve 4	PB03	IN	8		25/10 02:24:14	13.9	91	0	5.4	01:46	89.2	109.5	105.6	88.2	108.5	103.7
C5PB03	Curve 5	PB03	IN	3.3		25/10 02:25:20	13.9	91	0	5.4	04:17	88.7	112.8	110.3	83.9	108.0	100.7
C1PB04	Curve 1	PB04	OUT	8.2		25/10 08:58:12	28	30	0	11.2	01:45	69	89.2	82.7	68.1	88.3	81.0
C2PB04	Curve 2	PB04	OUT	3.1		25/10 09:00:40	28	30	0	11.2	02:33	77.1	98.9	96.4	72.0	93.8	86.2
C3PB04	Curve 3	PB04	OUT	12.6	Power fail												
C4PB04	Curve 4	PB04	OUT	8		25/10 08:55:53	28	30	0	11.2	02:07	84	105	102.9	83.0	104.0	101.0
C5PB04	Curve 5	PB04	OUT	3.3		25/10 08:55:18	28	30	0	11.2	01:42	91	111.1	111.2	86.2	106.3	101.6
C1PB05	Curve 1	PB05	IN	8.2		25/10 15:52:24	33	14	0	16.6	01:17	78.8	97.7	94.3	77.9	96.8	92.6
C2PB05	Curve 2	PB05	IN	8.3		25/10 15:53:08	33	14	0	16.6	01:36	83.3	103.1	98.6	82.5	102.3	97.0
C3PB05	Curve 3	PB05	IN	7.4		25/10 15:53:36	33	14	0	16.6	02:48	83.5	105.8	101.8	82.2	104.5	99.2
C4PB05	Curve 4	PB05	IN	8		25/10 15:56:37	33	14	0	16.6	05:36	79.5	104.7	99.5	78.5	103.7	97.6
C5PB05	Curve 5	PB05	IN	3.3		25/10 15:58:30	33	14	0	16.6	05:10	84.7	109.6	106.6	79.9	104.8	97.0
C1PB06	Curve 1	PB06	OUT	8.2		25/10 19:12:46	25.7	37	0	9.4	02:24	74.9	96.4	90.7	74.0	95.5	89.0
C2PB06	Curve 2	PB06	OUT	3.1		25/10 17:55:28	25.7	37	0	9.4	04:37	72	96.5	88.6	66.9	91.4	78.4
C3PB06	Curve 3	PB06	OUT	12.6		25/10 17:53:41	25.7	37	0	9.4	04:29	78.9	103.2	99.5	79.9	104.2	101.5
C4PB06	Curve 4	PB06	OUT	8		25/10 17:50:50	25.7	37	0	9.4	03:15	78	100.9	97.4	77.0	99.9	95.5
C5PB06	Curve 5	PB06	OUT	3.3		25/10 17:49:00	25.7	37	0	9.4	03:55	76.2	99.9	94.2	71.4	95.1	84.6
C1PB07	Curve 1	PB07	IN	8.2		26/10 15:09:13	27.5	16	0	27.7	01:04	83.9	101.9	101.4	83.0	101.0	99.7
C2PB07	Curve 2	PB07	IN	8.3		26/10 15:09:47	27.5	16	0	27.7	01:13	84.5	103.1	100.8	83.7	102.3	99.2
C3PB07	Curve 3	PB07	IN	7.4		26/10 15:10:20	27.5	16	0	27.7	01:08	84.6	102.9	99.5	83.3	101.6	96.9
C4PB07	Curve 4	PB07	IN	8		26/10 15:11:38	27.5	16	0	27.7	01:46	83.2	103.5	98.9	82.2	102.5	97.0
C5PB07	Curve 5	PB07	IN	3.3		26/10 15:12:55	27.5	16	0	27.7	01:26	75.2	94.6	91.5	70.4	89.8	81.9
C1PB08	Curve 1	PB08	OUT	8.2		26/10 20:21:09	20.2	22	0	18.4	01:44	78.6	98.8	92.5	77.7	97.9	90.8
C2PB08	Curve 2	PB08	OUT	3.1		26/10 20:19:18	20.2	22	0	18.4	02:32	72.2	94	88.6	67.1	88.9	78.4
C3PB08	Curve 3	PB08	OUT	12.6		26/10 20:17:40	20.2	22	0	18.4	03:25	78.3	101.4	96	79.3	102.4	98.0
C4PB08	Curve 4	PB08	OUT	8		26/10 20:15:10	20.2	22	0	18.4	02:56	76.7	99.2	94.2	75.7	98.2	92.3
C5PB08	Curve 5	PB08	OUT	3.3		26/10 20:13:40	20.2	22	0	18.4	03:15	74.4	97.3	93.4	69.6	92.5	83.8
C1PB09	Curve 1	PB09	IN	8.2		27/10 03:20:00	12.2	41	0	9.4	03:45	82.9	106.4	105.2	82.0	105.5	103.5
C2PB09	Curve 2	PB09	IN	8.3		27/10 03:21:56	12.2	41	0	9.4	02:26	78.1	99.8	91.6	77.3	99.0	90.0
C3PB09	Curve 3	PB09	IN	7.4		27/10 03:22:51	12.2	41	0	9.4	02:45	83.2	105.4	101.1	81.9	104.1	98.5
C4PB09	Curve 4	PB09	IN	8		27/10 03:26:01	12.2	41	0	9.4	02:37	84.8	106.8	100	83.8	105.8	98.1
C5PB09	Curve 5	PB09	IN	3.3		27/10 03:27:54	12.2	41	0	9.4	03:17	89.7	112.7	109	84.9	107.9	99.4
C1PB10	Curve 1	PB10	OUT	8.2		27/10 21:30:46	14.5	65	0	5.4	01:09	84.8	103.2	102.5	83.9	102.3	100.8
C2PB10	Curve 2	PB10	OUT	3.1		27/10 21:29:50	14.5	65	0	5.4	01:45	83.9	104.1	103.5	78.8	99.0	93.3
C3PB10	Curve 3	PB10	OUT	12.6		27/10 21:29:30	14.5	65	0	5.4	01:35	83.6	103.4	98.3	84.6	104.4	100.3
C4PB10	Curve 4	PB10	OUT	8		27/10 21:27:15	14.5	65	0	5.4	02:45	86.9	109.1	101.6	85.9	108.1	99.7
C5PB10	Curve 5	PB10	OUT	3.3		27/10 21:25:47	14.5	65	0	5.4	03:15	87.4	110.3	109.9	82.6	105.5	100.3
C1PB11	Curve 1	PB11	IN	8.2		31/10 16:14:24	27.5	39	0	20.5	01:39	85.9	105.9	102.4	85.0	105.0	100.7
C2PB11	Curve 2	PB11	IN	8.3		31/10 16:15:34	27.5	39	0	20.5	01:06	85.5	103.7	101.3	84.7	102.9	99.7
C3PB11	Curve 3	PB11	IN	12.6		31/10 16:15:49	27.5	39	0	20.5	01:21	86	105.1	101.7	87.0	106.1	103.7
C4PB11	Curve 4	PB11	IN	8		31/10 16:17:18	27.5	39	0	20.5	01:43	86.1	106.2	102.3	85.1	105.2	100.4
C5PB11	Curve 5	PB11	IN	3.3		31/10 16:18:22	27.5	39	0	20.5	01:46	89.1	109.4	107.2	84.3	104.6	97.6
C1PB12	Curve 1	PB12	IN	8.2		03/11 08:52:41	22.8	62	0	9.4	00:26	87.3	101.5	101.4	86.4	100.6	99.7
C2PB12	Curve 2	PB12	IN	8.3		03/11 08:53:30	22.8	62	0	9.4	00:15	89.3	101	101.1	88.5	100.2	99.5
C3PB12	Curve 3	PB12	IN	12.6		03/11 08:53:55	22.8	62	0	9.4	00:47	89.4	106.1	102.2	90.4	107.1	104.2
C4PB12	Curve 4	PB12	IN	8		03/11 08:55:43	22.8	62	0	9.4	00:19	77.5	90.3	86.9	76.5	89.3	85.0
C5PB12	Curve 5	PB12	IN	3.3		03/11 08:56:31	22.8	62	0	9.4	00:21	91.6	104.9	105.6	86.8	100.1	96.0
C1PB13	Curve 1	PB13	OUT	8.2		03/11 12:25:45	29.9	34	0	9.4	01:29	76.8	96.3	94.6	75.9	95.4	92.9
C2PB13	Curve 2	PB13	OUT	8.3		03/11 12:17:40	29.9	34	0	9.4	08:40	79.7	106.8	93.6	78.9	106.0	92.0
C3PB13	Curve 3	PB13	OUT	12.6		03/11 12:15:58	29.9	34	0	9.4	03:10	76.1	98.9	94.9	77.1	99.9	96.9
C4PB13	Curve 4	PB13	OUT	8		03/11 12:13:10	29.9	34	0	9.4	03:00	72.7	95.2	85.8	71.7	94.2	83.9
C5PB13	Curve 5	PB13	OUT	3.3		03/11 12:10:44	29.9	34	0	9.4	03:54	72.5	96.2	96.1	67.7	91.4	86.5
C1PB14	Curve 1	PB14	IN	8.2		25/11 14:57:12	32.5	33	0	9.4	01:45	81.5	101.7	99	80.6	100.8	97.3
C2PB14	Curve 2	PB14	IN	8.3		25/11 14:58:24	32.5	33	0	9.4	00:13	91	102.3	98.9	90.2	101.5	97.3
C3PB14	Curve 3	PB14	IN	7.4		25/11 14:58:59	32.5	33	0	9.4	01:36	84.2	104	101.4	82.9	102.7	98.8
C4PB14	Curve 4	PB14	IN	8		25/11 15:00:52	32.5	33	0	9.4	00:57	84	101.6	96.6	83.0	100.6	94.7
C5PB14	Curve 5	PB14	IN	3.3		25/11 15:07:00	32.5	33	0	9.4	03:03	75.5	98.1	91.6	70.7	93.3	82.0
C1PB15	Curve 1	PB15	OUT	8.2		25/11 16:37:25	26.9	49	0	18.4	00:20	83.4	96.4	92	82.5	95.5	90.3
C2PB15	Curve 2	PB15	OUT	3.1		25/11 16:35:08	26.9	49	0	18.4	00:25	88.7	102.7	100.3	83.6	97.6	90.1
C3PB15	Curve 3	PB15	OUT	12.6		25/11 16:34:19	26.9	49	0	18.4	00:37	77.7	93.3	89.4	78.7	94.3	91.4
C4PB15	Curve 4	PB15	OUT	8		25/11 16:32:17	26.9	49	0	18.4	00:24	88	101.8	100.3	87.0	100.8	98.4
C5PB15	Curve 5	PB15	OUT	3.3		25/11 16:31:18	26.9	49	0	18.4	00:06	82.7	90.4	90.8	77.9	85.6	81.2
C1PB16	Curve 1	PB16	IN	8.2		30/11 03:48:44	17.1	90	0	7.6	00:15	93.2	105	100.4	92.3	104.1	98.7
C2PB16	Curve 2	PB16	IN	8.3		30/11 03:49:41	17.1	90	0	7.6	00:13	88.8	100	98.9	88.0	99.2	97.3
C3PB16	Curve 3	PB16	IN	7.4		30/11 03:50:01	17.1	90	0	7.6	00:22	93.2	106.7	105.3	91.9	105.4	102.7
C4PB16	Curve 4	PB16	IN	8		30/11 03:51:11	17.1	90	0	7.6	00:28	90.4	104.8	101.8	89.4	103.8	99.9
C5PB16	Curve 5	PB16	IN	3.3		30/11 03:51:58	17.1	90	0	7.6	00:08	83.5	92.4	91.6	78.7	87.6	82.0
C1PB17	Curve 1	PB17	OUT	8.2		30/11 04:25:17	17	89	0	5.4	01:24	85.5	104.7	101.9	84.6	103.8	100.2
C2PB17	Curve 2	PB17	OUT	3.1		30/11 04:24:28	17	89	0	5.4	01:25	85.1	104.4	101.3	80.0	99.3	91.1
C3PB17	Curve 3	PB17	OUT	12.6		30/11 04:23:44	17	89	0	5.4	01:31	80.2	99.8	95.3	81.2	100.8	97.3
C4PB17	Curve 4	PB17	OUT	8		30/11 04:21:04	17	89	0	5.4	02:27	83.6	105.3	101	82.6	104.3	99.1
C5PB17	Curve 5	PB17	OUT	3.3		30/11 04:19:44	17	89	0	5.4	02:43	73.9	96	88.2	69.1	91.2	78.6
C1PB18	Curve 1	PB18	IN	8.2		08/12 15:00:52	23.4	56	0	25.9	00:47	86.4	103.1	100.9	85.5	102.2	99.2
C2PB18	Curve 2	PB18	IN	8.3		08/12 15:01:29	23.4	56	0	25.9	00:47	85.5	102.3	102.5	84.7	101.5	100.9
C3PB18	Curve 3	PB18	IN	7.4		08/12 15:01:43	23.4	56	0	25.9	01:02	90.6	108.6	102.5	89.3	107.3	99.9
C4PB18	Curve 4	PB18	IN	8		08/12 15:02:55	23.4	56	0	25.9	01:34	91.1	110.8	105.5	90.1	109.8	103.6
C5PB18	Curve 5	PB18	IN	3.3		08/12 15:03:51	23.4	56	0	25.9	02:03	83	103.9	101.4	78.2	99.1	91.8
C1PB19	Curve 1	PB19	OUT	8.2		09/12 05:20:10	20.3	79	0	7.6	01:23	86.9	106.1	102.8	86.0	105.2	101.1
C2PB19	Curve 2	PB19	OUT	3.1		09/12 05:13:28	20.2	79	0	5.4	07:25	79.3	105.7	100.8	74.2	100.6	90.6
C3PB19	Curve 3	PB19	OUT	12.6		09/12 05:12:20	20.2	79	0	5.4	00:23	82.7	96.2	93	83.7	97.2	95.0
C4PB19	Curve 4	PB19	OUT	8		09/12 05:09:09	20.2	79	0	5.4	02:50	83.2	105.5	98.4	82.2	104.5	96.5
C5PB19	Curve 5	PB19	OUT	3.3		09/12 05:07:44	20.2	79	0	5.4	02:54	78.4	100.8	98.2	73.6	96.0	88.6
C1PB20	Curve 1	PB20	IN	8.2	Power fail												
C2PB20	Curve 2	PB20	IN	8.3		09/12 11:38:32	25.4	56	0	11.2	01:25	74.3	93.6	92.9	73.5	92.8	91.3
C3PB20	Curve 3	PB20	IN	7.4		09/12 11:39:02	25.4	56	0	11.2	01:52	88.7	109.2	110	87.4	107.9	107.4
C4PB20	Curve 4	PB20	IN	8		09/12 11:41:23	25.4	56	0	11.2	02:33	85.1	106.9	103.8	84.1	105.9	101.9
C5PB20	Curve 5	PB20	IN	3.3		09/12 11:43:13	25.4	56	0	11.2	02:37	82.3	104.3	98.8	77.5	99.5	89.2
C1PB21	Curve 1	PB21	OUT	8.2	Power fail												
C2PB21	Curve 2	PB21	OUT	8.3		09/12 12:03:25	26.1	53	0	13	01:10	70.2	88.7	78.8	69.4	87.9	77.2
C3PB21	Curve 3	PB21	OUT	7.4		09/12 12:02:21	26.1	53	0	13	00:14	91	102.3	98.4	89.7	101.0	95.8
C4PB21	Curve 4	PB21	OUT	8		09/12 11:59:50	26.1	53	0	13	00:45	85.2	101.7	97.8	84.2	100.7	95.9
C5PB21	Curve 5	PB21	OUT	3.3		09/12 11:59:07	26.1	53	0	13	00:10	92.2	102.1	100.8	87.4	97.3	91.2
C1PB22	Curve 1	PB22	IN	8.2	Power fail												
C2PB22	Curve 2	PB22	IN	8.3		09/12 12:08:56	26.1	53	0	13	00:20	92.6	105.6	104.5	91.8	104.8	102.9
C3PB22	Curve 3	PB22	IN	7.4		09/12 12:09:38	26.1	53	0	13	00:20	82.1	95	90.9	80.8	93.7	88.3
C4PB22	Curve 4	PB22	IN	8		09/12 12:11:44	26.1	53	0	13	00:25	85.3	99.2	95.7	84.3	98.2	93.8
C5PB22	Curve 5	PB22	IN	3.3		09/12 12:12:53	26.1	53	0	13	00:07	86.1	94.4	92.4	81.3	89.6	82.8
C1PB23	Curve 1	PB23	OUT	8.2		09/12 20:49:43	21.5	79	0	13	01:07	85	103.2	101	84.1	102.3	99.3
C2PB23	Curve 2	PB23	OUT	3.1		09/12 20:42:30	21.7	77	0	11.2	08:10	78.6	105.5	102.5	73.5	100.4	92.3
C3PB23	Curve 3	PB23	OUT	12.6		09/12 20:41:24	21.7	77	0	11.2	02:54	70.3	92.8	83.9	71.3	93.8	85.9
C4PB23	Curve 4	PB23	OUT	8		09/12 20:38:49	21.7	77	0	11.2	02:28	81.9	103.6	97.9	80.9	102.6	96.0
C5PB23	Curve 5	PB23	OUT	3.3		09/12 20:37:44	21.7	77	0	11.2	02:03	83.3	104.2	99.6	78.5	99.4	90.0
C1PB24	Curve 1	PB24	IN	8.2		11/12 12:06:44	21.7	57	0	16.6	00:47	89.7	106.5	106.2	88.8	105.6	104.5
C2PB24	Curve 2	PB24	IN	8.3		11/12 12:07:30	21.7	57	0	16.6	00:52	75.8	92.9	85.8	75.0	92.1	84.2
C3PB24	Curve 3	PB24	IN	7.4		11/12 12:07:48	21.7	57	0	16.6	01:01	87.2	105.1	100.8	85.9	103.8	98.2
C4PB24	Curve 4	PB24	IN	8		11/12 12:09:01	21.7	57	0	16.6	01:51	90.5	111	107	89.5	110.0	105.1
C5PB24	Curve 5	PB24	IN	3.3		11/12 12:09:59	21.7	57	0	16.6	00:29	92.1	106.7	104.7	87.3	101.9	95.1
C1PB25	Curve 1	PB25	OUT	8.2		12/12 04:23:11	17.4	74	0	5.4	00:52	84.7	101.8	100.6	83.8	100.9	98.9
C2PB25	Curve 2	PB25	OUT	3.1		12/12 04:22:47	17.4	74	0	5.4	00:57	93.2	110.8	110.9	88.1	105.7	100.7
C3PB25	Curve 3	PB25	OUT	12.6		12/12 04:22:02	17.4	74	0	5.4	01:17	79.5	98.4	97.2	80.5	99.4	99.2
C4PB25	Curve 4	PB25	OUT	8		12/12 04:20:15	17.4	74	0	5.4	01:49	86.7	107.1	100.9	85.7	106.1	99.0
C5PB25	Curve 5	PB25	OUT	3.3		12/12 04:19:37	17.4	74	0	5.4	01:31	85.2	104.8	101.8	80.4	100.0	92.2
C1PB26	Curve 1	PB26	IN	8.2		12/12 17:38:01	19.7	63	0	20.5	01:16	85.7	104.5	102.2	84.8	103.6	100.5
C2PB26	Curve 2	PB26	IN	8.3		12/12 17:39:02	19.7	63	0	20.5	01:34	73.8	93.5	87.3	73.0	92.7	85.7
C3PB26	Curve 3	PB26	IN	7.4		12/12 17:39:35	19.7	63	0	20.5	01:52	87.3	107.8	104.8	86.0	106.5	102.2
C4PB26	Curve 4	PB26	IN	8		12/12 17:41:55	19.7	63	0	20.5	02:02	85.4	106.3	102.5	84.4	105.3	100.6
C5PB26	Curve 5	PB26	IN	3.3		12/12 17:43:22	19.7	63	0	20.5	02:19	85.4	106.8	101.9	80.6	102.0	92.3
C1PB27	Curve 1	PB27	OUT	8.2		12/12 22:24:52	16.2	87	0	11.2	00:36	59.9	75.5	68.5	59.0	74.6	66.8
C2PB27	Curve 2	PB27	OUT	3.1		12/12 22:22:55	16.2	87	0	11.2	01:48	77.8	98.2	92.8	72.7	93.1	82.6
C3PB27	Curve 3	PB27	OUT	12.6		12/12 22:22:16	16.2	87	0	11.2	00:13	79.2	90.2	84.5	80.2	91.2	86.5
C4PB27	Curve 4	PB27	OUT	8		12/12 22:20:46	16.2	87	0	11.2	00:08	84.8	93.9	90.8	83.8	92.9	88.9
C5PB27	Curve 5	PB27	OUT	3.3		12/12 22:20:07	16.2	87	0	11.2	00:08	91.4	100.6	99	86.6	95.8	89.4

1/3 octave centre-band frequency LZeq measured noise level (dB)

ID	6.3 Hz	8 Hz	10 Hz	12.5 Hz	16 Hz	20 Hz	25 Hz	31.5 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz
C1PB01	73.5	72.7	71.4	67	71.3	72.6	71.7	74.7	73.6	75.8	75.6	76.5	76.9	74.5	68.8	68.3	67.7	72	73.2
C2PB01	69.8	68.5	68.5	66.4	69.4	68.4	69.6	72.1	74.7	74.9	73.4	76.6	77.8	71	66.8	69.4	71.5	71.5	73.9
C3PB01	61.1	60.6	59.7	59.6	62.1	64.4	67.5	67	69.2	67.7	68.6	71.4	74.1	71.9	64.8	67.1	66	68.5	69.3
C4PB01	75.4	75.6	73	71.5	67.6	66	65.7	66.8	65.3	66.4	69.6	68.7	69.8	66.5	65.6	66.2	65.5	71.4	70.7
C5PB01	65	64.7	64.5	62.1	61.9	64.6	71	67.9	67.6	70.6	69.9	72.4	73.9	72.1	70.3	69.3	69.6	74.1	72.6
C1PB02	54.6	52	58	61.2	60.2	64.3	60.8	62.4	62.7	71.7	72.1	70.8	73.4	70.2	68.4	69.3	68.8	73.1	73.8
C2PB02	51.5	51.4	55.4	58.6	56.2	60.5	59.9	63.3	66.7	72.8	77.1	70.4	70.2	65.8	63.5	68.7	70.5	73	69.6
C3PB02																			
C4PB02	51.9	50.2	49	57.3	54.8	60.9	59.7	61.9	64.1	68.7	73.3	67.3	69.7	68	67.3	68.5	70.6	74.8	73.5
C5PB02	60.2	57.2	55.9	61	57.2	63.1	59.2	62.2	65.5	73.4	74.6	71.3	73.8	73.1	71.9	74	74.9	77.6	76.8
C1PB03	61.3	66.7	66.8	70.7	73.9	73.4	76.3	70.2	71.2	72.7	71.3	74.8	73.6	70.1	64.1	62.6	62.7	65.9	66.6
C2PB03	65.3	68.3	67.4	74.2	74.8	75.6	76.2	72.9	72.6	73.9	72.4	75.1	75	71.5	59.8	62.6	69.2	67.8	67.4
C3PB03																			
C4PB03	66.2	69.4	65.9	67.5	66.8	67.4	70.2	66.3	65.1	69.2	70.6	70.8	71.2	66.9	63.2	64.6	65.2	66.8	67.4
C5PB03	65.4	67.3	67.3	70.2	68.1	66.5	69.6	65.7	65.3	69	68.6	72.3	71.7	72.4	65.9	68.8	66.6	69	69.3
C1PB04	58.5	58.8	62.3	64.9	65.7	76.9	70	68.3	68.9	72.2	72	72.1	70.5	66.4	59	57.3	59.3	62.6	57.7
C2PB04	47.9	52.9	55.2	54.8	59	59.4	64	63.8	63.5	67.3	69.5	73.1	69.5	64.6	64	69	67.9	68.9	71.3
C3PB04																			
C4PB04	50.4	50.3	52.7	55.4	56.1	60.4	64.6	64.5	65.4	71	77.9	69.4	69.9	67.9	67.9	69.2	71.1	73.9	73
C5PB04	62.3	60.4	60.3	57.8	58.3	59.7	63.8	62.6	64.4	72.9	71.7	73.8	74.9	72.5	71.9	73.9	73.6	75.7	78.7
C1PB05	77.2	75.8	74.4	74.4	72.9	72.4	74.3	69.9	70.1	71.7	71.5	73.9	77	72.5	64.7	63.3	63.6	64.4	66.7
C2PB05	75.8	76.3	74.9	74.4	73.6	72.6	73.6	70.3	70	70.4	70.6	78.7	73.3	69.6	64	68.6	67.5	64.9	66.7
C3PB05	75.4	73.7	71.8	70.7	70.1	70.2	70	67.7	66.4	68.6	66.3	71.1	74.6	70.4	65.1	67.5	66	65.9	71.4
C4PB05	61.5	61	58.9	58.6	60.8	60.1	62.4	62	62.9	63.8	67.2	70.6	67.8	70	63.2	65.6	66.3	67.3	67.7
C5PB05	67.3	70.3	68.2	68.1	66.8	68.2	73.2	68.2	66.9	71	68.5	72.5	74.5	74.6	64.9	66.4	67.2	69.6	69.4
C1PB06	54.6	51.8	56.5	60.6	58.3	61.7	61.9	64.9	61.6	69.1	76.3	70.1	71.6	67.1	66.1	64.8	67.5	69.6	68.4
C2PB06	52	49.6	51.3	56.3	54.5	61.5	61.3	64.5	60.3	66.8	74	68.6	69.4	67.3	64.5	63.3	66.8	68.4	63.7
C3PB06	45	49.4	52.2	52.6	53.9	53.3	68.7	60.3	59.5	67.8	64.7	67.7	70.8	71	63.3	67	68.3	68.5	69.2
C4PB06	54.9	52.9	53.8	59.3	55	60.6	63.6	65.8	66.1	67.9	77.2	67.5	71.3	66	68.1	67.4	70.9	72.1	70.7
C5PB06	54.4	54.2	56.2	62.8	59	61.3	61.4	64.8	64.7	71.7	73.5	69.6	74.2	70	67.8	69.7	69.5	73	72.1
C1PB07	88.9	87.4	86.8	85.3	83.3	82	81.6	78.6	77.1	74.7	74.3	75.4	74.7	71	68.8	70.3	69.8	72.6	71.5
C2PB07	83.2	82.1	79.9	77.5	75.7	75.3	73	71.9	69.4	71.3	72.2	73.5	73.2	67	64.5	68.8	66.6	65.9	65.8
C3PB07	80	78.4	77.7	73.5	72.9	72.7	72.1	71.8	70.2	71.1	72.2	73.1	73.5	71.4	70	73.4	70.7	71.6	72.3
C4PB07	80.1	78.8	77.4	75.4	74.2	72.9	71.6	69	68	67.8	70.7	73.1	71	66.8	64.5	66.2	66.8	69.9	68.9
C5PB07	74.4	73.3	71.6	70.4	69.7	69.8	69.5	70.4	68.2	70.4	71	74.4	75.7	73.3	68.7	67.4	65.7	66.6	68.3
C1PB08	63.7	63	62	63.7	64.1	66.6	63.3	64.6	63.8	71.9	77.8	72.1	75.8	69.3	68.5	68.4	70.3	74.2	72.5
C2PB08	68.1	64.6	64.4	63.6	59.7	61.7	64.4	62.5	62.4	69.3	74.8	68.2	68.3	64	64	65.1	69.4	69.6	66.3
C3PB08	62.1	60.7	60.4	56.2	57.6	55.5	68.8	59.5	61.3	68.2	65.1	66.9	69.1	64.8	63.8	66.6	68.6	70.3	69.3
C4PB08	68.9	69.2	67.6	66.4	64.9	65	64.2	64.5	65.9	68.2	76.2	67.5	70.9	65.9	67.6	69	71.6	73.5	70.8
C5PB08	62.6	65.2	63.2	63.3	60.9	60.2	66.7	62.1	64	72.3	71.1	70.2	72.4	70.4	66.4	71	68.3	71.5	69.6
C1PB09	50.8	50.2	53.8	58.7	61.4	61.4	70.5	62.9	63.3	66.2	66.3	70.5	71.7	66.4	58.5	59.5	61.1	63.1	63.2
C2PB09	59.5	60.8	62.7	65.5	66.1	68.5	71.5	68.4	69.3	70.3	69.6	73.6	76	67.2	64.7	69.6	73	73.2	75.6
C3PB09	59.2	59.2	59	64	66	64.9	67.6	65.5	66.2	68.9	68.6	74.7	71.8	68.2	66.5	70.7	69.7	72.2	74.5
C4PB09	64.4	63.5	62.5	63.7	64.2	65.2	66.1	66.7	68.1	68.9	71.3	75.2	70.1	67.2	67.3	70.9	71.9	73.7	74.1
C5PB09	65.9	66.2	66.7	68.3	69.6	67.9	70.6	68.2	68.4	72	69.4	72.5	73.5	70.7	67.9	71.9	69.6	73.2	73.7
C1PB10	60.2	59	63	62.2	60.6	63.7	66.1	65.9	62.1	71	69.4	71.9	74	69.1	68	68.1	67.9	70.9	74
C2PB10	53.4	54.9	56.5	54.6	55.2	61.1	65.7	66.6	62.9	70.5	68.7	68.2	67.5	63.5	63.4	67.8	68	70.3	68.2
C3PB10	52.9	56	59.1	55.8	57.2	61.4	65.5	66.5	63.3	70.2	69.3	71.6	74.8	69.8	69.6	71.9	72.8	77.1	78.6
C4PB10	47.1	48.1	45.9	47.6	58.1	58	61.7	61.4	63.8	66.1	70.9	76.8	69.8	65.8	66.5	69.4	70.7	71.5	71.8
C5PB10	53.4	50.5	51.5	58	56.4	59.5	61.3	65.1	66	72.5	75.5	70.3	74	70.2	68.8	71.6	70.9	74.5	74
C1PB11	66.6	00:00	63.8	66.3	63.8	62.7	64	63.3	67.9	70.7	70.1	72.9	71.1	69.2	65.4	71.4	72.4	71.2	71.2
C2PB11	61.3	12:00	59.4	68.3	66	68.9	68.3	66	69.2	72.9	71.6	72.5	72.5	72.4	65.2	71.1	71.1	72	71.7
C3PB11	59.5	00:00	58.9	65.9	67.7	70.7	68.3	68.1	70.8	73.1	72.2	72.3	75	71	68.6	72.5	73.7	74.7	76
C4PB11	70.7	00:00	67.5	65	63	63.4	63.7	63	64.3	68	69.3	70.7	66.9	64.1	62	64.8	61.9	65.8	66.7
C5PB11	69.5	48:00	67.4	65.5	63.7	67.2	65.3	69	67.5	71.7	73	74.1	75.4	71.5	70.3	72.2	71.3	74	74.1
C1PB12	48.2	48:00	51.3	52.7	58	54.9	71.7	59.2	61.2	68.8	73.3	69	68.3	67.2	63.3	63	63.3	65.9	64.2
C2PB12	56.3	52.1	52.2	58.5	59.2	60.9	64.1	68.5	66.6	71.2	82.3	74.8	73	70.8	73.5	68.3	72.9	71.5	69.2
C3PB12	54.6	53.3	51.9	54.2	53	54.4	62.9	62.3	62	70.5	80.6	67.9	70.5	67.6	66.6	67.1	66.1	68.4	68.8
C4PB12	48:00	55.6	54.3	57.5	54.7	58	63.8	69.8	65.2	73.5	89.3	78.7	72.2	71.4	71.3	69.5	69.8	73	69.7
C5PB12	24:00	68.4	69.2	65.4	64.7	61.5	73.2	64.9	65.4	71.3	72.5	72.6	72.1	71.1	67.9	70.8	68.4	72	72.1
C1PB13	66.9	24:00	69.1	73	77.3	79.7	79.4	76.6	76.2	74.8	81.6	75.8	74.9	70.9	68.1	67.2	67.3	70.5	69.6
C2PB13	36:00	61.1	65	67.7	69.2	71.3	77.5	71.5	70.9	70.3	73.4	76.9	71.7	75.5	69.7	70.3	75.3	68.6	72.5
C3PB13	65.5	66.3	24:00	71.1	75.4	76	76.2	73.8	72.7	72.1	68.4	70.3	72.2	70.1	67.5	67.2	68.4	69.4	69.9
C4PB13	48:00	60.8	63.8	67.6	71.1	72.5	75.1	72.6	72.7	70.7	83.7	72.5	70.8	69.4	67.2	64.6	64.5	67.2	65.3
C5PB13	24:00	67.8	70.3	72.4	73.8	76.8	77	76.9	75.7	72.2	72.1	71.1	72.1	69.4	64.4	63.3	63.3	66.2	66.9
C1PB14	66	66	66.1	66	64	65.3	64.8	65	64.6	68	71.4	71.9	80.1	76.6	66.2	63.2	66	67.8	69
C2PB14	65.5	63.5	64.6	63.4	64.5	71.5	69.9	72.2	66.8	72.4	69.3	76.1	79.9	68.5	73	73.6	72.8	74	81.2
C3PB14	65.1	63.3	63.9	64.1	65.7	66.6	70.1	68.1	67.7	70.7	72.5	71.4	73.4	70.4	66.8	68.3	67.6	71.5	74.1
C4PB14	69.2	66.2	67.8	65.5	65	69.6	70.7	69.5	69	72.5	73.5	76.4	74.2	71.6	69.6	71.8	71.3	75.9	75.3
C5PB14	66.5	64.6	63.8	61.7	64.3	65.8	66.6	67.9	66.5	68.4	68.6	75.3	72.9	71.5	65.2	67.1	64	67.8	69
C1PB15	75.9	74.7	73.4	72	72.9	67	66.8	68.2	70.7	69.7	73.8	83.7	76.6	73.2	72.4	76	75.6	78.6	79.9
C2PB15	67	68.8	68.2	63.8	64.9	61.6	76	67.8	70.3	73.8	74.8	75.8	76.6	74.1	74.8	80.2	81.2	84.1	83.9
C3PB15	60.7	59.4	61.7	60.5	59.7	59	71.5	62.2	63.2	68.6	67.2	70.9	71.1	68	65	65.7	69.2	71.3	70.1
C4PB15	59	61.1	59.1	61.2	61.6	61.6	70.2	67.7	65.9	72.4	75	71.2	72.9	68.4	69.3	70.1	71.7	75.4	73
C5PB15	56.8	57.9	55.9	56.1	65.6	61.3	80.1	68	68.6	72.9	74	79.1	76	73.1	71.7	73.9	78.8	86.3	76
C1PB16	45.4	48.9	53	63.6	62.3	61.8	74.3	68.8	66.7	71.7	78.7	73.8	73.4	70.1	69.3	71.7	73.3	76.2	75.8
C2PB16	46.8	48.6	47.4	53.2	56.7	61.1	62.2	64.6	66	69.2	71.5	82.8	70.7	65.3	65.9	73.3	71.3	75.1	74.3
C3PB16	48.4	50.6	51.4	58	60.3	61	69.1	67.5	63	69.9	76.7	73.5	71.4	66.6	68.4	70.3	70.9	73.3	75
C4PB16	42.2	47.1	50.9	49.7	59.9	55.1	73.5	60.7	63.9	69.4	69.8	68.9	67.2	65	64.6	68.7	70.9	73.4	73.6
C5PB16	57.9	57.7	52.8	60.5	67.2	64.7	77.2	67.1	70.3	73.5	73.8	75.4	76.3	72.1	69.8	75.8	77.5	84.5	77.3
C1PB17	69.8	65	66.5	69.5	77.3	79.1	79.8	77.5	76	74.5	73.8	78.4	74.4	71.6	67.8	69.1	67.8	71.2	73.1
C2PB17	75.3	71.9	72.8	74.7	80.8	83.1	82.7	81.4	77.9	75.4	76.3	76.9	76.3	73.5	72.8	76.7	77.7	80.2	80.1
C3PB17	63.3	62.1	63.7	67	71.6	76.4	76.4	75.2	72.2	71.9	70.9	72.6	71.8	68.1	61	60.8	63.4	66.4	65.9
C4PB17	64.5	63.2	65.2	67.3	69.5	75.6	76.3	72.7	72.3	71.2	74.7	71.8	70.7	67	67.5	69.8	71.5	73	73.4
C5PB17	72.9	70.6	67.3	68	71.2	74.5	78.5	77.9	75.8	74	73	73	74	70.9	66	67.6	65.4	70.5	68.1
C1PB18	76.2	76	73.9	72.3	71.3	71	71.4	69.9	69	72	71	71.3	71	67.2	66.3	65.2	65.7	68.5	69.7
C2PB18	77.5	76.9	77.6	75.6	74.7	74.2	73.6	72.9	70.5	74.4	82.4	73.9	69.1	64	66.1	64.2	66.5	73.5	67.8
C3PB18	76.1	75.8	75.7	74	73.6	71.1	71.5	69.6	68.5	70.3	71.8	67.9	68.5	64.7	65	68	71.8	72.5	72.3
C4PB18	71.7	74.1	71.7	68.6	68.1	65	68.3	63.9	63.5	65.7	68.5	65.9	67.2	63.9	63.4	65.7	67.8	70	69.8
C5PB18	70.7	70.6	70.3	69.9	68.8	67.6	69	67.9	66.4	72	82.1	69.2	70.6	67.5	66.7	68.4	68.1	70.7	69.2
C1PB19	64.1	63.3	72.6	71.9	72.8	74.2	73.2	75.3	71.7	71.6	71.2	78.2	78.7	66.7	67.3	69.3	68.8	71.2	75.4
C2PB19	63	66.1	75.2	72.2	74.5	73.8	74.7	76.2	73.5	71.3	76.1	80.6	72.3	66.6	69.2	71	70.1	72.8	75.4
C3PB19	60.2	59.6	65.7	69.6	70.4	72.1	73	75.4	74.8	77.1	93.5	87	77.9	72.1	72.7	71.9	73.3	76.2	74.2
C4PB19	53.2	56.5	68.1	63.2	67.5	67	67.2	68.2	68.3	67.6	78.4	81.7	68.2	65.2	67.3	71	72.4	73.1	73.1
C5PB19	64.1	65.7	72.4	71.4	71.9	71.8	71.1	72.6	69.3	74.1	82	72.2	73.2	68.5	68.2	67.5	68.1	70.5	71.1
C1PB20																			
C2PB20	67.6	66.5	73.5	76.6	78.7	78.3	78.5	76.1	74.7	71.8	75.5	81.9	68.3	62.5	62.9	68.4	64.9	77.4	66.9
C3PB20	63	65.1	72.4	73.5	74.9	74.9	75.5	73.7	71.9	73.7	81.7	72.4	68.5	65	65.8	67.3	70	71.4	71.9
C4PB20	61.6	60.8	68	67.8	70.2	69.6	71.5	72.2	71.5	70	79.4	82.2	71.9	68.7	70.3	71.8	73.6	74.7	74.7
C5PB20	68.3	69	76.5	76.2	78.4	77.5	78	77.1	75.1	74.1	80.5	72	72.3	69.9	69.9	68.3	69.7	72.5	72.3
C1PB21																			
C2PB21	66.2	64.7	62.6	60.8	65.2	58.7	71.4	68.2	64.9	73.2	78	72.1	66	61.8	61.6	61.2	61.2	59.6	61.1
C3PB21	53.4	54.5	58.1	66.2	66.2	66.7	72.3	74.3	73.2	81.8	90.5	80.1	80.4	76.2	77.1	78.9	80.8	82.8	83
C4PB21	65.7	65.5	62.2	61.5	63.3	60.4	66.8	66.3	66.2	75.5	85.1	75.9	72.1	69.3	70.8	71.2	73.1	75.2	74.4
C5PB21	67	64.6	62.8	65.3	71.2	63.2	78.6	67.5	67.9	77.3	73.9	78.5	76.4	73.4	72.9	76	73.5	80.8	79.3
C1PB22																			
C2PB22	52.5	53.6	55.6	63.1	62.7	63.5	67.8	70	70.8	79.6	86.3	79	79	75.2	78.3	80.2	80.9	86.2	85.1
C3PB22	50.9	51.5	56.1	63.1	61	63.5	63.2	68.2	67.9	79.5	89.2	78	76.1	70.9	70.1	70	74.6	77.1	75.7
C4PB22	57.5	54.1	54.3	62.5	62.9	61.7	69.3	68.9	70.7	81.8	90.2	74.2	74.8	73.2	73.8	74.3	76.8	78.9	77.6
C5PB22	48.8	47.6	54.1	61	67.2	63.4	79.1	68.9	69.5	80.8	76.6	79.4	76.1	74.8	74.8	76.7	74.9	82.6	78.1
C1PB23	50.4	53.4	60.2	66.2	62.2	59.2	60.3	63.4	63.2	72.1	83.3	76.8	71.5	67	68.2	69.1	70.3	72.9	73.1
C2PB23	58.5	58.5	58.4	57.6	66.6	61.1	76.3	66.5	67.2	73.9	71.5	76.1	70.1	72.2	68.8	68.4	68.7	69.7	70.5
C3PB23	54.9	54.7	55.7	56.8	57.7	56	67.2	57.5	59.2	71.7	64.8	69.2	68.7	63.2	60.5	62.4	65.3	66.8	65.4
C4PB23	61.6	59.8	58.3	59.3	60.2	59.3	61.4	64.4	65.9	71.3	83.5	79.7	68.2	66.2	67.6	71.6	73	72.5	71.6
C5PB23	55.3	55.1	55.6	58	61.6	59.5	69.2	61.5	62.9	71.9	74.6	70.5	69.4	68.6	69.1	70.9	73.3	73.9	72.9
C1PB24	65	65.4	71.3	70	73.6	71.4	72.9	71.6	70.9	79.3	78.9	76.4	73.6	68.7	67.6	66.6	66.2	69.4	69.5
C2PB24	65.7	66.4	67.4	68.4	73.3	72	72.1	70.7	70.7	73.6	81.8	74.6	67.9	62.3	64.4	61.7	64.5	69.2	65.5
C3PB24	62.9	65.8	66.2	72.4	69.8	69.7	71.6	71.4	69.2	70.5	70.4	71.1	68.5	65.7	66.2	69.1	74.1	72.3	71.4
C4PB24	66.7	66.2	66.2	69.3	66.4	62.8	69	67.6	66.1	69.5	69.3	67.3	69.5	64.2	64.2	68.8	71.6	71	72.9
C5PB24	62.8	65.1	68.7	68.6	69.7	66.4	73.8	67.6	66.4	75.1	74.5	72.9	72.8	71.3	68	73.1	72.7	73.8	77.1
C1PB25	61.5	67.7	73.4	72.4	79.3	81.3	82.5	79.3	77.3	74.4	74.4	78.8	80	71.1	70.6	72.4	72.9	75.6	77.6
C2PB25	71.3	75.5	77.3	81.8	86.7	85.8	87.9	85.2	80.2	76.3	76.1	80.5	70.4	68.4	71.5	73.6	75.5	77	76.5
C3PB25	59	63.5	68.2	74.6	76.5	80.2	77.2	78.2	72.4	70.4	75.2	80.1	71.3	65.1	66.1	66.6	69	70.5	69.1
C4PB25	55.8	60.2	68.5	71.1	72.3	74.9	77.2	73.5	69.9	71.1	79.6	81.4	68	66.1	68.2	75.6	76	73.6	75.1
C5PB25	74.8	74.9	78.9	78.4	78.9	79	78.4	79	76.7	74.8	71.8	72.2	73.7	70.1	70.5	74.5	78	76.8	76.4
C1PB26	66.1	64.7	69.2	73.4	73	71.7	72.8	72.7	70.1	73.7	83.1	75.3	70.1	66.7	66.3	65.2	67	70.3	68.9
C2PB26	63.2	66.6	69.9	73.4	73.7	72.5	73.8	71.5	70.6	71	78.2	81.2	66.6	63.1	63.1	64.6	63.8	66.2	68
C3PB26	65.4	67.7	69.5	70.9	72.8	68.7	70.4	69.5	68.5	68.1	76.4	82.5	69	66.2	66.7	71.2	71.4	75.9	72.4
C4PB26	66.7	65.6	67.7	68.9	68	66.5	68.4	68.1	70.2	69.3	79.4	82.1	69.7	67.8	68.7	71.7	73.8	74.9	74.2
C5PB26	68.1	69.2	74.3	74.4	76.2	74.3	76	74.4	72.8	75.2	75.6	79	72.8	73.3	69.7	72	73.2	73.7	75
C1PB27	64.4	63.1	60.6	58.2	56.5	53	56.8	53	53.9	66.9	69.9	60	55.6	48.1	45	47.9	44	47.9	45.1
C2PB27	59.6	60.6	58.5	60.5	64.5	61.1	74.4	65.2	70.4	78.4	73.4	75.2	71.1	67.5	67.6	73.1	74	75.3	75.6
C3PB27	44.6	51.5	56	57.9	65.3	58.9	75.9	65.2	65.3	77.4	73.3	76.5	76.1	69.5	67.9	71.5	73.5	76.8	75
C4PB27	43.8	44.5	46.6	67.1	63.1	65.5	60.9	67.9	66.7	79.9	88.6	79.7	75	69.1	73	78.2	77.7	83.5	81.5
C5PB27	50.6	51.4	51.9	70.5	66.9	64.9	62.6	70.6	69.8	80.9	89.2	81.7	81.5	76.3	81.5	85.3	82.2	88.8	87.5

ID	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 k Hz	12.5 kHz	1.6 kHz	20 kHz
C1PB01	74.9	68.8	66	63.2	66.6	69.9	71.4	76.3	80.9	83.8	70.7	69.9	72.6	76.1	72.3	65.7	61.5
C2PB01	73.2	68.1	66.9	64.4	67.3	66.8	67.8	67.5	67.3	77.3	73.4	66.8	67	64.9	69.6	60.8	52.8
C3PB01	67.8	65.9	67.1	62	67.1	72.2	74.4	81.4	83.2	72.7	73.1	72.3	75.5	72.7	71.7	62.6	56.7
C4PB01	72.7	66.9	67.5	66.5	71	73	77.3	73	78.6	75.9	75.9	73.3	75.5	74.1	71.2	65.3	55.2
C5PB01	77.2	69.2	68.8	70.1	71.8	73.9	79	80	79	84.2	82	77.2	76.2	74.9	72.8	67.9	59
C1PB02	75.6	71.1	65.6	64.2	66.5	66.1	68.3	66.7	73.4	62.7	63.5	63.8	59.9	59	54.7	53.2	47.2
C2PB02	69	67.6	63.8	62.6	64.7	62.6	61.8	59.6	58.4	53.4	53.9	46.5	42.9	40.8	38.8	35.2	31.9
C3PB02																	
C4PB02	71.4	67.7	65.2	64.7	65.7	63.7	61.9	59.1	58.8	59.3	56.2	46.6	49.2	48.4	49	49.8	41.4
C5PB02	77.4	72.1	68	66.3	66.6	64.2	64	60.7	60.2	58.9	54.2	53.8	49.8	54.1	51	43.1	35
C1PB03	67.8	64.7	63.5	60.8	63.7	67.6	68.9	67.6	70.8	71.2	73.6	74.4	74.2	73.4	77.1	70.9	64.4
C2PB03	65.6	65.7	63.7	62.5	64.9	67.8	71.5	71.1	72.6	73.5	75	74.5	75	75.6	75.3	65.9	59.4
C3PB03																	
C4PB03	66.1	64.2	67	66.4	69.8	69.9	78.3	75	79.1	79.4	77.6	85	75.1	78.3	70.3	67.9	57.3
C5PB03	69.6	67.1	65.8	66.2	68.5	72	74.6	77	79.5	82.4	77.4	81.7	75.4	72.4	70.4	65.2	56
C1PB04	54	51.5	51.8	52.3	51.5	51.7	53.8	52.5	51.9	50.2	53.6	49.2	47.3	51.7	70.8	63.5	56.8
C2PB04	67.2	65.1	65	63.5	66.3	65.2	67	65.2	67.2	63.7	61.2	60.6	59.9	57	55	49.4	42.7
C3PB04																	
C4PB04	70.9	67.3	66.9	65.8	69	79.7	72.8	70.3	70	70.1	70	68.7	68.1	66.7	63.2	57.7	44.3
C5PB04	77.5	71.4	71.2	69.5	72.3	74	77.1	78.4	80.3	85.8	82.1	76.5	75.1	78.9	74.4	69	58.8
C1PB05	64.7	63.9	62.5	61.1	62.8	64.5	66.1	67.3	66.8	66.9	70.1	69.1	70	69.6	67.5	63.8	61.7
C2PB05	65	64	62.9	63	66.1	67.6	71.2	71.4	70.5	76.5	77	69.3	68.9	72.1	66.9	62.2	53
C3PB05	69.5	65.3	64.7	63.7	68.3	71.3	72.7	72.8	72.5	72	71.4	77.5	70.3	68.3	65.7	63.9	53
C4PB05	66	64.5	61.3	61.3	66.3	67	69.4	68.6	66.7	66.6	73.1	67.3	65.3	65.6	61	54.1	40.5
C5PB05	69.7	66.2	66.1	67.2	66.8	70.3	75.8	76.3	75.6	73.5	75.6	71.6	69.8	67.1	64.6	59.6	50.8
C1PB06	68.5	67	61.7	61.8	65	61	62.2	59.1	61.5	60.3	61.7	60.2	59.1	58.6	57.8	52.4	54.8
C2PB06	63.2	64.1	61.8	61.3	64.6	60.8	59.6	56.6	54.7	51.2	48.3	47.4	45.2	42.5	40.4	36.2	30.8
C3PB06	67.8	65.7	62.4	61.7	64.6	68.8	69.1	67.9	68.1	67.6	67.4	67.6	65.1	63.7	60	56	48.2
C4PB06	67.8	67.1	64.7	63.9	66.8	72.6	64.6	63.6	60.7	60.5	59.3	60.1	60.4	58.6	53.5	48.4	34.4
C5PB06	72.6	68.6	65.5	64.5	65.4	62	61.5	58	56.4	53.1	50.3	47.7	46	45.6	42.7	38.4	33.3
C1PB07	77.3	70.1	69.1	69.9	69	69.5	70.1	68.7	70.1	70	72.2	78.8	69.8	70.5	68.8	66	60.7
C2PB07	79	69.4	68.1	68.5	67.2	70.3	71.7	72.1	70	76.5	70.2	78.3	66.7	71.4	66.8	58.9	56.8
C3PB07	75.7	72.3	71.5	71.9	71.9	73.9	74.7	72.4	72.7	73.1	72.6	72	70.1	73.9	67.6	66.6	56.3
C4PB07	66.2	64.8	67.5	64.7	69.1	70.7	72.1	71.3	71.2	70.8	73.5	77.2	71.1	69	71.5	58.8	50.9
C5PB07	67.9	64.5	63.4	63.3	63.3	61.4	63.6	64.1	60.8	59.4	60	61	63	62.6	59.1	56.7	45.4
C1PB08	72.6	69.6	64.8	65.1	68	65.4	65.9	64	66.5	65.6	65	62.8	61.4	60.1	58.3	60	49.8
C2PB08	65.2	65.2	61.4	60.2	63.9	59.2	58.4	54.6	53.5	48.3	44.2	44.5	42.6	40.7	39.3	37.2	31.2
C3PB08	68.1	65.6	63.4	61.5	65.9	69.1	68	66.6	67	66.2	66.4	64.3	64.2	62.2	59.6	56.7	49.4
C4PB08	69	68.4	63.9	62.8	65.6	63.1	65.6	62.4	59.2	65.3	60.6	62.8	59.2	54.7	50.8	45.9	32.3
C5PB08	70	63.6	62.7	61	60.9	57.7	62.8	59.1	63.1	54.6	57.9	51.3	50.7	56.2	51.5	44.2	35.8
C1PB09	64.1	60.7	63	59.4	63.5	70.1	69.5	69.4	71	70.6	79.3	69.4	68.5	71	65.5	61.8	55.3
C2PB09	73.5	68.1	67.3	65.6	67.1	65.2	65	62.5	61.8	58.6	58.9	56.1	54.7	51.7	58.9	50	42.1
C3PB09	72.1	68.8	65.4	65.1	68.7	72.6	72	73.4	72.7	72	72.3	72.9	70.4	67	65.8	61.2	53.8
C4PB09	70.5	69.5	70.2	69.4	72.4	74.9	75.3	74.6	73.9	73.2	73.7	71.7	70.5	68.5	65.2	58.7	44.8
C5PB09	74.3	71.1	72.6	71.6	73.9	78.1	78.8	80.7	80.4	81.9	78.9	76.1	75.2	71.5	68.8	64.1	55.8
C1PB10	73.5	67.4	67.2	66.2	68.4	71.3	70.4	71.1	71.1	70.5	73.8	81.1	72	70.5	70.3	66.1	59.6
C2PB10	73.7	70.2	69.3	69.8	66.5	69.1	69.5	69.7	69.6	69.3	73.1	79.9	68.2	73.5	65.9	64.8	55.6
C3PB10	76.8	73.2	70.7	68.7	71.2	72.4	71.4	69.5	70.3	69.1	70.1	73.2	70	67.8	66.5	65.5	58.7
C4PB10	69.7	68.2	69.7	69	71.6	76.3	76.8	77.8	76.2	76.3	76.1	77	74.7	72.4	68.2	61.2	47.3
C5PB10	74.3	71.5	68.6	68.2	71.1	75.2	77.7	77.8	78.8	76.4	77.2	76.2	74.6	68.5	66.1	61.5	53
C1PB11	72.2	81.9	69.3	70.9	73.4	70.8	71.8	70.2	69.9	69.9	70.8	80.4	75.3	69.1	68.6	66.1	58.3
C2PB11	72.2	82.5	70	71.1	72.7	70.4	70.9	69.2	68.3	68.5	77.2	75.8	68	70.9	67.8	67.2	55.4
C3PB11	75.4	83	71.1	71.7	74.7	72.2	73.7	71.6	70.9	70.8	71.5	73.8	74.1	69.5	68.4	69.2	58.8
C4PB11	63.5	63.2	70.5	63.7	69.4	70.4	72.7	72.4	72.1	72.3	75.2	83.1	71.8	74.9	71.7	61.5	49.1
C5PB11	74.3	70.7	70.6	70.6	72	74.4	76.4	78.3	79.5	80.7	80.2	77.3	78.4	79.7	72.6	68.3	59.4
C1PB12	66.1	64.8	70.2	63.6	66.2	72.8	71.5	73.8	73.6	79.4	83.3	73.9	71.9	75.2	71.6	67.7	65
C2PB12	69.7	70	74.2	68.1	70.9	72.2	74.6	74.4	74.7	81.7	83.8	80	72.4	80.2	74.6	67.7	63.1
C3PB12	67.6	68	68.7	65.4	71.1	75.9	82	77.6	78.2	79.6	81.2	78.2	76.4	76.1	77.3	71	64.3
C4PB12	68.4	69.9	67.7	67.1	70.1	64.9	64	62.3	62.1	55.6	49.1	43.5	38.7	35	29.7	21.1	15.5
C5PB12	71.2	69.4	71.5	68.7	71.2	75.2	78.1	81	83.2	81.3	83.8	82.4	79.6	82.8	78.1	73.2	64.6
C1PB13	69.1	67.6	63.4	62	65.4	64.9	64.8	63	64.1	63.6	63.8	62.9	62.8	63.4	63.6	61.4	55
C2PB13	74.5	70.2	72	69.8	70.9	66.9	66	66.3	63.6	58.7	54.7	50.7	49.8	47.5	47	45.3	37.7
C3PB13	69	66.8	62.8	60.3	62.8	64.5	65.2	63.5	63.1	63.2	62	62.3	61.4	61.5	58.9	54.4	48.1
C4PB13	63.9	64.4	63.4	63.3	64.9	59.2	60.3	56.9	56.9	50.5	47	44.2	41.5	38.2	34.5	24.4	17.3
C5PB13	65.9	63.2	64	61.7	60.8	60.7	61	59.9	57.7	53.9	53.3	50.7	48.4	48.1	45.1	40	36.1
C1PB14	67.8	65.6	66	65.5	67.7	68.6	69.6	69.7	69.3	69.5	72.9	69.4	70.1	74.9	64.9	64.6	60.2
C2PB14	81.5	73.5	75.2	71.7	75.5	76.8	77.8	76.6	77.1	82.8	82.3	83.3	75.7	82	74.7	68.5	61.2
C3PB14	71.6	67.4	71.4	63.7	68.3	70.8	73.4	75.5	76.7	74.6	70.2	66.5	67.4	67.3	63.8	60.5	53.8
C4PB14	73	69.9	74.1	67.8	73.2	72.1	72.9	71.5	72.5	73.7	72.3	71.5	67.3	69	63.8	59.8	52.4
C5PB14	70.3	68.5	65.7	63.7	67.6	63.1	62.5	60.8	58.5	54.8	52	51.2	46.2	42.9	38.2	33.3	25.8
C1PB15	79.9	75.1	70.6	68.7	72.3	71.3	69.9	66.9	65.9	64.2	64.8	63.6	66.2	64.4	62.2	61.1	54.7
C2PB15	83.2	81.4	78.7	74.9	76.5	75.7	76.9	73.8	73.1	71.7	72.5	71.2	71.4	70.3	69.3	63.4	58.7
C3PB15	66.9	63.1	65	60.9	64.9	66.4	68.6	66	65.4	65.7	65.9	64.1	63	63.4	58.8	52.2	46.5
C4PB15	70.2	67.6	73.6	66.5	72	73.7	75.2	79	80.2	78.3	77.1	76.8	73.7	76.2	71.2	64.8	57.6
C5PB15	75.9	73.6	73.3	68.3	68.4	65.2	64	61.4	58.7	54.7	49.3	44.2	40.3	34.5	28.8	23.7	18.8
C1PB16	76.3	72.9	76	71.6	76.3	82.7	81.4	81.6	82.7	85	84.8	80.9	81.6	80.9	79.8	75.4	66.6
C2PB16	72.8	72.8	72.7	70.2	74.8	70.7	71.2	73	75.1	75.7	86.2	72.8	70.8	70.3	73.4	63.2	55.8
C3PB16	74	73.1	73.7	71.2	75.1	78.1	78.5	79.9	80.6	79.9	88.7	85.7	81.4	77.9	81	76.8	66.5
C4PB16	72.8	69.6	76.6	69.3	83.1	80.7	82.1	76.4	78.6	74	73.7	74.6	78.3	83.6	71.9	64.9	61.9
C5PB16	78.5	75.2	73.3	70.9	73.4	69.2	68.8	66.4	64.2	57.4	51.8	47.8	43.7	38.8	33.8	27.7	21.4
C1PB17	73.2	69.2	67.1	66.3	70.4	72.7	72.7	71.8	73	77.4	78.6	71.8	71.3	76.4	71.2	66.3	59.2
C2PB17	79.5	79.4	75.1	71.3	72.7	71.7	72.1	69.8	69.6	69.7	68.6	68.3	66.5	68.2	64.6	58.1	53.6
C3PB17	62.5	61.3	61.7	59.2	63.6	66.9	69.3	68.2	68.5	69.4	74.7	67.6	67.6	68.6	65.6	63.2	52.8
C4PB17	71	69.6	71.4	67.6	71.6	70.3	73.6	72.3	76.9	70.2	67	66.7	67.1	68.4	69.2	61.3	51.7
C5PB17	68	65.1	64	62.6	63.9	60.8	62	59.8	57	54.2	50.8	48.5	47.1	41.4	37.2	34.7	27.4
C1PB18	71.4	67	69.2	64.5	68.1	71.3	75.1	71.2	72.8	75	76.3	76.5	76.1	82.8	79.9	70.1	64.4
C2PB18	68.1	73.9	73.8	67.7	66.1	67.4	69.4	67.3	74.8	81.5	76.1	61.7	64.2	60.3	61.8	54	47.9
C3PB18	73.8	71.1	69.2	67.9	70.5	73.5	82.8	74.7	77.7	79.2	82.3	83.7	82.1	74.6	78.4	69.6	63.2
C4PB18	72.3	67.2	76.9	67.6	71	73.4	82.2	77.4	81.8	84.7	80.7	79.4	76.6	79	71.8	67.3	57.5
C5PB18	70.7	66.2	66.6	67.2	65.6	67.7	73.5	68.5	74.5	75.9	72.7	68.4	64.8	69.6	63.5	61.3	49.3
C1PB19	75.7	68.7	68.3	66.2	70.2	74.4	76.8	74.9	77.9	78.5	74.8	76.3	74	74.1	71.7	67.7	59.6
C2PB19	71.8	70.6	67.1	66.2	68.4	67.1	68.9	67.4	65.6	63.4	61.7	59	59.1	55.2	49.7	43.2	35.4
C3PB19	72	70.4	68.3	68.8	72	72	72.2	70.6	70.6	70.7	69.2	67.6	67.1	67.1	64.4	58.9	52
C4PB19	70.6	68.1	68	66.6	69.1	71.6	76.2	70.3	70.8	73.6	70.1	71.3	67.2	66.9	64.3	59.1	50.9
C5PB19	71.2	66.8	65.4	65.2	66	62.3	62.9	60.7	73.3	64.5	54.2	51.6	52.3	49.8	47	41	33.8
C1PB20																	
C2PB20	65.2	63.2	61.3	60.3	62.5	60.5	61.5	58.7	57.7	53.7	50.4	46.7	42.8	41	48	37.8	29.9
C3PB20	69.2	67.7	70.8	64.6	68.6	71.7	78.2	80.7	84.2	72.9	68.7	76.5	69.7	70.7	71.8	62.3	55.6
C4PB20	72.9	69.5	68.3	66.9	69.6	68.8	82.4	68.2	65.4	64.9	62.5	63.8	61.3	62.1	58.1	54.3	47.2
C5PB20	73.1	69.7	68.7	68.3	67.6	70.6	74.7	71.9	70.1	71.6	67.9	66.2	65.3	65.5	63.1	56.7	49.5
C1PB21																	
C2PB21	60.8	61.1	63.2	60	63.2	57.7	57.4	57.5	53.9	47.7	42	37.6	34.4	30	25.7	19.4	15.6
C3PB21	80.9	79.5	75.6	74.8	77.9	80.6	81.3	79.6	80	78.5	78.4	77.2	76.9	76.7	74.1	68.6	63.2
C4PB21	71.7	71	69.4	68.6	73.1	74	74.7	73.4	72.9	73.4	76	74	71.8	73.4	71.4	63.5	57.3
C5PB21	80.3	75	77.4	74.9	73.8	79.5	80.6	80.1	81	83.4	86.1	78.1	76.4	77.2	74.8	70	62.4
C1PB22																	
C2PB22	83.4	82.8	79.6	77.4	78.5	77.5	79.2	78.9	78.7	78.9	86.9	77.6	75.4	77.9	74	68.6	61.6
C3PB22	71.9	70.4	69	68.1	71.5	69.7	71.5	70.2	71.3	68.8	67.2	65.9	65.1	65.1	63.4	56.4	50.1
C4PB22	74.5	72.9	71	69.9	74.3	73.8	75	73.4	72.7	73.1	72.4	72.3	71	73	69.6	63.3	57.3
C5PB22	78.7	74	75.3	72.6	71.6	73.3	75.3	73.2	74.6	72.4	71.6	69.6	70	74.7	71.6	64	57.6
C1PB23	73.7	69.6	66.2	64.9	68.1	70.6	74.2	70.9	74.2	77.7	76	73	72.7	73	69.7	65.8	58.7
C2PB23	71.6	71.2	70.1	65.9	68.8	63.6	71	63.1	62.1	59.7	58.9	58.7	58.9	56.9	55.5	53.6	49.5
C3PB23	62.1	59.8	58.3	57.1	58.8	57.9	62.3	56.1	53.9	53.3	52.4	48.6	47.7	44.5	41.6	36.4	31.3
C4PB23	70	67.4	65.2	63.8	66.7	66.7	79	64.2	61.6	61.7	59.8	59.6	58.1	60.8	57.4	51.8	45.9
C5PB23	75.7	69.2	68	66.5	65.7	64.8	76.8	68.2	77.4	70	56.8	55.7	53.3	54.3	52.1	46.3	41.5
C1PB24	71	67.3	68.1	65.4	80.8	81.2	73.7	80.6	81.8	75.2	75.6	80.1	73.5	73.7	73.3	65.8	62.3
C2PB24	65.9	66.8	66.4	64.4	64.6	65	65.1	62.9	62.5	61.6	59	56.5	55.4	61.4	65.4	58	45.1
C3PB24	74	69.6	69.4	66.9	70.9	72.6	76.5	72.6	75.4	76.2	78.1	80.1	78.2	73.8	78.2	66.6	59.4
C4PB24	74.8	67.7	75.2	67.8	75	74.6	84.5	78.6	81.4	82	77.5	76.3	71.9	70.9	68.4	62.8	54.1
C5PB24	78.4	75.6	75.5	74.7	75.2	77.5	85.5	78.4	78.3	75.5	87.2	76.4	74.2	72.7	75	66.1	57.9
C1PB25	77.9	72.5	70.1	69.2	71.4	70.6	77.6	71.9	75	69.9	69.1	68.3	66.7	66.4	63.6	58.8	52.4
C2PB25	76.3	76.7	83.1	75.7	73.2	74.6	87.5	80	82.3	74.1	86.7	69.8	68.6	73.1	68.1	64	59.4
C3PB25	68	65.7	64.8	62.6	65.1	64.2	75.1	65	64.2	65.9	64.1	65.9	60.7	61.8	59.3	53.7	46.8
C4PB25	77	69	68	65.9	67.3	67.7	76.7	63.9	77.9	77.9	81.6	59.5	57.3	59.9	58.7	52	45.6
C5PB25	79.7	71.2	69.8	67.4	66.8	66.5	70	66.2	80.1	76.4	65.8	60.9	61.2	61.5	61.7	53.1	45.4
C1PB26	70.1	66.2	66.4	64.3	68.2	71.7	71.9	72.9	74.2	74	75	81.4	74.7	73.8	72.3	67.6	61.7
C2PB26	65.4	63.1	61.1	60.5	63.9	61.8	62.3	61.3	60.8	58.9	59.9	56.5	56.3	57.8	63.2	49.7	41.4
C3PB26	71.1	72.5	69.1	71.3	69.9	74.5	77.9	75.9	76.6	79.1	79.5	71.8	71.8	70.8	68	63.5	56.8
C4PB26	72.7	69.4	67.8	67.2	69.8	68.1	82	69.6	71.2	70.1	69.5	71.3	66.8	66.7	63.3	59	50.6
C5PB26	76.8	70.6	69.5	69.7	69	73.1	77.5	75.6	76.6	71.7	71.8	70.4	69.3	68.2	67.7	59.9	52
C1PB27	47.1	45.7	45	44.1	45.9	52.4	52.7	47.9	46.2	50.1	43.9	36.6	29.7	23.5	15.1	13.6	14.6
C2PB27	73.2	70.9	67.3	65	65.2	61.9	62.5	59.1	56.7	51	48.1	47.5	49.6	48.7	49.9	45.8	41
C3PB27	73.7	71.6	70	67	67.6	68	65.9	61.6	59.1	55.9	55	55.2	52.5	47.1	44.9	38.9	29.7
C4PB27	79.8	76	77.3	72.7	74.3	71.1	68.5	64.2	64.8	57.4	51	47.6	43.4	39.4	32.4	24.9	17.1
C5PB27	89.7	83.6	80.7	79.2	77.1	75.8	73.6	71.6	72.9	71.6	69.6	67	66.5	68.7	64	57.5	49.1

ID	Location	Passby	Direction	Distance to track centre (m)	Comment	Start Date and Time	Temperature (°C)	Relative humidity (%)	Rain (mm)	Wind (km/h)	Duration (m:s)	Measured noise level dB(A)			Noise level at 15m dB(A)		
												LAeq	LAE	LAFmax	LAeq	LAE	LAFmax
C1PB28	Curve 1	PB28	IN	8.2		12/12 22:29:10	16.2	87	0	11.2	00:13	91.7	102.9	100.8	90.8	102.0	99.1
C2PB28	Curve 2	PB28	IN	8.3		12/12 22:30:08	16.2	87	0	11.2	00:20	82.5	95.5	92.2	81.7	94.7	90.6
C3PB28	Curve 3	PB28	IN	7.4		12/12 22:30:36	16.2	87	0	11.2	00:25	90.7	104.6	102.7	89.4	103.3	100.1
C4PB28	Curve 4	PB28	IN	8		12/12 22:34:01	16.2	87	0	11.2	00:43	91	107.3	104	90.0	106.3	102.1
C5PB28	Curve 5	PB28	IN	3.3		12/12 22:35:13	16.2	87	0	11.2	00:15	87.2	99	94.4	82.4	94.2	84.8
C1PB29	Curve 1	PB29	OUT	8.2		12/12 22:54:40	16.4	85	0	9.4	01:02	83.3	101.2	96.5	82.4	100.3	94.8
C2PB29	Curve 2	PB29	OUT	3.1		12/12 22:54:04	16.4	85	0	9.4	01:08	91.3	109.7	106.7	86.2	104.6	96.5
C3PB29	Curve 3	PB29	OUT	12.6		12/12 22:52:58	16.4	85	0	9.4	01:47	83.3	103.6	97.7	84.3	104.6	99.7
C4PB29	Curve 4	PB29	OUT	8		12/12 22:50:20	16.4	85	0	9.4	02:47	80.5	102.7	96.9	79.5	101.7	95.0
C5PB29	Curve 5	PB29	OUT	3.3		12/12 22:49:14	16.4	85	0	9.4	02:17	83.1	104.5	101.7	78.3	99.7	92.1

1/3 octave centre-band frequency LZeq measured noise level (dB)

ID	6.3 Hz	8 Hz	10 Hz	12.5 Hz	16 Hz	20 Hz	25 Hz	31.5 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz
C1PB28	48.7	47.4	53.1	57.2	62.5	60.6	73.6	63.2	63	75.9	72.3	75.5	72	70.5	68.4	71.2	73.8	80.9	81.6	83.5
C2PB28	44.2	48.6	52	57.7	60.4	57.7	65.6	65.3	64.7	74.8	78.1	73.8	69.4	65.6	66.8	67.6	67.7	75.9	69	69.1
C3PB28	50.2	48.7	50.5	58.2	58.1	58.7	66	66	65.8	79.7	80.3	73.9	73.1	68.3	68.8	72.3	72.4	77.8	80.1	78.3
C4PB28	52.4	52	54.8	53	59.5	56.4	73.8	63.9	65.7	78.2	78.8	72.3	67.8	66.9	66.6	67.5	70	72.4	72.3	70.3
C5PB28	73.3	72.7	71.2	70.3	76.4	66.8	70.1	68.6	74.6	90.9	75.3	79.7	79	79.2	77.4	81.7	79.7	83.5	83.7	84.9
C1PB29	65.6	63	63.5	66.2	64.2	66.2	65.4	65	62.2	69.2	70.5	78.1	79.2	67.2	67.6	68.8	70.3	71.6	74.5	75.9
C2PB29	59.1	57.7	58.9	59.3	65.7	61.8	61.5	62.3	66.8	67	75.3	82	69.7	68.4	72.2	76.1	76.9	81	80.2	81.2
C3PB29	47.6	50.6	54.2	56	56.7	55.2	54.3	59.9	60.2	72	82.1	77.6	66.7	62.4	62.5	62.6	64.4	67.1	64.5	65.4
C4PB29	53.1	51.7	53.2	53	62.9	56	60.3	61.6	65.5	80.1	76	67.7	67.8	66.3	65.2	69.2	71.9	71.9	71	71.1
C5PB29	58	56.2	55.2	59.5	58.8	60	58.4	62.5	63.2	72.7	81.3	71.4	72.4	69.1	69.3	71.1	73.5	73.3	73.8	74.1

ID	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 k Hz	12.5 kHz	1.6 kHz	20 kHz
C1PB28	78.8	74.5	71.7	73.8	77	75.1	75.5	77.2	77.5	87.7	77.8	78.3	82.1	76.2	72.8	66.7
C2PB28	68.6	67.6	65.4	64.5	69.1	68.8	71.8	73.6	75.4	69.2	67.8	66.6	68.1	73.6	60.5	52.3
C3PB28	75.7	73	71	73.6	76.6	75.6	76.4	76.8	76.3	87.1	76.2	76.3	80.1	73.3	70.1	62.3
C4PB28	67.6	75.1	68	73.3	76.2	81.5	80	82.8	81.3	84.4	74.7	73.7	77.1	70.9	66.8	58
C5PB28	79.2	75.7	73.5	72	72.2	72.2	70.3	69.8	69.1	67.8	65.7	66.3	65.4	62.1	57	49
C1PB29	68.7	68.8	66.3	68.2	68.5	78.8	69.3	69.5	69.6	67.3	65.3	63.7	64	60.6	58.2	51.5
C2PB29	83.8	79	74.3	75.3	78.3	79.8	80.1	80.3	82.5	77.4	79.6	76.5	76.9	74.3	67.4	62.1
C3PB29	63.2	62.6	61	65.7	66	76.9	72.4	76.7	73	66.2	68.8	66.9	67.8	64.3	56.4	48.8
C4PB29	65.2	66.9	64.2	66.1	66.7	74.5	66.9	72	65.2	63.2	62.5	61.3	62.2	58.2	55.7	48.4
C5PB29	70.2	68.2	67.8	68.2	70.5	72.1	70.4	76.3	73.9	67	66.1	64.1	63.1	60.8	54.4	46.4

ID	Location	Passby	Event	Direction	Distance to track centre (m)	Comment	Start Date and Time	Duration (m:s)	Measured noise level dB(A)			Noise level at 15m dB(A)			LAFmax 1.2 m	1/3 octave centre-band frequency LZeq measured noise level (dB)																																				Dominant A-weighted freq (Hz)
									LAeq	LAE	LAFmax	LAeq	LAE	LAFmax	from near rail	6.3 Hz	8 Hz	10 Hz	12.5 Hz	16 Hz	20 Hz	25 Hz	31.5 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 k Hz	12.5 kHz	1.6 kHz	20 kHz	
C1PB01EV01	Curve 1	PB01	Event 01	IN	8.2	squeal	15/10 16:36:38	00:08	98	107	106.8	97.1	106.1	105.1	120.5	78.5	75.1	72.4	69.4	70.2	69.3	76.1	69.5	72.8	73.3	72.8	75.8	79.5	73.5	71.5	75.2	75	79.7	79.9	83.5	76.8	74.8	71.1	74.3	79.5	81	86.2	90.8	93.7	80.4	79.7	82.5	86	82	75	68.7	4000
C2PB01EV01	Curve 2	PB01	Event 01	IN	8.3	squeal	15/10 16:37:29	00:08	92.7	101.8	100.2	91.9	101.0	98.6	114.0	70	68.9	65.4	64	63.7	68.1	70.6	70.8	73.7	75.1	75.2	76.5	81.4	75.1	75.2	79.2	81.2	81.1	83.8	83.1	77.9	76.8	73.9	77.1	76.5	77.4	77.3	77.5	87.8	83.9	77.2	77.2	75.1	79.9	70.8	62.9	4000
C2PB01EV02	Curve 2	PB01	Event 02	IN	8.3	flanging	15/10 16:38:10	00:05	73.6	81	78	72.8	80.2	76.4	91.8	64.7	64.5	62	65.3	67.6	68.1	72.1	74.6	74.2	80	79.2	83.2	79.5	73.9	65	64.5	67.7	69.1	69.5	65.7	62.7	59.7	60.7	60.2	59.1	62.7	60.6	58.8	57	59.4	53.8	53.6	53.4	54.9	48.2	44.4	400
C2PB01EV03	Curve 2	PB01	Event 03	IN	8.3	braking	15/10 16:38:46	00:04	72	78.1	77.1	71.2	77.3	75.5	90.9	62.4	59.4	61.3	66.2	68.2	66.5	67.5	73.4	76.2	72.9	72.8	76.2	86.5	76.6	62.4	61.8	65.7	65.4	61.6	60	59.3	55.8	56.1	57.1	57.2	58.7	58	56	54.8	54.8	54	49.7	45.9	39.6	32.5	25.1	100
C3PB01EV01	Curve 3	PB01	Event 01	IN	7.4	squeal	15/10 16:38:03	00:15	97.4	109.2	109.8	96.1	107.9	107.2	122.6	61	60.9	62.1	59.2	65.7	64.2	72.9	64.4	67.9	70.1	70.7	76	75.5	71.5	69.1	74.4	73.5	75.7	76.2	76.2	73.7	76.3	69.4	75.4	81.3	83.6	90.8	92.6	81.6	81.8	81.5	84.8	82	80.5	70.4	65.6	3150
C3PB01EV02	Curve 3	PB01	Event 02	IN	7.4	flanging	15/10 16:38:25	00:18	75.3	87.8	80.8	74.0	86.5	78.2	93.6	62.7	62.2	61.4	60.8	62.6	65.9	69.6	69.7	70.9	67.4	68.8	70.5	73.2	72.8	66.7	62.7	63.2	67.2	70.5	65.9	63.1	58.5	58.6	60.7	59.8	64.4	62.4	62	60.5	62.6	62.4	65.3	66.4	68.3	60.5	50.7	400
C3PB01EV03	Curve 3	PB01	Event 03	IN	7.4	squeal	15/10 16:38:52	00:02	74.3	77.1	76.8	73.0	75.8	74.2	89.6	56.6	56.7	57.9	60.1	66.5	70.4	63.3	64.9	68.5	64.2	64.8	66.6	68.9	70.8	62.7	69.1	62.2	58.5	62	58.4	60.6	54.7	56.2	58.7	60.8	62.4	61.8	60.8	61.2	69.9	58.6	57.7	61.9	52.4	56.8	42.4	5000
C3PB01EV04	Curve 3	PB01	Event 04	IN	7.4	braking	15/10 16:38:55	00:06	73.9	81.4	77	72.6	80.1	74.4	89.8	57.6	56.6	57.6	54	58.8	62.9	61.5	64.7	67.2	66.2	66.6	67.4	82.9	79.7	62.9	65	63.6	65.9	62.2	61.1	61.2	58.5	59.7	61	62.6	62.6	61	61.7	61.7	62.1	59.5	57.4	54.4	51.8	45.5	36	100
C3PB01EV05	Curve 3	PB01	Event 05	IN	7.4	flanging	15/10 16:39:07	00:16	75.3	87.4	84.2	74.0	86.1	81.6	97.0	57.7	57.5	57.8	57.1	58.9	61.8	65.8	69.4	71.2	68	70	71.7	72.5	68.4	61.6	62.2	59.1	59.2	61.8	58.7	55.2	55.1	56.8	59.2	57.4	65.8	62.7	64.9	65.5	69.5	61.5	60.1	61	60.9	53.7	45.3	5000
C3PB01EV06	Curve 3	PB01	Event 06	IN	7.4	flanging	15/10 16:39:27	00:06	69	76.5	72	67.7	75.2	69.4	84.8	59.3	58.8	56.7	56.6	60.6	62.1	63.8	65.2	70.2	65.2	66.4	66.8	69	72.2	60.5	59	62.4	62	61.7	59.8	54.8	55.2	55.6	59.6	58	57.8	56.5	54.2	52.4	58.3	53	50.7	46.9	52.1	46.7	39.4	1250
C3PB01EV07	Curve 3	PB01	Event 07	IN	7.4	flanging	15/10 16:39:41	00:12	79.5	90.2	85.8	78.2	88.9	83.2	98.6	65.3	63	62.2	60.4	58.8	62.5	60.6	63.8	68.2	64.3	63.6	68.2	70.1	66.5	61.4	58.5	60.2	61	64.5	60.4	57.2	56.2	57.5	61.2	62	66	67.4	70.6	71.2	72.1	67.3	71.4	64.6	68.7	59.5	52.2	5000
C4PB01EV01	Curve 4	PB01	Event 01	IN	8	squeal and flanging	15/10 16:40:35	00:19	92.3	105.1	98.1	91.3	104.1	96.2	111.6	78.2	75.5	73.6	72.2	70.4	69.5	69.2	69.3	67.8	72.7	75.6	72.7	76.1	71.5	73	73.6	73.6	80.3	78.9	79.9	75.8	76.4	74.1	79	82	83.1	81.1	80.7	83.3	80.8	79.9	79.4	79.4	74.3	69.7	60.6	2000
C4PB01EV02	Curve 4	PB01	Event 02	IN	8	squeal and flanging	15/10 16:41:54	00:26	89.9	104.1	97.1	88.9	103.1	95.2	110.6	75.1	75.8	72.3	73.4	68.1	67.8	67.7	69.2	67.7	67.7	72.3	72.7	70.4	68.8	65	65.8	64.3	67	68.7	71.7	60.8	62.2	67.2	71.3	67.4	80.6	73.1	84.6	77.6	79.8	76.2	81	77.8	77.2	70.8	58.8	3150
C4PB01EV03	Curve 4	PB01	Event 03	IN	8	squeal and flanging	15/10 16:42:36	00:09	87.1	96.6	97	86.1	95.6	95.1	110.5	71.5	71.3	70.1	66.7	66.6	66.2	66.7	66.6	64.4	64.1	64.5	66	67.6	64.3	60.2	58.1	59.6	63.8	63.9	63.3	58.9	60.4	64.3	67.4	64.6	75	72	80.1	76.8	79.7	75	78.3	79.2	71.9	63.2	56.9	3150
C4PB01EV01	Curve 4	PB01	Event 01	IN	8	flanging	15/10 16:41:18	00:08	88.4	97.5	95	87.4	96.5	93.1	108.5	68.7	66.8	61.9	61.9	61.9	62.5	63.6	66.6	64.2	63.2	65.7	64.9	66.2	65.3	61.3	58.3	58.6	61	67.6	74.2	60.6	62.9	67.7	69.9	66.3	80.9	72.6	82	77.4	79.7	75.5	75.8	74.2	71.7	63.6	57.3	3150
C4PB01EV02	Curve 4	PB01	Event 02	IN	8	flanging	15/10 16:41:28	00:20	79.7	92.7	88.2	78.7	91.7	86.3	101.7	68.7	66.3	64.2	59.8	58.6	62.8	65.6	67.4	64.4	63.6	66.4	65.7	67.5	65.6	61	58.4	59.2	61.2	66.1	69.8	55.7	56.2	58.4	62.7	59.3	74.6	63.5	71.2	67.7	68.3	64.7	67.2	66	61.9	58.2	49	2000
C4PB01EV03	Curve 4	PB01	Event 03	IN	8	flanging	15/10 16:42:46	00:02	77.2	80.2	80.2	76.2	79.2	78.3	93.7	69.4	64.1	59.6	67.6	64.4	59.2	59.7	64.9	64.3	59.4	60.9	62.2	68.9	56.9	55.4	52.6	51.1	52.8	56	56.8	49.6	51.7	53.2	62	57.8	71.2	62.9	71.5	62.8	65.1	62.1	64.1	64.1	59.8	56.2	47.5	3150
C5PB01EV01	Curve 5	PB01	Event 01	IN	3.3	squeal	15/10 16:42:08	00:10	100	110	108.6	95.2	105.2	99.0	114.4	55.2	54	60.7	57.2	60.5	62.9	80.1	66	68.7	73.7	71.4	74.2	76.1	77.5	78.5	77.7	77.6	84.4	81.5	86.1	78.3	77.7	78.7	79.9	84.3	87.5	90.4	88.1	94.6	91.5	86.4	85.1	83.7	81.5	77.3	68.2	4000
C5PB01EV02	Curve 5	PB01	Event 02	IN	3.3	squeal	15/10 16:42:36	00:05	78.9	85.8	85.3	74.1	81.0	75.7	91.1	65.3	62.9	62.6	65	62.2	67.4	70.8	66.8	65.6	67.3	69.1	71.1	72.7	70.5	66.2	65.2	64.4	64.7	68.2	71.5	64	62	61.5	63.6	60.5	75.1	63.3	63.8	66.7	61	59.7	60.4	60.7	57.2	50.5	42.2	2000
C5PB01EV03	Curve 5	PB01	Event 03	IN	3.3	squeal	15/10 16:43:00	00:04	78.9	84.9	86.2	74.1	80.1	76.6	92.0	61.5	60.2	61.9	63.1	62	63.7	65.6	68.6	68.2	66	66	67.7	67.9	67	66.3	63	63.4	62.7	67.2	71.2	62.4	61.5	66.8	77.2	58.7	60.7	58.8	55.3	51.2	48.3	42.1	37.1	32.3	28.8	26.3	20.9	1250
C5PB01EV01	Curve 5	PB01	Event 01	IN	3.3	flanging	15/10 16:42:42	00:07	86.9	95.4	94.2	82.1	90.6	84.6	100.0	61.9	60.7	62.4	63.2	63.1	67.4	66.9	66.4	67.8	67.1	66.2	69	72.9	71.6	66.1	67.7	67.8	64.6	68.4	72.9	66.2	66.2	67.5	66.8	64.7	75.8	69.2	76.1	81.2	79.8	75.2	68.8	78.1	70.2	69.7	57.5	4000
C5PB01EV02	Curve 5	PB01	Event 02	IN	3.3	flanging	15/10 16:43:08	00:11	88.3	98.7	94.9	83.5	93.9	85.3	100.7	69.9	69.3	68.8	65	62.7	66.2	68.8	69.9	71	75.3	75.5	79.4	79.5	76.3	72.1	70.9	71.5	68.6	71.3	74.1	68.6	68.2	70.3	69.7	68.2	78.6	73.3	80.7	77.4	82	74.5	74	77.1	73.8	67.1	60.4	5000
C5PB01EV03	Curve 5	PB01	Event 03	IN	3.3	flanging	15/10 16:43:20	00:13	88.5	99.7	97.6	83.7	94.9	88.0	103.4	66.3	66.2	64.4	61.9	60.8	66.1	67	69.5	68.5	68.6	67.7	69.6	71.9	71	66.1	63.7	62.8	63.7	67.8	72.6	65.6	66.1	69.9	68.1	67	80.8	73.9	79.3	77.6	82.1	75.3	78.2	72.7	75.5	65.1	58.9	5000
C5PB01EV04	Curve 5	PB01	Event 04	IN	3.3	flanging	15/10 16:43:39	00:02	82.8	85.8	89.9	78.0	81.0	80.3	95.7	62.4	60	65.1	65.4	65.6	68.3	69.8	72.5	67.6	69.4	66.3	69.6	70.6	68.5	64.8	64.9	65.5	64.1	67.8	73.8	66.6	65.2	71.6	65.8	63.3	75.2	69	77.1	68	70.3	64.1	69.4	64.8	66.3	58.9	51.4	3150
C5PB01EV05	Curve 5	PB01	Event 05	IN	3.3	flanging	15/10 16:43:45	00:04	90	96	95.7	85.2	91.2	86.1	101.5	68.5	67.8	67.2	62.5	64.3	63.6	63.2	67.9	65.7	68.6	63.4	67.2	70.5	66.1	62.7	62.1	65.3	63.8	68.3	74	65.5	67.3	71.4	73.9	70.4	83.7	77.9	77.4	78.7	75.5	83.5	80.7	73.2	73.2	66.5	58.6	2000
C5PB01EV06	Curve 5	PB01	Event 06	IN	3.3	flanging	15/10 16:43:50	00:05	80.1	87.1	86.7	75.3	82.3	77.1	92.5	67.3	69.4	69	57.1	62.1	62.2	64.1	68.7	67.1	66.6	63.7	68.7	70.3	69.4	64.5	62.2	62.1	61.3	66.2	69	62.7	62.1	63.9	65	63.4	73	68.3	71.1	66.2	69.3	64.4	70.8	66.1	63.1	59.7	48.4	2000
C1PB02EV01	Curve 1	PB02	Event 01	OUT	8.2	flanging	16/10 08:09:39	00:02	77.6	79.9	79.6	76.7	79.0	77.9	93.3	44.1	46.6	51.3	55.7	53.4	59.2	55.3	58.3	58.1	61.8	71.5	69.3	72.9	67.6	64.9	67.3	65.4	65.2	63.2	65.5	65.6	63.8	60.4	62.6	61.1	61.6	62.2	64.6	68	70.2	71.1	61	63.4	57.9	52.3	44.4	6300
C1PB02EV02	Curve 1	PB02	Event 02	OUT	8.2	flanging	16/10 08:09:41	00:01	94.1	94.9	100.3	93.2	94.0	98.6	114.0	46.9	47.8	54.9	61.7	62.1	59.4	54.3	62.1	61	62.7	75.2	73.5	75.3	70.3	69.2	74.2	72.4	72.1	75	76.7	71.7	74.1	67.5	75.8	76.2	82.6	82.3	90.5	77.8	79.5	79	75.2	73.5	70.3	69	63.1	3150
C1PB02EV03	Curve 1	PB02	Event 03	OUT	8.2	flanging	16/10 08:09:42	00:01	89.8	90.6	91.1	88.9	89.7	89.4	104.8	45.8	49.4	52.8	65.1	63.8	63.9	62	64.7	61.9	72.6	78.3	78.1	82.1	78.2	80.1	78.8	78.9	84.8	84.2	85.6	81.4	77	74.6	77.2	76.4	75.1	75.8	79.1	71.7	70.4	75.9	73.1	73.2	67.3	65.9	59.9	500
C1PB02EV04	Curve 1	PB02	Event 04	OUT	8.2	squeal	16/10 08:10:03	00:01	73.6	74.1	76.9	72.7	73.2	75.2	90.6	45.8	49.3	51.2	63.4	63	64.6	58.2	56.5	63.2	71.1	71	70.7	70.6	67	63.7	60.6	61.2	62.2	64.1	63.1	57.2	54.3	52.3	57.7	57.8	60.2	58.3	70.6	54.6	53.4	49	43.9	39.1	34.4	26.9	20.5	3150
C1PB02EV05	Curve 1	PB02	Event 05	OUT	8.2	squeal	16/10 08:10:32	00:06	75.7	83.5	80.7	74.8	82.6	79.0	94.4	57.1	54.2	56	60.8	59.9	63.2	60.5	59.3	62.7	75.1	73	71.1	74.2	71.2	65.5	64.6	63.8	65.8	66.4	65.4	63.3	59.5	63.3	60.1	61.4	71.8	60.5	60.4	60	56.9	53.7	49.7	45.2	40.5	34.8	27.1	2000
C2PB02EV01	Curve 2	PB02	Event 01	OUT	3.1	squeal	16/10 08:08:58	00:02	71.4	74.9	73.6	66.3	69.8	63.4	78.8	54.3	55.9	57.6	56.5	53.5	60.8	59.1	61.9	65.7	71.2	76	67.3	67.9	61.9	56.5	58.2	61.6	62.8	61.3	63	59.1	55.7	56.7	59.6	59.4	59.9	57.1	55.6	53.5	66.7	45.2	39.7	33.2	28.6	20.6	16.3	5000
C4PB02EV01	Curve 4	PB02	Event 01	OUT	8	squeal	16/10 08:05:58	00:09	75.1	84.6	79.3	74.1	83.6	77.4	92.8	47.7	46.4	46.4	56.2	55.1	56.8	55.7	59.5	59.2	61.3	65.7	60.3	63.4	60.7	59.2	55.2	52.5	52.2	51.9	50.9	52.4	56.4	53.9	65.8	70.9	60.5	58.5	55	64	65.4	51.8	58.5	57.1	59.4	60.5	51.9	1600
C4PB02EV02	Curve 4	PB02	Event 02	OUT	8	squeal	16/10 08:06:24	00:02	80.8	83.4	84.6	79.8	82.4	82.7	98.1	65.2	61.7	59.7	64.3	56.9	69.2	66.6	69.1	69.5	72.4	77.9	71.1	75.1	71.8	70.5	72.7	74.4	75	73.1	72.1	69.7	70.8	63.6	65.7	64	66.6	63.9	66.8	75.6	68.9	57.5	60.5	60.6	57.5	56.1	47.1	4000
C5PB02EV01	Curve 5	PB02	Event 01	OUT	3.3	squeal	16/10 08:05:16	00:03	78.7	83	82.5	73.9	78.2	72.9	88.3	54.4	49.9	49.2	52	51.3	57	56.3	59.7	59.6	66.2	68.8	63.9	68.5	64.8	63.5	64.1	70.5	69.3	64.6	69.1	58.7	60.2	59.2	63.2	59.2	66.4	66	58.9	73.8	67.3	68.4	61	67.9	62	55.2	44.6	4000
C5PB02EV02	Curve 5	PB02	Event 02	OUT	3.3	flanging	16/10 08:05:19	00:02	78.9	81.7	86	74.1	76.9	76.4	91.8	52	46.1	50.7	53.3	52.6	58.3	55.4	57.7	61	64.2	66.7	62.9	65.9	63.8	62.1	66.8	82.1	73.8	66.9	80	65	70.6	63.1	64	61.2	65.6	59.4	57.6	53.7	51.3	49.9	48.8	45.4	46.2	40.5	33.6	500
C2PB03EV01	Curve 2	PB03	Event 01	IN	8.3	flanging	25/10 02:22:21	00:35	79.7	95.1	90.1	78.9	94.3	88.5	103.9	67.5	71.4	70.5	76.6	76.9	78.2	78.3	75.1	74.6	75.1	73.2	77.3	77.1	71.2	58.4	60.5	64.3	65.5	65.3	62.6	63.5	61.3	59.8	61.6	62.5	70.4	69	70	68.5	73.4	65.7	65.3	65.3	64.6	62.3	55.9	5000
C2PB03EV02	Curve 2	PB03	Event 02	IN	8.3	braking	25/10 02:23:06	00:14	76.2	87.6	85.6	75.4	86.8	84.0	99.4	63.9	65.9	63.4	72.3	72.7	70.2	73.2	68.2	67.6	68.6	67	68.8	68.1	75.2	57.1	54.4	74.7	61.6	69.3	63.1	61.9	60.9	64.4	65.7	65.8	64.8	64	62.1	60.6	65.9	63.2	59.6	57	50	43.9	38.6	1600
C4PB03EV01	Curve 4	PB03	Event 01	IN	8	flanging	25/10 02:24:43	00:14	90.3	101.7	99.9	89.3	100.7	98.0	113.4	62.4	67.5	68.3	68.7	65.5	63.4	64.3	64	63.4	66.5	69.3	71.8	70.2	67.2	63	66.3	64.3	66.8	67.8	67	62.5	64.4	68.3	71.6	69.3	83	76.3	80	79.9	80.2	84	77.6	77.6	72.2	65.7	57.1	2000
C4PB03EV01	Curve 4	PB03	Event 01	IN	8	flanging	25/10 02:25:11	00:35	86.2	101.7	101.4	85.2	100.7	99.5	114.9	60.3	62.4	64.8	67.7	66.6	68.3	70	67.4	65.6	71.3	71.9	72.1	71.1	66.7	62.1	60.7	60.5	63.9	65.7	60.7	57.4	60.2	65.2	68.4	64.2	78.8	71.3	80.1	71.4	78.4	70.2	74.6	70.4	68.3	62.4	54.1	3150
C5PB03EV01	Curve 5	PB03	Event 01	IN	3.3	squeal	25/10 02:28:35	00:11	83	93.4	92.5	78.2	88.6	82.9	98.3	63.9	60.9	62.4	67.9	67.9	71.4	74.7	70.4	71.6	76.1	76.3	78.1	74.4	75.6	67.1	66.1	63.4	63.3	63	61.7	59	58.8	58	58.1	59	59.8	55.1	80.9	72.6	56	63.1	55.1	50.2	44.5	38.8	30.3	3150
C5PB03EV02	Curve 5	PB03	Event 02	IN	3.3	Loco flanging	25/10 02:25:24	00:10	102.7	112.7	110.3	97.9	107.9	100.7	116.1	47.1	61.8	53.8	66.5	65.6	67.6	73.3	70.3	71.1	74.2	76.3	82.7	77.2	75.4	77.4	81.4	77.5	82.1	81.3	81.4	79.8	78.9	79.4	82.2	85.9	88.4	91	93.2	96.5	91.5	95.8	89.5	86.5	84.4	79.2	70.1	4000
C5PB03EV03	Curve 5	PB03	Event 03	IN	3.3	flanging	25/10 02:25:52	00:04	81.7	87.8	89.9	76.9	83.0	80.3	95.7	73.9	80.7	78.3	81	75.7	71.3	74.6	71.9	68.8	71.3	70.9	72.4	75.1	71.4	66.1	70.2	73.8	68.6	72.9	78.3	67.8	68.1	69	67.1	66.6	71.9	69.5	69.9	67	70.2	66.4	65.1	62.2	61.9	54.2	46.7	500
C5PB03EV04	Curve 5	PB03	Event 04	IN	3.3	flanging	25/10 02:26:07	00:03	85.9	90.7	93.1	81.1	85.9	83.5	98.9	64.9	64.8	70.7	74	68	71.2	76.5	65.5	67.1	74.1	71.9	68.9	71.7	70	64	67.2	66.2	62.6	67.1	68.9	67.5	65.6	69.9	69.2	67.2	78.9	70.9	80.8	74.4	71.5	69.1	68.8	65.6	65	57.7	49.8	3150
C5PB03EV05	Curve 5	PB03	Event 05	IN	3.3	braking	25/10 02:26:21	00:14	73.7	85.2	80.8	68.9	80.4	71.2	86.6	64.5	65.6	69.2	70.2	70.1	66	69.2	65.4	68	69.7	67.4	69.7	75.2	82.7	66.2	62.3	66	64.4	68.5	64.5	66.3	61.7	60.5	62.1	60.3	59.7	59.5	58	57.7	59.8	55.9	54.8	50.9	47.5	42.7	32.4	125
C5PB03EV06	Curve 5	PB03	Event 06	IN	3.3	braking	25/10 02:29:01	00:08	72.3	81.3	78	67.5	76.5	68.4	83.8	67	68.2	67.6	67.5	68.5	66.7	71	67.8	64.1	68.2	65.9	70.4	70.3	68.2	62.7	67.8	63	61.4	66.2	62	63.1	59.8	59.8	59.5	60.5	63.4	60.3	59.1	59.2	57.6	55.5	52.6	48.5	43.9	37.1	28.5	2000
C2PB04EV01	Curve 2	PB04	Event 01	OUT	3.1	Loco flanging	25/10 09:01:13	00:10	81.6	91.6	89.3	76.5	86.5	79.1	94.5	50.3	59.7	62.2	60.8	65.2	62.8	65.6	65.9	64.8	66	73.4	81	70	64.5	65.6	67.2	63.5	67.8	67.2	67.7	65.2	63.1	62.5	67.3	71	73.5	70.9	71	71.8	69.7	69.4	68.9	65.4	63.1	58.5	50.5	2000
C5PB04EV01	Curve 5	PB04	Event 01	OUT	3.3	Loco flanging	25/10 08:55:19	00:08	101.9	110.9	111.2	97.1	106.1	101.6	117.0	44.1	48.3	58.3	62.4	63.4	67	72.8	69.4	70.6	77	77.6	82.6	83	77.9	78.5	81.6	81.2	85.7	89.3	87.8	81.4	81.2	79.5	82.8	84.8	87.9	89.4	91.3	96.9	93.2	87.6	86	90	85.4	80	69.8	4000
C4PB04EV01	Curve 4	PB04	Event 01	OUT	8	Loco flanging	25/10 08:55:55	00:33	89.8	105	102.9	88.8	104.0	101.0	116.4	49.5	50.1	53.1	58	57.5	63.9	69.3	68.7	69.4	75.5	83.2	73.6	74.6	72.6	73.2	74.3	76.6	79.4	78.4	76.2	73	72.6	71.4	74.7	85.6	78.5	76.1	75.8	75.9	75.7	74.5	73.9	72.5	68.9	62.9	49.6	1600
C1PB05EV01	Curve 1	PB05	Event 01	IN	8.2	squealing	25/10 15:53:10	00:04	77.8	83.7	83.4	76.9	82.8	81.7	97.1	74.6	72.9	70.5	75.6	73.6	73.9	75.9	72.7	72.5	73.8	77	78.4	78.5	73.8	67.2	62.5	61.1	62.7	64.4	59.7	56.1	55.4	56.1	57.2	54.6	58	75.8	59	49.9	54.6	42.8	41.3	33.7	28.5	22.2	17.2	2500
C2PB05EV01	Curve 2	PB05	Event 01	IN	8.3	Loco flanging	25/10 15:53:14	00:09	93.3	102.9	98.6	92.5	102.1	97.0	112.4	77.4	78.1	76.5	74	72.5	70.8	70	67	68.8	68.2	76.2	87.6	72	68.5	73.4	76.3	71.7	73.2	74.5	72.5	72.5	71.9	72	75.6	77.3	81.2	81.4	80.6	86.8	87.3	79.5	79	82.3	77	72.2	63	4000
C2PB05EV02	Curve 2	PB05	Event 02	IN	8.3	braking	25/10 15:54:22	00:12	76.1	86.9	79.5	75.3	86.1	77.9	93.3	78.8	79.4	76.6	75.2	75.6	73.5	74.3	70.6	69.4	71.5	67.3	70.9	70.6	72.6	59.2	72.9	74.2	63.8	69	68.1	65.4	61.9	62.5	63	64.6	64.8	64.4	63.6	63.6	62.5	59.1	59.7	54.4	49.5	42	33.1	2000
C3PB05EV01	Curve 3	PB05	Event 01	IN	7.4	squeal	25/10 15:55:38	00:12	78.1	88.9	93.3	76.8	87.6	90.7	106.1	66.6	65.1	64	66	67.5	68.8	68.7	67.6	68.7	72	70.5	74.4	73.2	69.9	62	57.3	60.2	58.4	59.6	54.2	51.2	51.6	51.1	51.6	50.7	53.6	76.6	64	43.6	51.9	40.4	38	30.6	31.4	25.2	19.8	2500
C3PB05EV02	Curve 3	PB05	Event 02	IN	7.4	Loco flanging	25/10 15:53:49	00:18	92.9	105.5	101.8	91.6	104.2	99.2	114.6	81.7	75.2	75.8	69	67.6	71.8	72	71.2	69.2	73.9	70.2	76	79.9	69.9	71.3	76	74.2	74.3	80.6	78.7	73.8	73.7	72.2	77.3	80.7	82.3	81.5	82.1	81.6	81	87.2	79.9	78	75.3	73.3	62.1	6300
C4PB05EV01	Curve 4	PB05	Event 01	IN	8	Loco flanging	25/10 15:56:41	00:24	90.7	104.5	99.5	89.7	103.5	97.6	113.0	63	62.9	60.5	57.5	65.8	61.3	66.2	66.9	70.3	71	76.1	80.6	73	71.1	73	76.2	77.3	78.4	78.9	77.3	75.6	72.2	72.3	77.5	78.3	80.5	79.7	77.9	77.8	84.5	78.6	76.4	76.8	72	63.7	50.6	5000
C4PB05EV02	Curve 4	PB05	Event 02	IN	8	flanging	25/10 15:57:42	00:03	74.4	79.2	83.6	73.4	78.2	81.7	97.1	57.8	59.8	59.3	57.7	64	65	68.4	65.8	64	64.5	67.8	76	68.4	63.2	57.2	56.4	58.5	57.9	57.8	57.4	53.2	52.7	55.3	59.9	55.9	70.3	65.1	60.2	58.5	62.2	58.6	62.5	57.3	50.9	46.1	32	2000
C4PB05EV03	Curve 4	PB05	Event 03	IN	8	Squealing	25/10 15:58:11	01:10	67.9	86.4	84.1	66.9	85.4	82.2	97.6	61	61.8	58.4	60.3	62	62.5	65.7	63.8	63.4	64.7	66.3	64.8	72	75.6	58.7	56.2	60.8	59.8	58	55.3	54.7	54.7	53.1	53.8	53.5	56.5	61.2	55.7	49.6	51.8	47.3	46.9	44	41.8	38.6	24.9	2500
C5PB05EV01	Curve 5	PB05	Event 01	IN	3.3	flanging	25/10 15:58:40	00:15	97.1	108.8	106.6	92.3	104.0	97.0	112.4	75.2	74.7	75.8	71.3	72.3	71.8	81.8	72.3	72.2	80.7	75.4	79.6	82.9	75.7	72.9	77.9	79	82	81.3	81.9	77.7	78	78.4	78.7	83	88.1	89.1	87.9	85.9	88.3	83.4	82.4	79.4	77.1	72.4	63.6	2500
C5PB05EV02	Curve 5	PB05	Event 02	IN	3.3	flanging	25/10 16:02:03	00:05	90.2	97.2	95.8	85.4	92.4	86.2	101.6	67.9	65.8	67.5	69.8	69.7	68.1	72.5	70.1	67.5	68.1	69.4	80.7	76.7	68.9	61.7	60.8	62.3	65	66.9	69	66.7	68.7	77	72.3	73	83.4	79.4	81.2	79.7	81.6	75.1	74.9	75.6	71.2	63.4	55	2000
C5PB05EV03	Curve 5	PB05	Event 03	IN	3.3	flanging	25/10 16:02:55	00:14	86.8	98.3	98.5	82.0	93.5	88.9	104.3	71	75.2	70.9	72.8	70.2	72.2	75.7	71.8	72.3	74.8	75.4	80.3	79.6	76.4	72.6	70.3	69.6	71	71.6	71.7	69.4	66.4	69.8	68.3	69.9	78.3	74	79.7	76.3	74.3	78.8	72.1	67.8	66.2	58.1	50.8	3150
C5PB05EV04	Curve 5	PB05	Event 04	IN	3.3	braking	25/10 15:58:58	00:25	72.3	86.2	79	67.5	81.4	69.4	84.8	62.3	61.8	61.3	60.4	62	62.5	73	65.6	63.6	68.8	66.1	65	77.2	79.8	60.9	62.3	63.5	62.2	63.3	62.3	60.1	60.2	58.1	60.9	62.1	61.2	60.4	58.4	57.1	58.8	56.2	51.5	47.7	43.1	39.2	32	125
C5PB05EV05	Curve 5	PB05	Event 05	IN	3.3	braking	25/10 16:00:59	00:28	70.1	84.6	74.6	65.3	79.8	65.0	80.4	62.3	67	60.9	63.6	66.1	62.2	63.3	59.8	66.4	65.4	63.3	68.5	70	81.1	57.3	58.7	61	61.8	64.9	60.2	59.9	59.5	58.2	58.5	56.7	56.5	56.2	53.9	52.5	49.2	47.8	45.7	41.6	36.3	33.3	23.9	125
C3PB06EV01	Curve 3	PB06	Event 01	OUT	12.6	Squealing	25/10 19:11:28	00:14	72.3	83.8	77.8	73.3	84.8	79.8	95.2	39.6	45.1	45.9	45.5	48.2	48.4	50.7	54.4	53.8	64.6	60.6	59.5	73.6	73.8	57.4	53.5	59.5	60.3	61.4	55.8	55.1	54.9	54.6	57	57.8	55.6	55.2	55.3	51.8	54.1	70.9	51.4	42.9	39.4	33	23.7	6300
C3PB06EV02	Curve 3	PB06	Event 02	OUT	12.6	flanging	25/10 17:54:21	00:17	90.3	102.6	99.5	91.3	103.6	101.5	116.9	45.9	52.6	57.5	60.3	62.9	59.8	79.6	70	68.5	74.4	72.3	77.3	77.3	74.2	73.6	77.2	78.7	79.7	80	79.4	77	73.1	71.6	75	80	80.6	79.4	79.8	79.3	79.1	78.9	76.9	75.5	71.7	66.4	58.9	2000
C3PB06EV03	Curve 3	PB06	Event 03	OUT	12.6	flanging	25/10 19:11:57	00:05	71.6	78.4	78.5	72.6	79.4	80.5	95.9	46.3	44.9	47.9	50.4	51.5	54.5	58.7	58.9	61.1	66.9	66.3	64.6	68.1	65	60.2	61.5	60.8	61.7	62.5	59.6	56	57.8	60.4	58.9	60.6	61.2	60.8	61.5	59.3	58.1	57	56.6	53.6	54.7	55.3	49.7	3150
C3PB06EV04	Curve 3	PB06	Event 04	OUT	12.6	braking	25/10 17:55:30	00:33	72	87.2	79.8	73.0	88.2	81.8	97.2	44.4	46.2	48.7	48.1	48.2	50	51.2	54.5	52.8	64.9	62.8	60.7	74.9	71.8	59.8	68.7	65	61.3	67.6	60.4	58.9	58.9	59.8	60.5	61.3	62	59.1	58	57.1	58.2	55.5	50.3	45.8	41	34	24.4	2000
C3PB06EV05	Curve 3	PB06	Event 05	OUT	12.6	braking	25/10 17:56:27	00:14	79.5	91	84	80.5	92.0	86.0	101.4	42.3	42.6	44.2	45.6	46.9	48	48.8	53.2	50.7	64.3	63.8	65.4	73.4	80.6	63.1	63.4	70.5	67.8	71.8	66.8	68.5	66.5	68.5	68.7	69.8	69.3	68.7	66.6	65.5	67.5	62.5	58.8	56.8	50.2	46.1	35.4	1600
C4PB06EV01	Curve 4	PB06	Event 01	OUT	8	Loco flanging	25/10 17:52:10	00:04	71.3	77.3	81.7	70.3	76.3	79.8	95.2	56.3	52.9	54.1	54.3	50.8	52.5	56.3	59.1	57.2	60.6	71.5	58.9	62	60.3	57.7	59.2	59.6	56.8	56.2	54.1	49.7	52.1	61.8	64.3	56.6	63.3	59.8	58.8	55.9	58.6	58.2	55.9	51	47.3	40	24.7	1250
C4PB06EV02	Curve 4	PB06	Event 02	OUT	8	flanging	25/10 17:51:49	00:06	74.5	82.3	78.7	73.5	81.3	76.8	92.2	60	56.8	57.7	58.3	54.7	60.6	60.5	67.6	66.9	66.3	76.8	63.8	68.4	65	63.8	64.2	63.6	61.5	58.1	56.5	58.4	57.5	56.5	61.1	69.1	64.2	62.6	60.3	61.1	60.7	60.4	62.2	60.9	60	56.7	41.5	1600
C4PB06EV03	Curve 4	PB06	Event 03	OUT	8	flanging	25/10 17:51:37	00:06	91.2	99	97.4	90.2	98.0	95.5	110.9	62.6	57.5	60.2	69.2	65.5	72.5	73.5	75.9	77.2	78.6	87.9	77.2	82.1	76.2	79.1	77.8	80.3	82.4	81	79.2	77.9	76.6	75.2	78.4	87.2	77.8	77.7	74.6	74.8	73.7	74.6	74.6	72.6	65.7	57.4	44.5	1600
C1PB07EV01	Curve 1	PB07	Event 01	IN	8.2	Squealing	26/10 15:09:58	00:08	72.6	81.4	76.4	71.7	80.5	74.7	90.1	70.6	68.2	67.4	80.4	73.1	75.1	73.7	71.9	70.6	67.7	69.6	71.3	73.4	67	60.9	57	56.8	58.7	63.4	61.8	56	53.6	55.3	63.2	64.5	60.8	60	60.8	56.6	63.5	55.4	55	55.2	58.8	64.1	59.5	1600
C2PB07EV01	Curve 2	PB07	Event 01	IN	8.3	Loco flanging	26/10 15:09:59	00:06	95.5	103	100.8	94.7	102.2	99.2	114.6	81.3	81.8	78.5	72.3	71.2	72.5	73.3	76.8	70.6	76.3	76.3	77.5	77	70.7	74.9	79.6	76.8	75.8	75.7	90	80.1	78.8	79.4	77.8	81.2	82.5	83.1	80.8	87.5	81.2	89.4	77.5	82.4	77.8	69.2	67.7	6300
C3PB07EV01	Curve 3	PB07	Event 01	IN	7.4	Loco flanging	26/10 15:10:30	00:04	96.6	102.2	99.5	95.3	100.9	96.9	112.3	75.5	79.3	76.7	71.5	69.4	68	78.1	80.5	78.7	78.7	80.1	79.6	79.6	77.8	78.8	83.6	81.8	82.9	83.3	87.7	83.8	83.5	83.9	83.5	85.9	86.5	84.4	85	85.5	85	84.4	81.9	86.4	78.9	77.5	66.2	2000
C4PB07EV01	Curve 4	PB07	Event 01	IN	8	Loco flanging	26/10 15:11:47	00:07	94.5	103.2	98.9	93.5	102.2	97.0	112.4	72.1	76.2	75.2	71.5	70	72.1	74.5	70.5	72.5	73.5	77.9	82.5	79.2	73.8	73.4	76.2	77.5	80.7	79.3	76.6	75.7	78.7	75.8	80	82	83.4	82.6	82.7	82.2	84.7	88.7	82.5	80.3	83	68.8	62.1	6300
C1PB08EV01	Curve 1	PB08	Event 01	OUT	8.2	flanging	26/10 20:22:02	00:09	76.9	86.4	89.1	76.0	85.5	87.4	102.8	55.2	52.4	56.5	55.1	54.2	57.4	58.1	57.6	60.8	66.4	67.2	67.8	67.4	65.1	60.2	57.8	57.3	60.9	62.7	61.6	56.6	53	57.4	63.4	60.5	66.8	65.3	71.5	64.4	66.6	60.4	63.3	58.7	56.5	51.9	43.8	3150
C3PB08EV01	Curve 3	PB08	Event 01	OUT	12.6	Loco flanging	26/10 20:18:31	00:10	91	101	96	92.0	102.0	98.0	113.4	65.9	65.2	63.6	62.7	67.3	64.9	80.2	70.2	72.2	75.3	73.3	78.3	79.9	74.6	75.2	78.4	79.8	82.9	81.9	81	78.5	76.1	74.2	77.7	81.7	80.7	79.6	80	79.2	79.4	77.4	77.1	75.2	72.3	68.5	61.6	1600
C4PB08EV01	Curve 4	PB08	Event 01	OUT	8	Loco flanging	26/10 20:15:47	00:11	86.7	97.1	90.8	85.7	96.1	88.9	104.3	72.3	73.5	71.1	70.4	68.5	73.3	73	73.9	76.5	77.5	86.6	77.9	80.9	75.6	78.9	79.6	82.6	85	82.1	80.5	80	75.1	74	76.6	74.1	72.7	68.9	67.3	64.7	64.1	62.9	61.7	60.3	56.8	50.3	38.6	315
C4PB08EV02	Curve 4	PB08	Event 02	OUT	8	flanging	26/10 20:16:16	00:29	78.9	93.5	94.2	77.9	92.5	92.3	107.7	70.9	70.7	69.5	67.6	67.9	65.3	62.7	61.2	60.7	63.9	68.2	61.1	63.5	60.6	57.1	60.5	63.1	62.5	60.5	58.8	53.4	54.3	56.6	59.2	56.5	71.1	68.2	63.7	72.8	67.6	70.3	66.2	60.7	55.7	49.8	35.3	4000
C1PB09EV01	Curve 1	PB09	Event 01	IN	8.2	Loco flanging	27/10 03:20:11	00:19	93.6	106.3	105.2	92.7	105.4	103.5	118.9	42.7	44	53.6	59.7	60.2	62.6	80.1	66	67.1	68.6	69.5	76.2	71.7	69.2	66.1	67.9	71.2	73.3	72.9	74.3	70.8	73.5	69.8	74	80.7	80.2	80	81.7	81.4	90	80.1	79.2	81.8	76.2	72.5	66.1	5000
C2PB09EV01	Curve 2	PB09	Event 01	IN	8.3	flanging	27/10 03:23:12	00:04	77.4	83.4	85.8	76.6	82.6	84.2	99.6	63	61.4	65.3	67.4	66.1	66.9	68	66.1	66	67.6	64.7	69.3	66.4	60.6	48.4	50	54.8	52.6	57	53.6	53.7	53.5	55.6	60.1	57.7	68.9	67.6	69.4	69.1	68.5	62.9	62	59.3	59.7	54.7	48.3	3150
C2PB09EV02	Curve 2	PB09	Event 02	IN	8.3	flanging	27/10 03:23:35	00:11	72.7	83.1	83.2	71.9	82.3	81.6	97.0	61.2	64.8	64.6	66.5	66.5	64.8	65.1	60.9	62.7	64.6	61.3	63.2	67.8	62.2	50.8	52.8	57.1	59.5	56.6	53.4	53.9	51.5	52	53.8	54.9	60	60	61.5	59.3	66.4	64.1	59.2	57.9	69.5	56.9	47.6	5000
C2PB09EV03	Curve 2	PB09	Event 03	IN	8.3	flanging	27/10 03:23:53	00:03	67	71.8	73.1	66.2	71.0	71.5	86.9	58.4	64.4	60.2	65.1	66.4	64	67.8	62.9	65.6	64.6	60.6	65.9	66.6	64.8	49.8	57	56.5	56.8	52.5	50.5	54.2	49.8	50.8	54.2	51.9	61.3	55.9	55.7	53.3	54.9	52.3	52.4	48	48.4	41.9	33.1	2000
C3PB09EV01	Curve 3	PB09	Event 01	IN	7.4	Loco flanging	27/10 03:23:09	00:09	95.7	105.2	101.1	94.4	103.9	98.5	113.9	46.5	55.6	59.4	62	62	64.9	71.1	72.8	73.7	73	75.6	84.9	79.7	76.3	77.2	82.1	81.5	84.3	86.9	84.5	81.2	77.7	77.4	80.4	84.7	84.5	85.9	85.2	84.6	84.9	85.5	82.8	79.5	78.1	72.3	65.3	2500
C4PB09EV01	Curve 4	PB09	Event 01	IN	8	Loco flanging	27/10 03:26:22	00:13	94.7	105.9	100	93.7	104.9	98.1	113.5	70.7	68.7	68.1	68.4	69.3	69.6	72.7	74.4	76.5	77.1	79.1	82.9	77.9	75	76.9	80.3	81.9	84.1	84.5	80.9	79.8	80.5	79.5	81.3	85.2	84.9	84.7	83.8	83.2	83.6	81.8	80.1	78.5	74.6	67	53.7	1600
C4PB09EV02	Curve 4	PB09	Event 02	IN	8	flanging	27/10 03:27:20	00:12	86.6	97.4	92.6	85.6	96.4	90.7	106.1	65.4	64.9	63.8	64.9	65.5	66.5	64.4	64.2	65.6	66.6	68.3	67.5	66	63.7	57.8	57.3	60.9	61.1	62.6	61.6	60	64.5	69.8	75.8	71.3	79.6	75.9	76.8	75.4	76.1	73.7	73.7	70.6	68.1	59.7	46.6	2000
C5PB09EV01	Curve 5	PB09	Event 01	IN	3.3	flanging	27/10 03:27:56	00:07	103.7	112.2	109	98.9	107.4	99.4	114.8	53.1	56.5	54.3	63.8	65.8	65.4	78.2	73.8	75.7	78.5	77.9	79.7	81.6	79.3	79.9	85.6	82.9	87.2	87.4	88.2	85.2	86.7	84.4	87.7	92.3	92.4	94.7	94.4	96.2	93	90.1	89.1	85.2	82.7	78.1	69.8	4000
C5PB09EV02	Curve 5	PB09	Event 02	IN	3.3	flanging	27/10 03:28:31	00:05	94.6	101.6	101	89.8	96.8	91.4	106.8	65.5	69.5	70.1	70.1	73.6	69.5	72.6	72	72	79.7	75.6	81.1	79.4	76.5	72.2	71	70.9	69.9	72.5	72.2	69.4	70.4	80	79.1	79.9	86.4	86	86	84.1	84	81.3	81.2	78.7	74.9	69.3	61.1	2000
C5PB09EV03	Curve 5	PB09	Event 03	IN	3.3	flanging	27/10 03:29:01	00:05	86	93	94.3	81.2	88.2	84.7	100.1	70	68.1	69.4	73.5	73.7	71.5	74.3	72.6	70.8	70.8	69.1	71.1	74	74.8	68.2	67.9	66.7	67	68.9	68.5	67	68	76.9	70.9	69.7	76.6	74.8	77.9	74.8	74.3	73.5	73.1	69.2	63.8	59.1	50.1	3150
C1PB10EV01	Curve 1	PB10	Event 01	OUT	8.2	Loco flanging	27/10 21:31:01	00:05	95.3	102.7	102.5	94.4	101.8	100.8	116.2	41.2	48.8	56.8	61.1	61.8	65.3	75.1	75	68.3	73	74.1	78.4	82.6	75.4	74.9	76.9	76.3	79.5	84.1	83.8	77	77.1	75.4	78.3	82	80.4	79.8	81.6	81.2	84.1	92	82.7	81.3	80.8	76.7	69.9	6300
C2PB10EV01	Curve 2	PB10	Event 01	OUT	3.1	squeal	27/10 21:30:37	00:04	85.5	91.6	93.2	80.4	86.5	83.0	98.4	53.3	56.1	58.7	52.3	56.5	64.2	65.8	66.8	61.8	69.3	66.2	66.3	67.6	63.3	59.1	59.7	63.3	65.2	66.3	66.3	63.5	64.9	63.4	63.8	62.5	62.6	61	58.6	56	84.6	52.9	47.1	50	46	43.7	36.4	5000
C3PB10EV01	Curve 3	PB10	Event 01	OUT	12.6	Loco flanging	27/10 21:30:11	00:04	83.2	89.3	90.1	84.2	90.3	92.1	107.5	54.2	53.5	58.4	56.3	56.4	63	61	65.9	62.6	67.8	67.5	70	72.1	69.7	68.6	69.1	69.7	70.5	72.3	74.1	69.9	68.1	67.5	71.2	68	72.8	67.8	72.4	71	73.4	74.9	70.3	70.1	70.7	65.4	58.3	6300
C3PB10EV02	Curve 3	PB10	Event 02	OUT	12.6	Loco flanging	27/10 21:30:48	00:04	86.6	92.6	95.6	87.6	93.6	97.6	113.0	52.2	59.9	62.4	54.2	57.9	60.2	62.8	61.5	63.4	72.1	70.6	66.8	70.4	68	66.5	65.5	65.5	67.4	67.6	66.4	63.2	68.8	65.4	66.2	65.5	70.3	69.9	74	72.2	75.3	84.2	76.1	72.6	74.7	76.5	65.5	6300
C4PB10EV01	Curve 4	PB10	Event 01	OUT	8	squeal	27/10 21:29:32	00:08	81	90.1	93.3	80.0	89.1	91.4	106.8	52.1	44.1	45.6	46.7	48.4	53.8	56.2	57	58.1	65.7	67	60.9	62.1	59.6	57.8	60.7	61.8	61.9	63.3	65.1	54.9	54.9	55	58.4	54.3	61.9	58.3	79.4	55.6	59.3	66.7	56.1	61.5	53.9	47.8	33.8	3150
C4PB10EV02	Curve 4	PB10	Event 02	OUT	8	flanging	27/10 21:27:38	00:46	92.4	109	101.6	91.4	108.0	99.7	115.1	42.7	52	44.7	49.8	63.2	62.2	65.9	65.5	68.4	69.3	73.6	82.1	73.9	70.3	71.5	74.6	75.7	76.7	76.9	74.6	73.6	75.1	74.4	77	81.8	82.3	83.3	81.3	81.9	81.6	82.5	80.2	77.9	73.7	66.4	52.6	2500
C5PB10EV01	Curve 5	PB10	Event 01	OUT	3.3	Loco flanging	27/10 21:26:10	00:05	103.1	110.1	109.9	98.3	105.3	100.3	115.7	54.7	51.5	52.1	68	64.3	67.9	68.3	74.8	76.3	80.5	87	81	86.1	79.9	80.8	85.2	84.2	89	88.4	88.8	86.2	83.5	83.2	86.4	91	93.5	93.6	94.6	92.3	93.1	92.1	90.3	84.1	81.7	77.1	68.8	3150
C5PB11EV01	Curve 5	PB11	Event 01	IN	3.3	Loco flanging	31/10 16:18:23	00:09	99.7	109.3	107.2	94.9	104.5	97.6	113.0	59.5	55.2	57.5	65.2	63	74.5	68.5	75.1	72.6	76.3	80.7	78.7	82.7	75.1	77.9	81.7	80.5	84.1	84.1	84.2	80.7	80.7	80.8	82.2	84.9	87	89	90.2	91.4	90.9	88	89.1	90.4	83.3	79	70.1	4000
C1PB14EV01	Curve 1	PB14	Event 01	IN	8.2	flanging	25/11 14:57:25	00:06	92.5	100.4	99	91.6	99.5	97.3	112.7	49.6	50.6	49.7	62	60.3	67.7	65	68.8	65.2	73.4	80.3	78.1	76.8	82.3	75	70.8	76.5	77.8	78.6	78.3	75.9	76.7	75.8	78.7	79.7	80.1	80.4	80.6	81.2	82.2	81.3	82	87.1	76.8	76.5	72.3	10000
C1PB14EV02	Curve 1	PB14	Event 02	IN	8.2	squeal	25/11 14:57:38	00:04	83.7	90.2	89.3	82.8	89.3	87.6	103.0	54	46.9	58.9	59.4	59.7	59.8	61	60.5	60.2	66	69.7	67.9	77.4	77.9	62.5	60.9	60.1	61.5	63.1	61.7	58.8	57.9	58.1	59.1	56.4	57.6	57.3	57.8	57.2	82.9	55.8	50	48.1	39	35.5	24.1	5000
C1PB14EV03	Curve 1	PB14	Event 03	IN	8.2	braking	25/11 14:57:43	00:06	83.4	90.9	86.8	82.5	90.0	85.1	100.5	59.2	58.5	60.7	62.5	63	65.1	63.1	65.9	64.7	68.2	70.6	77.7	91.5	84.9	71.8	71.9	67.7	74.5	73.8	71.9	70	70.6	70.9	71.1	72	74.4	73	71.5	69.3	67.9	64.2	62	58.9	52.3	45.6	37.2	2500
C2PB14EV01	Curve 2	PB14	Event 01	IN	8.3	flanging	25/11 14:58:27	00:09	92.6	102.2	98.9	91.8	101.4	97.3	112.7	65.1	63.2	62.2	65	65.7	72.7	71	72.2	67.4	73.6	70.4	77.5	81.4	69.9	74.5	75.1	74.4	75.5	82.8	83	75	76.8	73.1	77.1	78.3	79.4	78.2	78.7	84.4	83.9	84.9	77.2	83.6	76.2	69.8	62.7	4000
C3PB14EV01	Curve 3	PB14	Event 01	IN	7.4	flanging	25/11 14:59:06	00:06	95.6	103.4	101.4	94.3	102.1	98.8	114.2	65.8	65.9	60	64.9	61.3	69.9	69.2	73	68.8	76.5	81.3	77.8	79.8	74.2	75.8	79.4	78.6	82.8	85.4	83	78.7	83.1	74.9	79.2	82	84.7	87.2	88.5	86.4	79	77.4	77.4	78.4	74.4	69.3	63	3150
C3PB14EV02	Curve 3	PB14	Event 02	IN	7.4	squeal	25/11 14:59:25	00:03	80.1	84.9	85.1	78.8	83.6	82.5	97.9	61.9	62.7	61.6	61.3	61.3	63.7	69	70.9	70.6	69.5	69.5	72.5	72.5	69.3	64.2	59.7	61.1	63.6	68	66.5	61.9	60	55.6	58.4	56.1	56.1	53.9	53	51.1	79.1	44.9	51.9	50	54.6	57.7	50.6	5000
C3PB14EV03	Curve 3	PB14	Event 03	IN	7.4	flanging	25/11 14:59:57	00:03	84.4	89.2	91.7	83.1	87.9	89.1	104.5	74.7	69.8	69.9	67.8	70.4	67.8	71.8	69.5	68.8	67	64.7	68.6	69.8	66.2	61.6	58.2	59.1	61.6	66.5	62.7	59.4	60.3	63.6	67.1	66.6	76.1	73.5	75.4	71.7	78	70.7	74.1	70.2	66.1	60.9	52.6	5000
C4PB14EV01	Curve 4	PB14	Event 01	IN	8	flanging	25/11 15:01:00	00:20	88.3	101.3	96.6	87.3	100.3	94.7	110.1	51.7	55.6	51	54.3	64.6	62.6	68	69.7	70.7	72.5	75.6	79.7	74.5	71.1	73	75.7	75.1	79.9	79.1	76.4	74	78.6	72.1	77.5	76.5	77.3	75.8	76.9	78.2	76.8	76	71.7	73.5	68.1	63.4	56.2	4000
C2PB15EV01	Curve 2	PB15	Event 01	OUT	3.1	flanging	25/11 16:35:13	00:02	89.2	92.7	91.2	84.1	87.6	81.0	96.4	54.5	52.7	53.9	60.1	57.8	57	71.5	60.7	61.4	65	64.7	67.1	67.9	65.7	64.2	68	67.7	68.9	71.4	68.1	72.9	77.9	75	81.5	79.6	79.1	77.1	79.1	74.9	73.4	74.8	76.9	73.8	73.8	67.1	61.5	1250
C2PB15EV02	Curve 2	PB15	Event 02	OUT	3.1	braking	25/11 16:35:16	00:06	93.9	102	100.3	88.8	96.9	90.1	105.5	63.8	64	64.9	69.1	70.3	66.1	80.5	73.4	75.9	79.4	80.5	81.5	82.3	79.8	80.6	86	87	90	89.7	89.1	87.1	84.1	80.1	80.4	80.2	81.5	78.5	77	76.5	77.8	75.9	75	74.7	72.9	67.1	62.7	500
C2PB15EV03	Curve 2	PB15	Event 03	OUT	3.1	flanging	25/11 16:35:25	00:06	75.9	83.7	81.6	70.8	78.6	71.4	86.8	55.4	53.4	57.2	56.9	56.3	56.5	70.1	54.1	56.6	60	61.7	63.8	58.8	59.3	52.9	54.6	55.9	54.6	49.7	48.4	47.1	56.5	56	62.6	63.8	71.6	65.3	58.1	60	57.9	59.3	65.9	63.8	65.6	60.8	55.4	2000
C3PB15EV01	Curve 3	PB15	Event 01	OUT	12.6	flanging	25/11 16:34:26	00:22	78.8	92.2	89.4	79.8	93.2	91.4	106.8	62.8	61.5	63.8	62.3	61.2	60.7	72.7	63.6	64.2	68.6	68.1	71.5	71.8	68.9	66.1	66	69.9	71.4	70.6	67.5	64.2	65.7	61.9	65.6	67.6	70.1	67.4	66.8	67.1	67.4	65.7	64.5	65.1	60.5	53.8	48.3	2000
C4PB15EV01	Curve 4	PB15	Event 01	OUT	8	flanging	25/11 16:32:29	00:06	93.7	101.3	100.3	92.7	100.3	98.4	113.8	53	53.1	60.7	60.3	65	63.6	74.1	70.5	67.9	76.8	76	74.5	76.1	72.5	73.3	74.4	76.7	81	78	75.3	72.4	78.9	70.7	75.2	78.9	81	84.9	86.1	84.1	83.3	82.9	79.7	82.1	77.2	70.3	63.2	3150
C2PB16EV01	Curve 2	PB16	Event 01	IN	8.3	squeal	30/11 03:49:46	00:03	98.9	103.9	100.4	98.1	103.1	98.8	114.2	36.7	37.9	51.4	66.7	63.1	63.5	70.1	72.9	69.5	76.1	85.1	78.4	77.8	74.4	74.3	76	79.2	81.7	81.2	81.3	78.7	80.1	77.4	81.8	87.7	86.8	87.3	88.5	91.1	90.4	86.6	87.2	86.9	85.8	81	72.3	4000
C3PB16EV01	Curve 3	PB16	Event 01	IN	7.4	flanging	30/11 03:50:10	00:06	99	106.6	105.3	97.7	105.3	102.7	118.1	45.2	47.7	50	60.4	62.8	63.9	73.5	73.3	67.7	74.9	82.5	77.4	77.1	72	73.9	75.7	76.7	79.2	80.9	79.9	79	79.6	77	80.7	83.6	84.3	85.8	86.5	85.8	94.6	91.6	87.1	83.7	86.8	82.3	72	5000
C4PB16EV01	Curve 4	PB16	Event 01	IN	8	squeal and flanging	30/11 03:51:16	00:09	95.2	104.7	101.8	94.2	103.7	99.9	115.3	43.3	44.8	50.7	52.8	64.3	59.2	78.1	64.9	68.1	73.9	74.3	73	71.7	69.2	69.2	73.4	75.8	78.2	78.5	77.7	74.4	81.4	74.1	87.9	85.5	86.9	81.1	83.4	78.7	78.4	79.5	83.1	88.5	76.6	68.3	66.5	1250
C1PB17EV01	Curve 1	PB17	Event 01	OUT	8.2	flanging	30/11 04:25:31	00:05	97.4	104.3	101.9	96.5	103.4	100.2	115.6	47.3	46	50.9	65.8	66.9	71.6	72.5	70.8	70.1	74.3	77.5	84.3	79.6	75.4	74.2	79.1	78.2	81.5	83.6	84.2	79.9	78.4	77.7	82	84.7	84.6	83.7	85	89.4	90.8	83.8	83.1	88.5	83.3	77.9	70.9	5000
C2PB17EV01	Curve 2	PB17	Event 01	OUT	3.1	flanging	30/11 04:24:34	00:06	95.9	103.6	101.3	90.8	98.5	91.1	106.5	56.7	53.9	48.9	75.2	70.8	74.9	75.2	79	76	80.8	83.8	82	83.5	79.4	81.7	87.2	88.5	91.4	90.9	90.2	90	86.1	82.2	83.5	82.7	82.6	80.4	80.4	80.5	79.3	79.5	77.3	79.4	75.2	68.2	63.8	630
C3PB17EV01	Curve 3	PB17	Event 01	OUT	12.6	flanging	30/11 04:23:50	00:08	90.3	99.3	95.3	91.3	100.3	97.3	112.7	47.2	53	57.1	64.8	66	66.8	78.1	70	69.1	71.9	72.3	74	73.2	68.8	65.6	69	72.3	75.1	71.9	69.7	69.7	71.3	68.9	73.4	77.1	79.4	78.4	78.7	79.5	85.1	77.9	77.9	79.1	76.1	73.6	63.1	5000
C4PB17EV01	Curve 4	PB17	Event 01	OUT	8	flanging	30/11 04:21:29	00:14	93.4	104.8	101	92.4	103.8	99.1	114.5	52.9	55.3	57.5	63.6	64.2	68	72.1	74.9	73.4	77.5	82.7	75.7	78.2	73.4	76.1	78.4	81.1	82.6	82.9	80.6	79.4	81.1	77	80.8	78.8	83.4	82.3	87	80.1	76.9	76.7	76.9	78.4	79.2	70.5	60.6	3150
C1PB18EV01	Curve 1	PB18	Event 01	IN	8.2	flanging	08/12 15:00:56	00:04	95.7	101.2	100.9	94.8	100.3	99.2	114.6	67.2	64.4	65.6	64	66.1	58.8	76.2	72.6	68.3	79.3	74.4	77.2	78.5	71.4	71	71.6	72.3	76.7	76.8	79.7	75.3	79.1	72.2	76.2	81.4	81.3	80.8	82.2	83.9	85.2	85.5	84.4	93.6	89.6	80.4	74.5	10000
C1PB18EV02	Curve 1	PB18	Event 02	IN	8.2	flanging	08/12 15:01:14	00:04	89.1	94.9	93.1	88.2	94.0	91.4	106.8	76	77.2	75	70.2	72.3	71	70.7	68.7	66.5	65.4	67	68.9	68.6	65.7	63.6	62.1	62.7	63.9	65.9	67.4	63.6	61.9	63.2	68.7	68.2	74.7	71.1	74.8	79.2	79.9	81.8	81.5	82.4	85	70	66.7	6300
C1PB18EV03	Curve 1	PB18	Event 03	IN	8.2	flanging	08/12 15:01:20	00:02	86.7	89.9	90.2	85.8	89.0	88.5	103.9	68.3	64.4	69.7	70.5	69.9	71.6	69.4	68.5	70.1	70.4	71.3	72.1	70.7	68.5	66.8	64.7	64.4	65.7	68	68.2	64.6	62.1	62	66.1	67.5	74.7	71.5	76.3	77.2	80.7	77.1	78.1	76.3	74	70.7	61.1	5000
C1PB18EV04	Curve 1	PB18	Event 04	IN	8.2	flanging	08/12 15:01:24	00:01	89.2	89.6	92.4	88.3	88.7	90.7	106.1	78.2	71.2	72.2	79	76.4	77.4	74.1	76.3	76.6	75.1	76.4	73.1	74.6	72.1	71.4	67.9	67.4	69.1	71.4	71.1	65.6	63.9	62.3	65.7	66.6	85.6	70.3	71	75.8	77.2	77.2	80.3	78.5	72.7	68.4	60.4	2000
C1PB18EV05	Curve 1	PB18	Event 05	IN	8.2	flanging	08/12 15:01:26	00:01	86	86.4	89.2	85.1	85.5	87.5	102.9	85.8	78.2	79.8	72.7	70.5	73.5	71.5	71	70.3	64.6	67.7	68.4	68	63.3	65.2	63.7	63.3	64.3	65.4	68.3	62.7	61.9	60.7	64	64.8	79.6	66.3	70.7	73.5	78.7	76.9	75.4	78.6	74.2	67.1	61.4	2000
C2PB18EV01	Curve 2	PB18	Event 01	IN	8.3	flanging	08/12 15:01:30	00:02	97.9	101.3	102.5	97.1	100.5	100.9	116.3	64.6	60.4	60.1	69	66.8	64.8	65.3	69.6	67.5	81.8	90.6	84.5	75.2	70	75.3	72	72.2	79.6	75.3	75.2	76	86.1	73.2	74.9	76.8	79.8	77.3	87.7	94.6	89.2	71.6	75.5	71	73.3	63.9	57.9	4000
C3PB18EV01	Curve 3	PB18	Event 01	IN	7.4	flanging	08/12 15:02:15	00:09	94.9	104.4	100.5	93.6	103.1	97.9	113.3	81.8	80.9	79.4	78.5	76.7	75.2	72.7	70.8	68.7	66.9	70.3	65.2	64.6	62.7	62.8	65.5	68.5	68.9	69.9	71	69	67.9	69.3	73.8	72.8	81.6	77.5	83.5	84.4	86.2	90.3	87.8	77.4	78.4	72.1	63.3	6300
C3PB18EV02	Curve 3	PB18	Event 02	IN	7.4	squeal and flanging	08/12 15:02:25	00:03	96	100.4	100.7	94.7	99.1	98.1	113.5	80.2	80.8	82	75.7	74.2	72.3	68.3	72.6	75.3	69.1	68.8	70.7	69.1	66.6	67.7	70.7	74.5	73.2	74.1	76.1	71	68.7	65.3	67.8	68.7	94.3	75.2	70.2	81.3	68.9	78.7	73.5	70.6	70.6	64.9	59.3	2000
C3PB18EV03	Curve 3	PB18	Event 03	IN	7.4	squeal and flanging	08/12 15:02:33	00:03	88.8	93.7	94.4	87.5	92.4	91.8	107.2	61.9	60.5	60	57.3	58.6	59.1	61.8	63.4	56.6	63.5	59	57.8	58.1	58.8	60.5	67.3	73.7	70.2	69.4	76	66.3	67.8	64.6	68	67.9	85.1	68.7	76	78.9	73.7	76.3	73.6	71.2	70.3	71.9	60.7	2000
C4PB18EV01	Curve 4	PB18	Event 01	IN	8	flanging	08/12 15:03:02	00:08	99.7	108.8	105.5	98.7	107.8	103.6	119.0	79	83.3	78.5	69.2	69.7	65.1	75.9	64.7	66.4	72.8	75.4	73.4	70.2	68	67.5	70.1	73.5	73.7	74	76.6	71.5	87.1	72.1	77.6	82.7	83.7	87.2	91.2	95.1	88	88.2	83.1	85.5	78.6	75.3	66.2	4000
C4PB18EV02	Curve 4	PB18	Event 02	IN	8	flanging	08/12 15:03:34	00:05	91.2	98.2	98.3	90.2	97.2	96.4	111.8	65.3	64.2	68.6	68	65.6	63.9	65.4	62.4	61.5	62	65	61.3	61.1	60.9	61.3	64.3	63.8	65.8	68.3	70.6	62.7	62.4	64	69.2	66.3	73.3	71.6	75.2	72.2	88.7	72.3	71	87.3	69	72.6	57	5000
C4PB18EV03	Curve 4	PB18	Event 03	IN	8	flanging	08/12 15:03:43	00:06	93.6	101.4	98.4	92.6	100.4	96.5	111.9	63.8	62.6	64.2	66.8	69.2	64.9	64.5	67.2	65.4	64.4	65.6	63.4	62.5	61.4	62.5	64.7	66.5	67.1	68.9	72.7	64.4	65.7	70.5	74.1	71.7	85.8	76.5	85.7	81.3	81.6	85.7	85.6	83.6	80.1	68.8	59.7	2000
C4PB18EV04	Curve 4	PB18	Event 04	IN	8	squeal	08/12 15:03:51	00:07	92.9	101.3	102.2	91.9	100.3	100.3	115.7	70	70	68.3	65.4	67.8	68.6	63.2	64.5	66.5	65.7	68.8	63.7	65.1	63	62.6	68.2	71.2	67	70.9	75.4	64	61.5	62.3	68.6	62	91.3	66.9	67.6	72.2	73.6	69.4	65.4	73.3	64.1	60.4	50.5	2000
C5PB18EV01	Curve 5	PB18	Event 01	IN	3.3	flanging	08/12 15:03:52	00:05	94.8	101.6	101.4	90.0	96.8	91.8	107.2	57.8	55.4	57.9	68.2	71.7	65.6	70.5	70.5	71.8	84.1	95.7	80.9	82.9	76.5	78	80.5	77.6	83.4	80.9	82.1	77.4	78.3	77.8	77.3	80.7	79.5	79.5	86.1	89.1	85.6	76.5	77.1	83	76.7	74.9	62.1	4000
C5PB18EV02	Curve 5	PB18	Event 02	IN	3.3	squeal	08/12 15:04:34	00:03	86.9	91.8	95.7	82.1	87.0	86.1	101.5	56.1	67.6	71	68.9	68.1	64.3	64.2	63.7	64.3	62.9	65	65.3	66.2	65	61.5	62.2	61.5	61	62.7	66.1	59.8	60	59	58.8	56.9	57.7	75.9	85.1	50.5	50.2	55.2	41.9	36.7	32	26.8	20.4	3150
C5PB18EV03	Curve 5	PB18	Event 03	IN	3.3	flanging	08/12 15:04:40	00:03	91.9	96.4	96.7	87.1	91.6	87.1	102.5	63.6	67.4	68.5	65.7	67.1	68.7	64.7	68.8	67.5	65.3	64.5	62.9	64.3	65.1	63.5	63.7	64.8	63.4	67.7	72.5	69.4	71.1	78.5	71.2	71.4	84	73.6	81.1	85.1	82.6	83.4	75.3	77.3	71.2	66.3	58.9	4000
C5PB18EV04	Curve 5	PB18	Event 04	IN	3.3	squeal	08/12 15:05:21	00:04	85.9	91.5	92.7	81.1	86.7	83.1	98.5	52.2	49.9	49.5	49.3	49.8	50.3	51.6	57.5	57.9	59.9	60.4	62.8	62	62.3	63.4	60.2	64.5	62.7	59.9	62.6	58.2	57.7	56.1	56.4	55.5	84.7	58.2	59.7	54.7	47.7	51.1	45.7	40.7	35.4	28.2	20.8	2000

ID	Location	Passby	Event	Direction	Distance to track centre (m)	Comment	Start Date and Time	Duration (m:s)	Measured noise level dB(A)			Noise level at 15m dB(A)			LAFmax 1.2 m from near rail	1/3 octave centre-band frequency LZeq measured noise level (dB)																																				Dominant A-weighted freq (Hz)
									LAeq	LAE	LAFmax	LAeq	LAE	LAFmax		6.3 Hz	8 Hz	10 Hz	12.5 Hz	16 Hz	20 Hz	25 Hz	31.5 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 k Hz	12.5 kHz	1.6 kHz	20 kHz	
C1PB19EV01	Curve 1	PB19	Event 01	OUT	8.2	flanging	09/12 05:20:24	00:08	96.5	105.5	102.8	95.6	104.6	101.1	116.5	45.7	48.6	57.2	66.4	67.2	75.5	73.2	74.9	72.2	78.1	77.8	87.2	87.3	74.5	75.5	78.4	78	80.8	85.2	85.5	78.3	78	75.7	79.8	84.3	84.8	84.9	87.9	88.2	84.3	85.3	83.8	83.8	81.5	77.3	69.2	4000
C1PB19EV02	Curve 1	PB19	Event 02	OUT	8.2	flanging	09/12 05:21:25	00:02	90.1	94	97.3	89.2	93.1	95.6	111.0	61.1	68.4	64.6	73	75.8	71	75.4	78.1	72.5	70.1	65.9	66.9	65.1	62.5	62.8	65.1	64.1	65.7	67.4	66.3	62.5	60.4	63.5	65.9	67.3	83.8	69	75.7	82.2	75.1	84.9	73.5	75.6	71.1	67.6	59	2000
C1PB19EV03	Curve 1	PB19	Event 03	OUT	8.2	squeal	09/12 05:21:24	00:04	88.6	94.4	97.3	87.7	93.5	95.6	111.0	60.5	68.8	64.9	72.3	76.8	73.4	75	77.5	71.6	69.6	65.4	66.9	65	61.9	62.5	64.4	63.7	65.1	66.5	66.1	61.6	59.6	62.3	64.7	66.3	82.5	68.2	74.7	80.4	73.5	83.2	72.2	74	69.6	65.9	57.4	2000
C4PB19EV01	Curve 4	PB19	Event 01	OUT	8	flanging	09/12 05:09:41	00:11	92.8	103.2	98.4	91.8	102.2	96.5	111.9	42.5	50.5	55.4	61.1	73.5	67.7	72.1	72.1	76.2	77.2	88.9	90.3	78.7	75.1	78	81.1	83.3	84.3	84.5	81.8	79.4	79.1	77.7	80	82.6	82.5	81.6	81.9	81.8	81.1	78.4	77.9	77.4	73.3	67.6	59.5	2000
C4PB19EV02	Curve 4	PB19	Event 02	OUT	8	squeal	09/12 05:10:26	00:06	83.9	91.7	93.1	82.9	90.7	91.2	106.6	52.9	53.4	61.1	60.9	59.3	64.6	65.8	67.2	64.1	62.8	63.8	69	58.4	57.6	58.3	62	61.1	58.8	57.9	58.8	52.2	52.4	51.4	50.7	49.6	82.6	55.8	46.2	54.2	40.6	39.5	33.5	30	23.3	18.2	15.2	2000
C4PB19EV03	Curve 4	PB19	Event 03	OUT	8	flanging	09/12 05:11:41	00:08	90.6	99.6	97.8	89.6	98.6	95.9	111.3	54.8	57.4	64.7	64.1	70.2	66.9	67.7	69.3	68.4	68.5	66.7	65.4	63.1	63.7	62.1	69.5	71.1	67.8	69.2	70.5	63.6	64	64.9	66.4	65.5	86.3	68.5	70.9	83.9	71.2	82.5	69.7	71.9	72.5	61.5	55.7	2000
C5PB19EV01	Curve 5	PB19	Event 01	OUT	3.3	squeal	09/12 05:09:19	00:05	89.8	96.8	98.2	85.0	92.0	88.6	104.0	63.2	60.7	72.6	69.9	72.4	70	68.9	71.4	65.6	66.1	62.7	62.4	60.8	61.4	60.5	61.9	66.2	62.5	59.4	68.7	57.7	57	56.7	55.6	54.7	54.7	61.2	88.5	47.8	44.4	57	37.3	36.2	31.7	36.3	33.6	3150
C3PB20EV01	Curve 3	PB20	Event 01	IN	7.4	flanging	09/12 11:39:16	00:03	103.3	108.1	110	102.0	106.8	107.4	122.8	48.4	49.6	58.9	65.5	63.5	67.9	68.7	71.6	71.6	81.2	92.8	83.6	78.5	74.9	75.2	76.5	77.1	81.9	83.7	80.3	79.7	85.7	77.6	81.5	85.4	88	96.2	99.4	87.9	82.8	88.2	84	85.4	86.6	73.6	67.4	3150
C3PB20EV02	Curve 3	PB20	Event 02	IN	7.4	squeal	09/12 11:39:52	00:03	93.6	98.4	97.4	92.3	97.1	94.8	110.2	58.4	66	75.6	74.2	78.3	73.5	74.1	74.4	70.1	72.4	65.2	64.4	62.2	62.4	60.1	63.3	64.9	65	68.4	69.8	62.5	62.9	67.8	68.5	68.5	73.7	71.8	89.7	72	72.2	89.7	72.6	75.9	78.1	71	62.2	3150
C3PB20EV03	Curve 3	PB20	Event 03	IN	7.4	squeal	09/12 11:40:13	00:04	89.7	96	95.9	88.4	94.7	93.3	108.7	63	68	78.5	77.5	71.3	78.1	76	77.9	73.8	72.3	63.5	62.7	62.9	61.5	61	65	69.1	72.9	68.5	66.9	58.5	57.2	55.6	55	57.3	88.3	61.4	51.7	62.9	46.1	45.6	41	36.3	32	23.4	17	2000
C3PB20EV04	Curve 3	PB20	Event 04	IN	7.4	squeal	09/12 11:40:28	00:03	89.4	93.7	95.8	88.1	92.4	93.2	108.6	64.4	65.7	67.5	64.9	64.5	59.7	63.4	63.4	63	70.8	59.8	59.1	58	56.6	56.1	58.7	63.7	62.3	62.7	57.3	52.4	52.6	51.5	51.3	54	88.1	56.1	47.8	55	41.5	40.8	35	32.8	25.6	20.2	15.5	2000
C4PB20EV01	Curve 4	PB20	Event 01	IN	8	squeal	09/12 11:42:58	00:07	81.8	90.2	90.9	80.8	89.2	89.0	104.4	59.8	57.7	66.2	69.3	69.9	67.9	71.5	69.1	65.9	66.8	69.4	60.9	60.3	59.4	57.7	62.8	62.7	63.2	62.8	62.5	54.3	54.9	58.3	61.1	57.7	79.8	60.3	66	63.8	61.5	66.7	61.5	58.6	58.1	51.3	42.5	2000
C4PB20EV02	Curve 4	PB20	Event 02	IN	8	squeal	09/12 11:43:13	00:25	91	105	103.8	90.0	104.0	101.9	117.3	59.8	62.1	70.5	67.9	71.4	67.1	67.6	67.8	67.5	62.5	66.3	58.2	56.8	57	56	66.6	68.9	65	66.7	68.9	59.2	55.3	54.7	55	54.1	89.7	61.3	51.1	61.8	52.6	49.4	48	46.5	44.2	45.1	38.5	2000
C5PB20EV01	Curve 5	PB20	Event 01	IN	3.3	flanging	09/12 11:43:14	00:08	93.5	102.5	98.8	88.7	97.7	89.2	104.6	51.3	50.9	54.9	66.7	65.9	69.7	67.9	72	71.6	82.5	92.3	82	82.6	78.2	81	79.4	80.4	84.6	83.9	84.8	81.1	79.8	79.8	78.9	83	83.9	82.2	82.7	82	80.8	78.9	78.1	78.3	75.9	69.3	62.3	2000
C5PB20EV02	Curve 5	PB20	Event 02	IN	3.3	squeal	09/12 11:44:14	00:06	83.1	90.9	90.2	78.3	86.1	80.6	96.0	67.3	71.1	77.4	76.7	75.8	76.7	76.8	76.6	76	72	67.4	65.6	65.7	64.7	62.2	60.8	62.8	60.8	60.9	63.6	59.1	57.7	57.7	56.2	54.5	55	53.9	57.9	82	43.6	39.1	47.6	31.3	29.7	21.2	17.7	4000
C5PB20EV03	Curve 5	PB20	Event 03	IN	3.3	squeal	09/12 11:44:29	00:04	82.7	88.7	90.2	77.9	83.9	80.6	96.0	62.7	66.7	71.9	71.5	70.7	70.3	70.6	71.1	69.1	67.8	66.8	64	63.7	61.8	58.8	57.4	58.7	56	58.1	61.6	55.4	54.7	53.4	53	53.1	81.5	54.6	47.7	54	42.3	38.9	33.9	29.3	24.8	19.6	17.2	2000
C5PB20EV04	Curve 5	PB20	Event 04	IN	3.3	squeal	09/12 11:45:20	00:04	82	88	88	77.2	83.2	78.4	93.8	48.7	53.1	56.7	59.2	59.9	58.3	58.6	59.7	59.2	62.3	60.7	61.6	61.9	62.3	59	59.7	64.1	59.2	60.6	62.8	56.8	56.9	57.1	56.7	56.4	80.4	57	58.7	62	54.6	62.7	57	54.6	53.3	47.4	36.9	2000
C5PB20EV05	Curve 5	PB20	Event 05	IN	3.3	squeal	09/12 11:45:39	00:04	88	94	97.3	83.2	89.2	87.7	103.1	57	51.7	54.3	57.6	58.8	56.5	57.4	59.1	59.6	61.5	60.1	62.3	65.5	67.5	58.7	60.6	63.1	58.4	58.3	60.2	55.5	53.8	53	51.7	51.5	83.6	83.6	47.4	48.5	47.5	36	31.9	28.6	26.1	21.4	17.5	2500
C3PB21EV01	Curve 3	PB21	Event 01	OUT	7.4	flanging	09/12 12:02:25	00:04	94.8	101	98.4	93.5	99.7	95.8	111.2	43.5	52.4	56	65.9	66.1	66.5	72.1	77	75.3	84.8	93.7	83.8	82.9	78.8	79.8	81.7	83.4	85.4	85.6	83.9	82.7	78.8	78.4	81.6	84	85.5	83.9	84.4	82.9	82.8	81.4	80.9	81.2	78.6	72.5	67.5	2000
C4PB21EV01	Curve 4	PB21	Event 01	OUT	8	flanging	09/12 12:00:14	00:05	93.8	100.8	97.8	92.8	99.8	95.9	111.3	67.6	64.5	61.6	62.9	63.3	63.5	67	67.8	70.1	81.3	93.3	83.5	79.2	75.2	78.1	78	80.8	83.7	82.6	79.6	79	77.7	77	80.2	81.8	83.5	82.3	81.8	82.5	85.2	83.2	80.7	82.4	80.5	71.8	66.1	5000
C5PB21EV01	Curve 5	PB21	Event 01	OUT	3.3	flanging	09/12 11:59:09	00:03	96.9	101.3	100.8	92.1	96.5	91.2	106.6	67.6	63.5	61.5	61.8	66.2	57.6	78.7	65.9	69.4	76.2	74.5	79.6	78	75.2	73.6	79.4	76.5	82.1	83.1	84.1	78.2	81.4	78.3	77.4	83.4	85	84.6	85.6	88.4	91.3	82.7	80.5	81.6	79.2	74.3	67	5000
C2PB22EV01	Curve 2	PB22	Event 01	IN	8.3	flanging	09/12 12:09:03	00:06	98	105.4	104.5	97.2	104.6	102.9	118.3	52.9	50.3	56	67	64.9	64.7	70.5	74.6	75.2	83.2	90.7	84.1	84	80.4	83.6	85.3	86.3	91.6	90.5	88.9	88.3	84.8	82.2	83.1	82.6	84.5	84.4	84.2	84.4	92.4	83	80.8	83.3	79.2	73.8	66.9	5000
C4PB22EV01	Curve 4	PB22	Event 01	IN	8	flanging	09/12 12:11:58	00:03	92.3	97.4	95.7	91.3	96.4	93.8	109.2	45.9	47.3	48.1	66.6	68.8	66.9	70	73.9	76.2	87.9	98.9	80.2	79.5	79.5	80.6	80.9	83.8	86	84.3	81.3	79.6	77.7	77	80.1	80.4	82.3	80.9	80.2	80.6	79.6	80.1	78.2	80.6	77.2	70.4	64.7	2000
C1PB23EV01	Curve 1	PB23	Event 01	OUT	8.2	flanging	09/12 20:49:55	00:04	96.1	102	101	95.2	101.1	99.3	114.7	42.1	48.2	55	67.3	69.5	64.8	69.4	72.9	70.9	83.4	94.8	83.2	81.5	77.3	78.6	78.5	80.8	84.4	84.1	84.5	81	77.2	75.7	78.7	81.8	81.4	82.5	85.3	89.2	87.8	84.8	84.5	85	81.5	77.3	70.1	4000
C1PB23EV02	Curve 1	PB23	Event 02	OUT	8.2	squeal	09/12 20:50:13	00:01	87.4	85.1	90.3	86.5	84.2	88.6	104.0	48.2	43.2	65.7	62	55	54.3	48.3	54.7	59.3	60.7	64.5	76.1	62.1	60.5	62.2	63.2	61.9	62.6	63.2	63.3	58.6	55.8	55.5	57.9	62.8	85.9	72.1	58.9	60.5	52.7	49.8	44.1	41.2	36.2	28	21.9	2000
C1PB23EV03	Curve 1	PB23	Event 03	OUT	8.2	flanging	09/12 20:50:16	00:02	85.4	88.7	93.5	84.5	87.8	91.8	107.2	51.4	42.9	64.8	70.3	59.5	58.1	57.8	56.2	59.8	66.2	69.5	68.3	69.2	64.2	65.6	66.6	66.6	66.9	68.3	70	63	61.2	62.4	65.9	65.2	75.1	65.4	81.5	69.6	77.7	72	67.3	71.3	69.5	62.8	55	3150
C1PB23EV04	Curve 1	PB23	Event 04	OUT	8.2	squeal	09/12 20:50:28	00:01	88.9	86.7	92	88.0	85.8	90.3	105.7	50.9	50	59	63	57.6	56.1	55	53.5	56.5	60.7	62	62.2	61.6	61.1	62.6	64.1	64.6	64.2	64.5	67.1	60.8	59.2	61.6	59.5	62	63.6	60.4	65.1	87.7	54.8	50.8	58.8	44.9	42	33.7	26.3	4000
C1PB23EV05	Curve 1	PB23	Event 05	OUT	8.2	squeal	09/12 20:50:31	00:01	91.6	88.6	95.2	90.7	87.7	93.5	108.9	48.3	47.7	56.2	63.2	56	51.4	57	50.9	58.6	59.4	60.6	64	61.6	59.1	60.3	64.2	68.2	63.9	62.6	65.5	60	57.9	57.2	60.1	64	91	60.7	58.8	63	54.4	54.5	49.7	44.5	39.4	32.7	25.2	2000
C2PB23EV01	Curve 2	PB23	Event 01	OUT	3.1	squeal	09/12 20:49:41	00:06	90.7	98.5	102.5	85.6	93.4	92.3	107.7	45.4	51.2	55.1	59	61.9	56.5	63	63.4	67.8	69.2	69.3	66.4	64.3	64.9	68.2	70	73.1	72.8	73.9	77.4	77.7	69.3	65.3	67.8	67.7	88.9	69.1	62.5	60.7	55.7	52.1	46.4	41.5	36.6	29.3	22.7	2000
C2PB23EV02	Curve 2	PB23	Event 02	OUT	3.1	squeal	09/12 20:50:14	00:07	87.2	95.6	96.9	82.1	90.5	86.7	102.1	68.1	65.5	62.6	58.7	59.8	59.5	60.2	57.5	59	62.3	62.3	62.1	61.2	62.4	66.7	68.7	79.3	73.9	70.5	76.8	79.3	75.2	78.7	84	68.2	73.3	68.5	65.8	61.2	58.6	53.7	49.2	43.8	38.2	30.1	23.3	1250
C3PB23EV01	Curve 3	PB23	Event 01	OUT	12.6	squeal	09/12 20:42:17	00:08	74.7	83.7	82.3	75.7	84.7	84.3	99.7	48.4	52.5	52.4	52.1	52.5	48.6	59.6	52.1	53.7	65.9	58.4	63.5	58.7	57.7	55.3	55.6	59	61.2	58.6	57.6	52.6	49	47.7	48.3	49.4	73.2	50.5	47.4	48	41	36.8	31.8	34.3	30.8	18.7	14.7	2000
C3PB23EV02	Curve 3	PB23	Event 02	OUT	12.6	braking	09/12 20:42:50	00:07	68.5	76.9	73.4	69.5	77.9	75.4	90.8	43.6	44.3	45.6	46.2	46.6	46.1	52.7	46.6	49	64.4	53.6	57.8	62.1	62.7	53.2	53.6	51.9	53.4	53.8	50.9	52.6	52.9	53.5	52.2	53.4	54.4	57.5	58.3	58.3	62.8	55.8	55.2	47.6	42	36.9	27	5000
C4PB23EV01	Curve 4	PB23	Event 01	OUT	8	squeal	09/12 20:39:43	00:09	88.8	98.4	97.9	87.8	97.4	96.0	111.4	67.3	65.4	62.7	57	55.7	54.4	57.5	57.3	59	60.8	60.5	63.2	56.9	58.3	58.1	70.4	70.3	66.1	66.2	70.4	57.3	58.9	55.4	55.5	53.9	87.5	63.4	51.7	61.4	50.2	48.2	46	49.1	47.5	39	29.9	2000
C4PB23EV02	Curve 4	PB23	Event 02	OUT	8	squeal	09/12 20:40:25	00:08	88.3	97.4	96.9	87.3	96.4	95.0	110.4	57.5	54.2	51.2	50	49.9	49.9	52.2	52.4	56.6	57.9	60.2	53.5	53.8	54.4	53.7	64.1	68.8	65.1	61.4	62.3	55.6	55.6	53.7	53.5	53.2	87.1	53.2	49.7	53.6	43.3	49.1	37.7	34.9	30.7	23.6	17.6	2000
C4PB23EV03	Curve 4	PB23	Event 03	OUT	8	squeal	09/12 20:41:00	00:06	81.5	89.3	89.5	80.5	88.3	87.6	103.0	55.4	54.2	53.7	50.7	50.4	49.1	51.4	52.9	54.8	54	57.6	55.8	54.4	54.8	55.7	66.4	71.3	69	65.6	71	61.5	61.2	56	57.8	56.2	79.8	57.8	51.4	52.2	44.7	41.7	37.2	35	30.4	22	16.6	2000
C5PB23EV01	Curve 5	PB23	Event 01	OUT	3.3	flanging	09/12 20:37:49	00:02	87.5	91.3	92.1	82.7	86.5	82.5	97.9	47.5	53	57	60.2	72.2	67.2	80.5	70.8	71.1	82.3	77.5	80.7	78.5	78.5	77.4	76.5	76.3	78	77.6	79.1	74.3	70.2	67	67.6	67.6	80.9	83.1	63.4	63.2	63.1	58.5	61.3	62.8	59.9	55.3	46.8	2500
C5PB23EV02	Curve 5	PB23	Event 02	OUT	3.3	squeal	09/12 20:38:32	00:04	88.1	93.8	94.2	83.3	89.0	84.6	100.0	50.4	51.1	55.2	60.3	54.7	53.6	56	59.4	62	61.3	68.8	67.9	61.2	62.2	61.7	66.5	71.7	65.5	65.4	73.3	62.1	62.4	59.4	58.6	58.3	86.8	68.5	51.5	58.5	45.9	44	42.1	35.3	30.9	20.9	17.4	2000
C5PB23EV03	Curve 5	PB23	Event 03	OUT	3.3	squeal	09/12 20:38:46	00:04	93.5	99.4	99.6	88.7	94.6	90.0	105.4	52.8	54.7	53.9	52.8	53.7	54.6	54.4	56	59.6	62.4	73.6	64.6	61.5	61.7	62.7	67.4	72	66.8	64.3	73.7	61.7	62.6	59.9	57.9	57.9	57.4	66.2	92.2	75.7	48.7	63.8	50.4	44.9	39.1	30.4	26.3	3150
C1PB24EV01	Curve 1	PB24	Event 01	IN	8.2	flanging	11/12 12:06:47	00:04	100.5	106	106.2	99.6	105.1	104.5	119.9	57.9	53.5	56.4	60	64.1	61	78.3	69.8	67.2	88.5	80.9	78.9	78.9	71.7	69.5	71.2	71.5	77.2	76.1	78.1	75.2	77.3	73.7	91.7	92.2	82.8	91.7	92.9	85.4	84.8	90.9	83.1	84.5	83.4	76.3	73	3150
C1PB24EV02	Curve 1	PB24	Event 02	IN	8.2	flanging	11/12 12:07:00	00:02	87.6	90.9	92.5	86.7	90.0	90.8	106.2	62.4	63.4	74.8	69.9	70.5	71.8	73.4	69.4	67.4	72.7	73.7	76.8	72.7	69.1	66.4	64.3	64.6	65	67.3	68.7	64	64.1	63.4	66.2	65.8	73.8	68	70.4	69.6	83.7	78.4	81.2	73.1	79.2	67.9	62.9	5000
C3PB24EV01	Curve 3	PB24	Event 01	IN	7.4	flanging	11/12 12:07:55	00:04	97.3	103.1	100.8	96.0	101.8	98.2	113.6	55.2	60.9	60.5	62	66.6	64.8	77.1	69.4	67.5	78.5	73.6	76.2	76.2	71.6	71.6	73.9	73.9	79.6	77.9	76.3	77.2	76.9	74.1	78	82.3	83.2	83.3	85.5	86.9	89.4	90.5	88.8	84.8	89.5	76.5	68.8	6300
C3PB24EV02	Curve 3	PB24	Event 02	IN	7.4	flanging	11/12 12:08:02	00:04	88.5	94.7	95.3	87.2	93.4	92.7	108.1	62	70.5	69.2	74.2	75	74.3	74.8	72.7	68.5	66.8	66.2	67.5	65.8	64	62.7	68.5	72.7	70.6	71.9	76.2	69.4	68.2	67.8	71.3	68.6	79.2	70.2	72.8	72.8	74.1	85.1	81.3	72.4	73.5	68.7	62.4	6300
C3PB24EV03	Curve 3	PB24	Event 03	IN	7.4	flanging	11/12 12:08:11	00:02	90.5	93.9	96.6	89.2	92.6	94.0	109.4	66.9	67.7	69.1	71	70	71.9	74	72.2	66.3	70.6	69.8	69.8	68	64.9	64.2	69.1	70.4	68.9	71	71.2	69.2	67.7	66.5	71.1	68.5	86.7	72.6	76	79.1	75.6	78.8	80.4	75	81.8	66.5	62.4	2000
C3PB24EV04	Curve 3	PB24	Event 04	IN	7.4	flanging	11/12 12:08:16	00:03	90	94.6	95.6	88.7	93.3	93.0	108.4	65.7	71.2	72.5	82.3	75.3	74.4	74.7	79.3	76.3	72	72.2	74.7	69.7	70.1	70.8	71	73.9	71.8	74	76	70.8	69.5	70.4	78.8	73.4	80.6	74.7	82.5	80	79.7	79.4	77.2	76	75.4	69	59.9	3150
C4PB24EV01	Curve 4	PB24	Event 01	IN	8	flanging	11/12 12:09:07	00:09	99.2	108.7	107	98.2	107.7	105.1	120.5	56.8	55.9	56.4	71.4	69.8	64	77.2	68.4	68.2	77.4	75.2	75.1	74.1	71.3	71.9	73.7	76.6	78.1	79.7	79.3	75.1	85.7	75	83.1	84.2	92.4	88.9	91.9	89.3	83.9	86.1	79.9	80.4	77	70.6	62.4	2000
C4PB24EV02	Curve 4	PB24	Event 02	IN	8	flanging	11/12 12:09:30	00:06	94.9	102.6	102.4	93.9	101.6	100.5	115.9	67.4	65.2	65	71.2	67.4	63	67.1	68	65.3	68.8	71.3	66	63.8	62.6	63.3	70.5	72.7	67.9	73.1	76.6	65	65.1	66.7	69	65	92.8	71	73.8	72.5	84.6	76.9	77.3	71.6	71.3	66.7	55.9	2000
C4PB24EV03	Curve 4	PB24	Event 03	IN	8	squeal	11/12 12:09:51	00:04	93.8	99.8	100.3	92.8	98.8	98.4	113.8	60.5	60	63	65.6	61.1	59.2	59.7	60.9	60.5	65.9	63.5	59.7	57.2	58.7	58.7	65.5	75.1	64.7	66.8	74.5	59.9	60.7	58.8	60.9	58.4	61.2	56.9	72.4	92.7	56.7	52.9	62.8	52.9	54.4	55.4	46.5	4000
C5PB24EV01	Curve 5	PB24	Event 01	IN	3.3	squeal	11/12 12:10:20	00:03	96.3	101.6	102.4	91.5	96.8	92.8	108.2	61.4	67.4	71.4	58.2	64.3	65.3	64.5	68.1	63.1	67.7	70.8	66.4	70.5	67.7	66.7	63.7	63.5	64.2	66.1	66	63.8	63.9	64.5	64.1	65.3	63.9	62.8	61.9	63.1	95.8	61.1	60.5	67.5	49.2	45.5	33.7	5000
C1PB25EV01	Curve 1	PB25	Event 01	OUT	8.2	flanging	12/12 04:23:17	00:04	93.8	99.9	100.6	92.9	99.0	98.9	114.3	49.5	53.6	55.7	67.7	65.1	75	76.2	77.4	73.7	79	80.4	86.6	88.9	79.2	78.7	81.5	82.5	85.5	87.8	88.2	82.7	79.9	79.2	81.1	80.5	84.2	80.3	85.3	79.5	78.5	77.6	75.8	76.8	73.7	68.1	62.2	3150
C2PB25EV01	Curve 2	PB25	Event 01	OUT	3.1	flanging	12/12 04:22:48	00:06	102.4	110.2	110.9	97.3	105.1	100.7	116.1	54.5	56	55	64.7	72.6	70.7	79.3	79.5	78	74.4	83.3	89.3	76.1	74.1	77.8	80.6	80.6	84.4	84	81.8	81.9	90.2	76.7	81.9	81.8	97.1	89.2	91.9	81.1	96.5	79.2	78	82.7	77.6	73.2	68.8	2000
C3PB25EV01	Curve 3	PB25	Event 01	OUT	12.6	flanging	12/12 04:22:21	00:04	88.1	94.1	92.2	89.1	95.1	94.2	109.6	47.1	49.5	56.5	66.8	64.6	71.3	71.3	73	69.4	73.4	83.9	88.7	82.6	74.8	75.7	76.2	79.1	82.3	80.8	78	76.3	75.5	74	76.1	74.9	76.5	74.3	75.1	77.3	75.3	78.3	72.8	74.3	71.7	64.8	58.3	4000
C3PB25EV02	Curve 3	PB25	Event 02	OUT	12.6	squeal	12/12 04:23:00	00:01	85.8	86.9	89.7	86.8	87.9	91.7	107.1	62.1	66.5	69	76.2	71.3	78.6	80.4	79.3	73.7	69.3	67.3	67.7	64.3	61.3	58.2	63.8	65.6	62.8	63.6	64.9	62.7	62.1	56.1	58.8	59.2	84.1	68.8	58	65.8	54.6	64.6	46.6	44.7	37.7	33.1	21.4	2000
C3PB25EV03	Curve 3	PB25	Event 03	OUT	12.6	squeal	12/12 04:23:06	00:02	89.6	92.1	97.2	90.6	93.1	99.2	114.6	56.5	64.6	72.9	75.3	78.6	80.1	77.7	75.2	68.8	64.7	63.1	61.9	60.9	59	56	61.2	65.8	61.3	60.2	63.5	62.1	62	56.1	57.7	59.6	88.2	66.2	58.5	60.2	53.7	50.3	45.7	45.6	40.5	30.1	20.3	2000
C4PB25EV01	Curve 4	PB25	Event 01	OUT	8	squeal	12/12 04:21:10	00:05	88.5	95.3	94.5	87.5	94.3	92.6	108.0	51.9	60.6	68.2	66.9	74	69.7	69.3	72	66.3	64	62.8	63.3	64.5	59	59.6	70.2	70.5	67.2	71.2	69.5	62.7	61.8	59.4	59	56.7	58.8	56.1	66.5	87.3	48.7	45	55.5	36	36.6	30.3	18	4000
C4PB25EV02	Curve 4	PB25	Event 02	OUT	8	squeal	12/12 04:21:22	00:04	94.4	100.6	99.5	93.4	99.6	97.6	113.0	52.5	62.6	67.4	69.2	67.3	72.1	73.6	70	65.9	66.8	63.7	59.8	60.1	58.6	59.4	73	74.5	65	70.1	74.7	64.9	64.4	60.7	59.7	57.3	65.2	64	91.2	88.9	51.7	64.6	58.7	48.7	45.2	42	34.3	3150
C4PB25EV03	Curve 4	PB25	Event 03	OUT	8	squeal	12/12 04:21:30	00:08	88.9	98.1	97.2	87.9	97.1	95.3	110.7	53.4	61.8	70.4	76.2	71.5	80.6	85.7	79	73.6	76	76.1	67.3	64.7	65	64.9	77.4	77.9	69.8	75.3	79.1	66.8	66.7	63.1	63.8	61.6	87.1	68.3	65.1	66.3	53.6	52.7	47.9	43.1	36.7	29.5	20.6	2000
C4PB25EV04	Curve 4	PB25	Event 04	OUT	8	squeal	12/12 04:21:44	00:06	94.6	102.6	100.9	93.6	101.6	99.0	114.4	54.4	56.9	70.1	70.1	69.4	75.4	77	72	66.2	64.2	66.3	60.1	58.7	59.6	60.9	78.4	78.3	66.9	76.4	80.1	68.4	67.7	64.9	64.6	60.1	67.4	57.9	56.1	74.9	93.7	49.8	44.6	58.6	38.6	38	26.6	5000
C5PB25EV02	Curve 5	PB25	Event 02	OUT	3.3	squeal	12/12 04:20:16	00:04	96.3	102.1	101.8	91.5	97.3	92.2	107.6	78.6	79.2	79.7	78.3	76.4	76.6	76.3	75.3	71.7	71.6	67	67	64.9	63.3	64.7	69.1	75	68.9	70.7	79.4	67.9	69.1	65	63.3	62	62.1	67.5	93.7	89.4	52.8	67.3	59.4	50.1	44.4	41.9	36.4	3150
C1PB26EV01	Curve 1	PB26	Event 01	IN	8.2	flanging	12/12 17:38:08	00:03	99	103.8	102.2	98.1	102.9	100.5	115.9	53.3	50	50.2	63.3	63.5	68.3	69.5	73.7	69.1	82.8	94.4	86	79.5	75.3	76.3	76.1	79.5	83.3	81.2	82.8	79	79.3	76.9	80.8	84.7	85.1	86.3	87.8	87.6	88.5	94.6	87.8	87.4	85.7	80.3	74.8	6300
C1PB26EV02	Curve 1	PB26	Event 02	OUT	8.2	flanging	12/12 17:38:12	00:01	89.9	89.9	94.1	89.0	89.0	92.4	107.8	60.5	54.5	52	69.2	71.1	79.3	72.3	68.7	67.5	76.5	91.4	73.8	74.9	71.9	70.4	69.3	67.5	70	69.6	70.6	67.4	67.6	63.7	65.3	69	73.1	72.4	72.3	73.7	78.6	88.5	73.5	72.4	71.9	67.3	61.8	6300
C3PB26EV01	Curve 3	PB26	Event 01	IN	7.4	flanging	12/12 17:39:52	00:06	98.7	106.4	104.8	97.4	105.1	102.2	117.6	62.3	65.3	62.5	64.9	71.7	64.7	71.2	72.9	75.3	74.4	87.3	92.9	79.9	75.6	77.2	82	80.8	84.1	83.8	80.2	79.8	81.1	77.1	80.3	85.4	84.9	88.1	88.9	91.5	91.9	83.1	82.9	82.9	79.6	74.1	67.6	4000
C3PB26EV02	Curve 3	PB26	Event 02	IN	7.4	squeal	12/12 17:40:20	00:04	91.4	97.4	97.7	90.1	96.1	95.1	110.5	54.2	54.8	54	57.6	59.2	59.1	63.2	62.3	60.1	62.7	68.1	70.9	60.7	61	62.5	66.8	70.9	69.5	69.5	71.8	61.1	59.1	56.6	57	60.2	90.1	63	58.7	61.1	56.6	58	58.3	51.5	54.4	57.7	50.1	2000
C3PB26EV03	Curve 3	PB26	Event 03	IN	7.4	flanging	12/12 17:40:30	00:02	89.9	92.9	93.6	88.6	91.6	91.0	106.4	60.7	66.3	66.8	73.1	73.8	68.5	75.7	73.1	71.4	75.6	71.9	76.9	65.8	65.8	64.5	64.8	66.2	68.5	69.2	67.3	64.2	64.4	69.1	71.9	72.9	81.4	76.5	78.4	77.3	82.1	81.9	82.1	74.9	76.2	65.7	58	2000
C3PB26EV04	Curve 3	PB26	Event 04	IN	7.4	flanging	12/12 17:40:35	00:02	81.1	84.2	85.7	79.8	82.9	83.1	98.5	63.8	69.9	69.6	71.6	70.9	67	67.8	67.9	67.8	69.8	68.2	72.7	61.4	61.7	61.8	65.2	65.9	64.7	63.5	61.7	58.6	58.8	59.5	65.8	65	73.7	70.9	71.7	71.5	70.3	71.3	69.2	66.2	62.1	58	48.2	2000
C3PB26EV05	Curve 3	PB26	Event 05	IN	7.4	flanging	12/12 17:40:39	00:00	88.4	84.4	89.8	87.1	83.1	87.2	102.6	63.8	71.9	63.5	70.2	69.6	67.4	69.1	66.7	65.4	71.5	68.7	68.4	65.3	64.4	65	69.2	72.6	71.3	71.7	68.1	64.8	66.7	69.4	74.1	74	78.6	77.2	79.5	76.7	79.7	78.1	73.7	73.3	67.7	63.6	54.8	3150
C4PB26EV01	Curve 4	PB26	Event 01	IN	8	flanging	12/12 17:42:04	00:09	90.4	99.9	94.5	89.4	98.9	92.6	108.0	75.3	71.4	69	66.1	69	68.8	72.4	73.4	78.2	76.7	88.5	89.7	78.6	76.7	78.1	80.1	82.3	84.2	83.3	80.2	79.2	77.1	76.4	78.6	77.4	80.8	79	78.1	76.8	78.3	77.3	75.1	74.8	71.4	66.4	58.1	2000
C4PB26EV02	Curve 4	PB26	Event 02	IN	8	squeal	12/12 17:42:35	00:13	92.5	103.7	102.5	91.5	102.7	100.6	116.0	58.8	56.3	55.6	59.8	59.2	58.1	61	63	62.9	61.8	68.1	72.9	57.4	57.4	57.1	69	72.3	66	67.6	72	60.2	58.7	59.7	59.2	59	91.1	64.5	62.7	68.3	68.1	70.8	65	64.5	60.9	57.2	48.8	2000
C4PB26EV03	Curve 4	PB26	Event 03	IN	8	flanging	12/12 17:42:57	00:10	85.2	95.2	92.5	84.2	94.2	90.6	106.0	62.9	63.5	66.2	72.1	65.1	63.6	68.2	67	66.9	67.6	69.5	68.5	61.5	60.1	61.5	62.7	63.1	64.6	63.8	64.4	58.8	60.4	63.7	68.5	65.1	77.4	71.2	75.8	77.6	74	77.2	71.8	71.5	67.7	61.1	51.4	2000
C5PB26EV01	Curve 5	PB26	Event 01	IN	3.3	flanging	12/12 17:43:24	00:07	96.7	105.2	101.9	91.9	100.4	92.3	107.7	45.8	51.7	49.9	62	72	64.8	67.8	70.6	77.9	78.7	85.5	91.2	80.2	76.6	79.5	82.4	79.7	84.9	84.3	84.9	80.6	79.7	80	79.8	85.5	87.1	88.1	89.1	83.4	83.8	82.2	81.1	80.5	80.2	71.9	64.3	3150
C5PB26EV02	Curve 5	PB26	Event 02	IN	3.3	flanging and squeal	12/12 17:43:41	00:05	86.6	93.6	93	81.8	88.8	83.4	98.8	71.7	67.4	77.4	74.3	71.4	69.4	72.9	67	66.7	71.3	75.4	66.7	64.3	65.1	65.1	69.3	77.6	69.1	71.1	82.4	67.6	68.2	67.2	67.7	66.6	83.3	67.2	68.2	72.5	67.3	71.4	65.2	64.3	62.4	57.3	47.7	2000
C5PB26EV03	Curve 5	PB26	Event 03	IN	3.3	flanging and squeal	12/12 17:43:50	00:04	87.3	93.3	92.3	82.5	88.5	82.7	98.1	60.7	59.1	59.8	61.5	59.2	59.9	63.8	61.5	60.4	66.9	68.6	65.1	64.7	66.3	67.4	69	76.5	71.9	72.7	78.1	68.6	72.2	69	67.4	67.9	85.1	67.1	65.4	65.8	60.7	63.1	57.6	56.1	54.6	50.4	41.4	2000
C5PB26EV04	Curve 5	PB26	Event 04	IN	3.3	flanging and squeal	12/12 17:43:56	00:02	86.7	89.8	92.9	81.9	85.0	83.3	98.7	66.3	68.7	61.2	66.2	66.7	68.3	65.9	64.3	64.4	66.6	67.1	65.3	62.8	64.1	63.5	69.7	75.5	69.6	72.8	78.8	64.9	65.4	63.7	64.5	62.6	83.3	64.5	68.1	76.8	69.3	73	67.3	66.6	67.1	58.3	49	2000
C5PB26EV05	Curve 5	PB26	Event 05	IN	3.3	flanging and squeal	12/12 17:44:08	00:03	86.5	91.3	94.2	81.7	86.5	84.6	100.0	61.4	69.9	82.8	78	72.9	72.8	77.2	73.3	71.9	75.4	71.5	71.5	70.6	68.5	67.1	69.2	69.5	65.5	71.7	73.7	65.1	66.4	67.3	68.9	68.3	82.7	70.2	73.5	72.2	76.2	74	70.6	70.3	69.3	62.3	53.1	2000
C1PB26EV01	Curve 1	PB26	Event 01	IN	8.2	flanging	12/12 22:29:16	00:04	96.4	102.7	100.8	95.5	101.8	99.1	114.5	42.7	39.8	46	57.5	63.2	61.8	76	66.5	66.7	79.8	76.1	79.4	76.1	74.5	72.7	75.5	78.4	85.7	86.4	88.2	83.5	78.9	76.3	78	81.4	79.8	80.1	81.9	82.2	92.5	82.4	82.8	86.8	80.8	77	71	5000
C2PB28EV01	Curve 2	PB28	Event 01	IN	8.3	flanging	12/12 22:30:17	00:04	88.8	95	92.2	88.0	94.2	90.6	106.0	44	44.7	51.5	62	62.4	60.6	67.8	71.1	69.4	79.1	77.5	76.2	75.1	71.5	73.1	73.7	74.1	82.5	75.2	75.4	74.7	73.4	71.4	69.4	75.3	74.7	78	80.1	81.8	75.2	72.9	72.2	73.6	80	65.5	57.5	4000
C3PB28EV01	Curve 3	PB28	Event 01	IN	7.4	flanging	12/12 22:30:48	00:04	98.1	104.4	102.7	96.8	103.1	100.1	115.5	46.2	45.1	47.7	61.3	59.7	61.2	73.1	71.8	70.4	86.6	78	78.2	79.8	75	75.1	79.3	79.5	85.2	87.5	85.8	83.1	80.4	78.3	79.7	83.2	83	83.8	84.2	83.8	94.6	83.6	83.4	87.7	80.4	75.8	68.6	5000
C4PB28EV01	Curve 4	PB28	Event 01	IN	8	flanging	12/12 22:34:10	00:12	96.2	107.1	104	95.2	106.1	102.1	117.5	47.3	49.7	55.6	50	62.5	59.5	77.6	67	69.3	81.7	77.3	76.2	72.1	70.5	70.9	72.3	75.1	77.6	77.5	75.4	72.7	80.3	73	77.9	81	86.7	85.2	88	86.5	89.6	79.7	78.5	82.3	75.6	70.5	62	5000
C1PB29EV01	Curve 1	PB29	Event 01	OUT	8.2	flanging	12/12 22:54:50	00:02	92.7	94.5	96.5	91.8	93.6	94.8	110.2	60.5	57.1	54.3	63.3	68.1	71.5	72.2	74.8	70.7	81.7	78.6	86.6	83.6	76.8	76.3	78.3	80.8	82.3	85.7	86.7	80.8	81.9	79.3	80.3	79.9	80.5	79.4	82.2	79.6	80.9	79.6	76.3	78.2	73.8	68.5	60.8	500
C1PB29EV02	Curve 1	PB29	Event 02	OUT	8.2	squeal	12/12 22:55:19	00:01	88.4	85.4	91.6	87.5	84.5	89.9	105.3	55.2	56.1	56.6	56.1	60.2	60.4	58.3	55.4	55.2	57.7	60.6	64	62.8	62.8	64.9	66.5	65.8	65.9	65.6	68.3	62.2	60.3	59	63.2	64.4	86.2	78.4	63.1	65.1	59.8	59.8	49.9	46.4	43.3	37.3	31	2000
C1PB29EV03	Curve 1	PB29	Event 03	OUT	8.2	squeal	12/12 22:55:21	00:01	92.2	92.6	95.6	91.3	91.7	93.9	109.3	59.7	60	58.3	63.3	58.4	56	56.1	57.6	58.3	65.3	63.1	71.2	67.6	63.5	67	68.1	69.6	69.9	67.1	69.7	63.6	62.8	60.8	65.6	64.8	90.7	76.8	61.4	71	61.1	59.6	51.8	46.6	41.3	32.9	25	2000
C1PB29EV04	Curve 1	PB29	Event 04	OUT	8.2	squeal	12/12 22:55:26	00:04	87.5	93.5	94.6	86.6	92.6	92.9	108.3	65.9	65.6	65.1	70.5	64.9	61.7	61.5	64	63.6	64.7	65.7	67.5	65.5	65.1	67.5	68.4	68.1	69.1	68.8	70.2	64.1	62.7	61.5	62.9	66.8	85.6	73.9	68.7	63.4	57.9	56.4	49.8	45.6	40.7	33.5	26.2	2000
C1PB29EV05	Curve 1	PB29	Event 05	OUT	8.2	squeal	12/12 22:55:33	00:01	85.7	84.1	89.2	84.8	83.2	87.5	102.9	55.3	55.7	59.9	70.3	61.5	52.7	59	53.5	59.7	60.4	60.1	64.1	66.3	61.7	64.4	65.2	69.7	67.7	66.8	70	63.2	61.5	60.8	63.2	63	83.8	74.5	61.2	65.3	57.3	54.4	49.8	46.2	41.1	34.1	27.5	2000
C1PB29EV06	Curve 1	PB29	Event 06	OUT	8.2	squeal	12/12 22:55:34	00:01	89.6	89.1	93.1	88.7	88.2	91.4	106.8	70.6	66.1	67.5	58.9	59	55.6	57.4	56.3	57.9	56	60.9	65.6	65.8	61.8	64.3	66	68.7	67.5	67.8	70.4	64.8	63.6	62.1	62.5	65.8	88.2	65.9	61.6	62.4	56	53.5	49.4	44.7	40.7	33	27.6	2000
C2PB29EV01	Curve 2	PB29	Event 01	OUT	3.1	flanging	12/12 22:54:07	00:06	101.2	109	106.7	96.1	103.9	96.5	111.9	52.7	48.5	45.5	63.8	74.4	65.7	66.7	69.9	74.4	73.7	84.3	91.6	78.9	76.7	81	85.6	85.2	90.8	90	90.4	91.7	87.9	84.1	84.7	88.4	89.7	90.3	90.7	93	87.9	90	86.8	87.3	84.6	77.5	72.2	4000
C3PB29EV01	Curve 3	PB29	Event 01	OUT	12.6	flanging	12/12 22:53:28	00:06	92.8	100.6	97.7	93.8	101.6	99.7	115.1	46.4	49	56.1	61.5	59.5	64.4	61	69	64.5	83.5	93.4	85.7	76.3	71.1	72.4	69.6	72	77.5	73.5	74.3	73.4	73.6	71.3	75	77.4	79.4	84.5	86.8	82.7	78.1	81.1	79.3	80.2	76.7	68	60.6	3150
C3PB29EV02	Curve 3	PB29	Event 02	OUT	12.6	squeal	12/12 22:53:53	00:05	81.8	88.8	89.2	82.8	89.8	91.2	106.6	42.7	49.1	51.6	55.4	55.1	51.2	51.8	50.5	52.1	54.7	64.5	74.3	56.7	55.5	54.5	56.7	62.7	61.3	59.4	63.1	55.6	54.3	55.2	56.8	55.8	59.5	57	59.5	80.7	49.4	44.4	44.3	35.2	32.4	24	17.4	4000
C3PB29EV03	Curve 3	PB29	Event 03	OUT	12.6	squeal	12/12 22:54:03	00:05	87.7	94.5	94.2	88.7	95.5	96.2	111.6	41.8	51.6	53.9	56.4	53.5	50.8	51.8	52.9	53.4	56.6	62.8	68.3	55.8	56.4	55.4	58.6	62.4	62.2	59.4	63.6	56.9	54.2	54.8	55.2	54.8	67.6	61.3	86	75.1	48.7	56.6	46.6	41.9	38.8	33.5	28.3	3150
C3PB29EV04	Curve 3	PB29	Event 04	OUT	12.6	squeal	12/12 22:54:11	00:05	85.4	91.9	91	86.4	92.9	93.0	108.4	45.6	47.3	55.3	54.7	56.2	51.4	52.9	54	60.1	63	66.3	68	60.4	59.8	56.6	58.8	63.2	62.1	59	64.5	58.7	54.1	55.4	66.8	59.1	83.9	63	64.6	62.1	50.7	52.6	46.5	40.6	35.4	34.4	31.3	2000
C3PB29EV05	Curve 3	PB29	Event 05	OUT	12.6	squeal	12/12 22:54:20	00:04	86.5	91.9	93.2	87.5	92.9	95.2	110.6	47.7	50.2	57.1	56.9	53.1	52.1	55.1	52.6	63.6	62.5	64.7	66.7	59.8	61.2	58.5	60.2	64	62.3	62	65.8	59.6	55.2	56.3	55.7	59.2	85	66.8	56.9	61.1	52.2	52	45.6	42.6	37.8	28.8	20.1	2000
C3PB29EV06	Curve 3	PB29	Event 06	OUT	12.6	squeal	12/12 22:54:29	00:05	87.1	93.8	94.9	88.1	94.8	96.9	112.3	44.7	49.1	56.7	56.4	55.3	49.1	52.1	51.9	52.3	56.1	57.9	63.7	55.9	57.4	56	58	62.4	60.9	58.4	63.7	58.9	54.6	55.2	56.2	57	85.8	64.5	56.7	61	50	48.6	44.5	42.2	36.4	27.4	18.9	2000
C4PB29EV01	Curve 4	PB29	Event 01	OUT	8	squeal	12/12 22:51:53	00:04	81	87	88.4	80.0	86.0	86.5	101.9	51.9	45.1	42.6	44.6	45.1	46.9	50.4	52.9	55.9	59.9	66.5	54.1	53.1	55.9	56.6	65.5	69.3	61.8	63.5	67.3	55.1	55.8	53.4	52.4	50.2	64.1	54.3	78.6	72.2	41	49.7	38.8	36.3	30.2	21	15.9	3150
C4PB29EV02	Curve 4	PB29	Event 02	OUT	8	squeal	12/12 22:52:05	00:11	83.8	94.2	91.6	82.8	93.2	89.7	105.1	52.7	51.5	48.1	47.7	47.3	49.2	56.1	63.3	63.8	62.8	65.3	57.7	56.9	58	58.3	68.7	71.2	64.9	65.3	69.5	57.6	57.3	53.8	55	54.8	82.4	60.8	52.1	59.9	44	42.5	40.3	32.5	26.5	19.8	15.5	2000
C4PB29EV03	Curve 4	PB29	Event 03	OUT	8	squeal	12/12 22:52:23	00:06	80.1	87.9	88.8	79.1	86.9	86.9	102.3	55.4	56.4	51.7	49.5	48.3	47.7	50.8	60.6	62.2	59.6	60.3	55.7	55	55.9	57.9	66.7	70.3	66.7	66	70	57.7	57.1	54.4	57.1	53.6	78.4	59.8	53.1	53.4	43.6	41	34.5	31.3	24.9	18.7	15.3	2000
C4PB29EV04	Curve 4	PB29	Event 04	OUT	8	squeal	12/12 22:52:35	00:08	86.8	95.8	96.9	85.8	94.8	95.0	110.4	49.8	47	42.4	43.2	47.6	44.9	53	54.9	55.7	58.3	59.4	54.5	54.5	55.7	56.5	69.3	73.4	66.9	68	74	61.2	60.7	59	57.6	55.5	80.3	61.9	83.6	54.9	57.4	53.7	43.9	38.9	29.9	21.5	15.9	3150
C4PB29EV05	Curve 4	PB29	Event 05	OUT	8	squeal	12/12 22:52:53	00:05	82.9	89.9	92.5	81.9	88.9	90.6	106.0	40.6	44.4	42.9	49.1	46.7	48	47.3	53	54	53	55.5	53.8	57.4	59.7	59.1	66.8	69.4	66.3	62.7	67	55.5	56	53.4	53.8	52.8	78.2	78.5	58.3	55.9	56.7	41.3	35.4	33.2	25.7	18.4	15.4	2500
C5PB29EV01	Curve 5	PB29	Event 01	OUT	3.3	flanging	12/12 22:49:19	00:03	96.5	101.3	101.7	91.7	96.5	92.1	107.5	54.8	53.3	47.6	64.9	64.7	64.6	64.9	74.2	73.7	84	93.2	84.8	85	81.1	81.4	84.5	82.7	87.5	87.7	85.5	83.7	80.2	80.3	81.5	85.9	86.9	86.1	87.2	86.1	83.2	82	79.9	79.2	76.8	70	62.4	3150
C5PB29EV02	Curve 5	PB29	Event 02	OUT	3.3	squeal	12/12 22:50:12	00:05	91.9	98.9	97	87.1	94.1	87.4	102.8	63.7	61.3	56.9	55.8	56.5	55.1	55.3	58	60.2	62.2	67.7	62.5	61.6	62.5	64.2	68.3	73.9	68.1	67.9	75.6	64.4	65.9	62.8	60.7	60.2	59.9	62.4	88.9	85.9	48.8	61.5	55.1	43.8	39	38.3	33.2	3150

B.15 Operational Road Traffic Noise Assessment - June 2021

Renzo Tonin Report TL116-05F14 Moorebank IMT Road Traffic (r1)

RENZO TONIN & ASSOCIATES
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Acoustics
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MOOREBANK LOGISTIC PARK - PRECINCT EAST

Operational Road Traffic Noise Assessment - June 2021

18 June 2021

Qube Property Management Services Pty Ltd c/- Tactical Group

TL116-05F14 Moorebank IMT Road Traffic (r1)

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Document details

Detail	Reference
Doc reference:	TL116-05F14 Moorebank IMT Road Traffic (r1)
Prepared for:	Qube Property Management Services Pty Ltd c/- Tactical Group
Address:	Level 15, 124 Walker Street North Sydney NSW 2060
Attention:	[redacted]

Document control

Date	Revision history	Non-issued revision	Issued revision	Prepared	Instructed	Reviewed / Authorised
17.06.2021	First Issue	0	1	[redacted]		

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1 Introduction

1.1 Project overview

The Sydney Intermodal Terminal Alliance (SIMTA) received approval for the construction and operation of Stages 1 and 2 of the Moorebank Precinct East (MPE) Project (SSD 6766 and SSD 7628, respectively), which together comprise the two stages of development under the MPE Concept Approval (MP10_0193).

This assessment has been conducted to assess the operational road traffic noise levels associated with MPE at the point in time when the site is 50% occupied.

Operational noise levels of road traffic on the public roads in proximity to the site are compared with the criteria and noise goals established in the NSW Road Noise Policy (RNP, EPA 2011). These are consistent with the road traffic noise goals established in the EIS.

This report addresses the following Approval Conditions. Additional details are provided in the compliance matrix (Table 1):

- SSD 6766

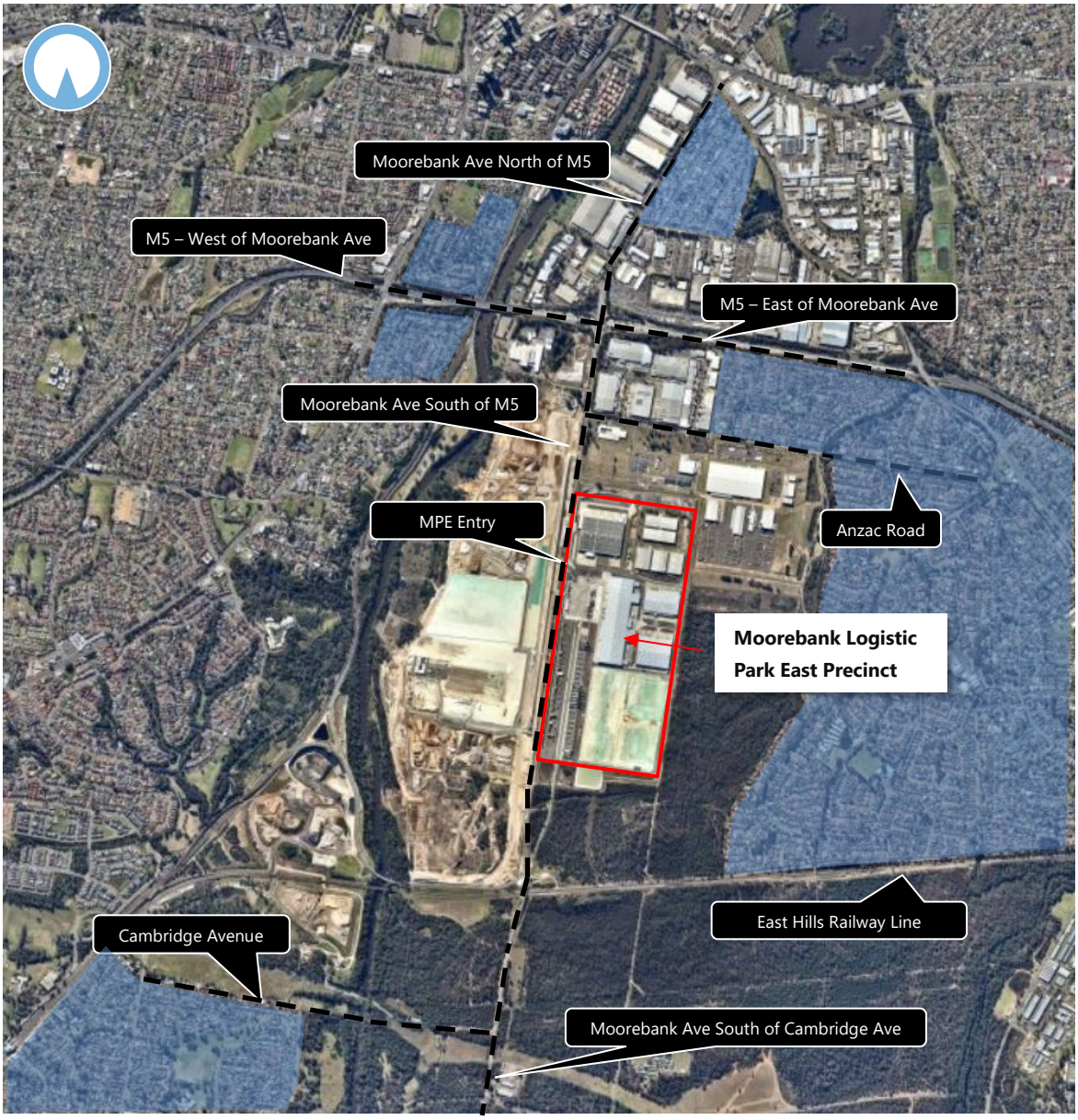
  "*Condition G15 – A review of the operational noise levels in terms of criteria and noise goals established in the NSW Road Noise Policy (EPA, 2011). Identification of additional feasible and reasonable measures that would be implemented with the objective of meeting the criteria outlined in the NSW Road Noise Policy (EPA, 2011).*"

- SSD 7628

  "*Condition B86 – A validation by predictive modelling of the operational noise levels in terms of criteria and noise goals established in the NSW RNP (EPA, 2011). Any required recalibrations of the noise model taking into consideration factors such as actual traffic numbers and heavy vehicle proportions. Operational noise monitoring is required to assess compliance with the noise criteria at a point in time when the site is 50% occupied.*"

The location of Moorebank Precinct East (MPE) in relation to the nearest representative receivers and public roads is illustrated in Figure 1.

Figure 1 MPE Precinct, major roads and nearest sensitive receivers



Note: Blue shading represents residential land use areas adjacent to public roads in proximity to MPE.

1.2 Scope of assessment

Renzo Tonin & Associates (NSW) Pty Ltd has been engaged by Tactical to assess the potential noise impact associated with project-related road traffic travelling to and from MPE, in accordance with the approval conditions. This assessment includes attended noise measurements on Moorebank Avenue (north and south of the M5 Motorway), unattended noise monitoring at a representative residential receiver location on Moorebank Avenue (north of the M5 Motorway) and a review of traffic counting results.

The purpose of the assessment is to determine if the project-related road traffic noise for traffic travelling to and from MPE is within the RNP noise criteria.

A description of technical terms used within this report is provided in Appendix A.

2 Compliance Matrix

Table 1 provides a summary of the Approval Conditions which relate to operational road traffic noise on public roads.

Table 1 Compliance matrix

Condition ID	Condition	Comments on compliance	Reference for further information
SSD 6766			
G15	Within 12 months of the commencement of operation of the project, or as otherwise agreed by the Secretary, the Applicant shall undertake operational noise monitoring to compare actual noise performance of the project against noise performance predicted in the review of noise mitigation measures predicted in documents specified under condition A1 of this approval, and prepare an Operational Noise Report to document this monitoring. The Report shall include, but not necessarily be limited to:	This report includes operational road traffic noise modelling and prediction results. These are compared with the levels presented in the EIS and the criteria in the Planning Approval conditions.	n/a
G15 a)	noise monitoring to assess compliance with the operational noise levels predicted in documents specified under condition A1 of this approval;	Noise monitoring results are presented in Sections 4 and 6.	Sections 4 and 6
G15 b)	a review of the operational noise levels in terms of criteria and noise goals established in the NSW Road Noise Policy (EPA, 2011);	The applicable noise criteria are presented in Section 3.	Section 3.
G15 f)	any required recalibrations of the noise model taking into consideration factors such as actual traffic numbers and proportions;	All noise monitoring undertaken to date has complied with the operational noise limits. On this basis, recalibration of the noise models has not been required.	n/a
B86	Within 12 months of occupation of the first warehouse, 50% occupation of the site and 100% occupation of the site, or as otherwise agreed by the Secretary, the Applicant must undertake operational noise monitoring to compare actual noise performance of the project against predicted noise performance, and prepare an Operational Noise Report to document this monitoring. The Report must include, but not necessarily be limited to:	This report has been prepared at 50% site occupancy stage. Noise monitoring results are presented in Sections 4 and 6.	Sections 4 and 6
B86 b)	a validation by predictive modelling of the operational noise levels in terms of criteria and noise goals established in the NSW RNP (EPA, 2011);	A validation of the noise prediction model is provided in Section 4.	Section 4
B86 g)	any required recalibrations of the noise model taking into consideration factors such as actual traffic numbers and heavy vehicle proportions; and	All noise monitoring undertaken to date has complied with the operational noise limits. On this basis, recalibration of the noise models has not been required.	Sections 4, 5, 6 and 7

3 Summary of noise objectives

3.1 Applicable operation noise criteria

Noise impact from the potential increase in traffic on the roads surrounding the development is assessed against the NSW 'Road Noise Policy' (RNP). The RNP sets out noise criteria to be applied to particular types of road and land uses. These noise criteria are to be applied when assessing noise impact and determining mitigation measures for sensitive receivers that are potentially affected by road traffic noise associated with the subject development, with the aim of preserving the amenity appropriate to the land use.

The assessment considers the use of different types of vehicles entering and exiting the subject site through Moorebank Avenue and potential impacts upon nearby residences, in accordance with the relevant noise criteria. Vehicles associated with the subject site will travel along the following roads on the surrounding road network, consistent with the EIS. All roads are classified as motorways, arterial roads or sub-arterial roads, with the potential noise increase being assessed over the 15-hour day (7am to 10pm) and 9-hour night (10pm to 7am) periods, accordingly.

- Moorebank Avenue, north of the M5 Motorway
- Moorebank Avenue, south of the M5 Motorway (between M5 and MPE)
- Cambridge Avenue
- Moorebank Avenue, south of Cambridge Avenue
- Anzac Road
- M5 Motorway, east of Moorebank Avenue
- M5 Motorway, west of Moorebank Avenue

These roads are identified in Figure 1.

The RNP is used to assess the potential traffic noise impact from additional traffic generated by developments. The RNP provides criteria for residential type receivers impacted by the additional traffic generated by the project. All roads around the development are categorised as motorways, arterial roads or sub-arterial roads[1] and the appropriate assessment criteria are presented in Table 2.

Table 2 Road Traffic Noise Assessment Criteria for Residential Land Uses

Road category	Type of development	Assessment criteria, dB(A)	
		Day (7am - 10pm)	Night (10pm - 7am)
Freeway/ arterial/ sub-arterial roads	Existing residences affected by additional traffic on existing freeways/ arterial/ sub-arterial roads generated by land use developments	$L_{Aeq,\ (15\ hour)}$ 60 (external)	$L_{Aeq,\ (9\ hour)}$ 55 (external)

[1] Page 10 RNP, a "collector road" is classified in the same category as a sub-arterial road

Furthermore, the RNP states the following regarding increase in traffic noise on surrounding roads due to the subject development:

> *"For existing residences and other noise sensitive land uses affected by additional traffic on existing roads generated by land use development, any increase in the total traffic noise level should be limited to 2dB above that of the corresponding 'no build option'."*

3.2 Summary of EIS noise assessment

Consistent with the operational noise criteria summarised in Section 3.1, the EIS noise and vibration assessment[2] identified that *"any increase in road traffic noise levels, at residential receivers, due to the SIMTA proposal should not exceed 2 dBA"*.

Assessment of the increase in road traffic noise levels along the M5 Motorway and Moorebank Avenue were calculated, using the Calculation of Road Traffic Noise (CoRTN) algorithm, and the following assumptions:

- Road traffic volume and mix
- Vehicle speeds (posted) of 100 km/h on the M5 Motorway and 60 km/h on Moorebank Avenue
- Typical receiver setback of 50 m along the M5 Motorway and 20 m along Moorebank Avenue.

Table 3 Road traffic volumes and mix (from EIS)

Location	Time	Current (no Development)		Current (with Development)	
		Volume	Mix	Volume	Mix
M5 Motorway East of Moorebank Avenue	Day (7.00am to 10.00pm)	91,500	10%	92,400	10%
	Night (10.00pm to 7.00am)	17,900	11%	18,200	10%
M5 Motorway West of Moorebank Avenue	Day (7.00am to 10.00pm)	107,200	10%	110,300	12%
	Night (10.00pm to 7.00am)	21,100	11%	21,700	12%
Moorebank Avenue North of M5 Motorway	Day (7.00am to 10.00pm)	26,700	10%	27,800	12%
	Night (10.00pm to 7.00am)	6,250	10%	6,410	10%
Moorebank Avenue South of M5 Motorway	Day (7.00am to 10.00pm)	14,400	6%	19,300	16%
	Night (10.00pm to 7.00am)	3,000	4%	4,100	10%

The study concluded that the project-related increase in road traffic noise levels along the M5 Motorway and along Moorebank Avenue, north of the M5 interchange are less than 2 dB(A) and therefore, comply with the relevant RNP criteria.

[2] Wilkinson Murray Report 12186-C – Sydney Intermodal Terminal Alliance Noise Assessment – Concept Plan, Section 6.3 Road Traffic Noise Assessment

In the area along Moorebank Avenue, south of the M5 interchange, road traffic noise levels were predicted to increase by approximately 3 dB(A). However, since there are no residential receivers in this area, no noise impact was expected.

4 Validation of road traffic noise model

Approval Condition B86 of SSD 7628 requires a validation of the operational road traffic prediction model. This has been performed in the current study via concurrent road traffic noise monitoring and road traffic counting at a representative residential receiver on Moorebank Avenue, north of the M5 interchange. The noise monitoring and road traffic counting were performed over a 14-day period between Thursday 27 May and Friday 11 June 2021.

An unattended noise logger was set up at a free-field location in the front yard of 62 Moorebank Avenue, 7.5 m from the edge of the nearside southbound lane. Moorebank Avenue comprises two southbound and two northbound lanes at this location.

The unattended noise monitoring was performed with a Type 1 sound level meter. A Type 1 microphone calibrator was utilised before and after the measurements to verify that the pre- and post-calibration levels were within 0.5 dB of the reference value. The noise measurements were performed in accordance with the requirements of the RNP.

Daily plots of the measured road traffic noise levels are provided in Appendix B. The noise logging results were processed to determine the $L_{Aeq(15hour)}$ daytime and $L_{Aeq(9hour)}$ night-time noise levels at the measurement position, averaged over the two-week survey period. Extraneous noise events during rain periods were excluded from the summary results. The noise monitoring results were also reviewed to identify 15-minute periods that contained siren noise from emergency services. These periods were also excluded from the summary results.

Road traffic counting was performed by Matrix Traffic and Transport Data at a position between Church Road and King Lane, along Moorebank Avenue. The traffic survey included full classification of heavy and light vehicles in both directions, summarised on an hourly basis over the 14-day survey period. The average vehicle speeds in each hour were also recorded.

A summary of the average road traffic volumes, speeds and percentage heavy vehicles is provided in Table 4.

Table 4 Summary of road traffic volumes (28 May to 10 June 2021) – Moorebank Avenue north of M5 interchange

Location	Daytime period (7am to 10pm)			Night-time period (10pm to 7am)		
	Northbound	Southbound	Total	Northbound	Southbound	Total
Number of vehicles per day	13,006	9,033	**22,039**	2,952	1,659	**4,612**
Percentage heavy vehicles	14%	16%	**14%**	16%	12%	**15%**
Average speed	59 km/h (daytime)			63 km/h (night-time)		

The average road traffic volumes, heavy vehicle mix and speeds were utilised in a CoRTN model to predict the daytime and night-time noise levels at the unattended noise logger position.

A comparison of the predicted and measured noise levels at the noise monitoring position is provided in Table 5.

Table 5 Summary of road traffic noise model validation – 62 Moorebank Avenue

Period	Measured $L_{Aeq(period)}$ noise level, dB(A)	Predicted $L_{Aeq(period)}$ noise level, dB(A)	Noise Level Difference, Predicted minus Measured, dB(A)
7.00am to 10.00pm daytime	71.3	71.6	0.3
10.00pm to 7.00am night-time	68.0	67.3	-0.7

The results in the above table identify that the difference between the measured noise levels and predicted noise levels at the noise monitoring location are within an acceptable tolerance of ± 1.0 dB(A).

This indicates that the CoRTN noise model is acceptable for predicting the overall noise levels and project-related noise increase at other representative locations near MPE.

5 MPE road traffic noise predictions

A Biannual Trip Origin and Destination Report (BTODR)[3] was prepared by Ason Group for MPE, in accordance with the requirements of Approval Condition B28 of SSD 7628.

The report provides a summary of origin destination (OD) road traffic survey results to understand the distribution of MPE traffic on the surrounding road network. The measurement data is applicable for the reporting period between 1 November 2020 and 30 April 2021.

A summary of the average day / night traffic volumes (weekdays), derived from the BTODR data is provided in Table 6.

Table 6 Origin destination road traffic volumes and mix

Location	Time	Current (excluding MPE)		Current (including MPE)	
		Volume	Mix	Volume	Mix
M5 Motorway On/Off ramps to East[1]	Day (7.00am to 10.00pm)	15,237	9%	15,543	9%
	Night (10.00pm to 7.00am)	2,510	7%	2,551	7%
M5 Motorway On/Off ramps to West[1]	Day (7.00am to 10.00pm)	34,933	10%	35,378	10%
	Night (10.00pm to 7.00am)	5,240	9%	5,331	9%
Moorebank Avenue North of M5 Motorway	Day (7.00am to 10.00pm)	33,196	10%	33,405	10%
	Night (10.00pm to 7.00am)	5,074	9%	5,113	9%
Moorebank Avenue South of M5 Motorway	Day (7.00am to 10.00pm)	33,786	8%	34,827	9%
	Night (10.00pm to 7.00am)	5,193	6%	5,376	6%
Anzac Road	Day (7.00am to 10.00pm)	16,595	6%	16,684	6%
	Night (10.00pm to 7.00am)	1,983	5%	1,987	5%
Cambridge Avenue	Day (7.00am to 10.00pm)	22,661	6%	22,722	6%
	Night (10.00pm to 7.00am)	3,978	4%	3,983	4%
Moorebank Avenue South of Cambridge Avenue	Day (7.00am to 10.00pm)	1,976	4%	1,976	4%
	Night (10.00pm to 7.00am)	290	2%	290	2%

1. The BTODR did not include road traffic volumes for the M5 Motorway. For noise modelling purposes, road traffic volumes without MPE are based on the volumes in Table 3. The road traffic volumes with MPE are based on the including and excluding MPE traffic volumes in this table.

Based on the above traffic volumes with and without the MPE traffic, calculations of road traffic noise using CoRTN have been performed at representative residential receivers along each section of road. The results are provided in Table 7.

[3] Ason Group, Biannual Trip Origin Destination Report - November 2020 - April 2021- Report P1065r03v1

Table 7 Predicted MPE road traffic noise levels at representative residential receivers

Location	Time	Typical setback distance to residential receivers, m	Predicted $L_{Aeq(period)}$ noise level, dB(A)[1]		Predicted noise increase from MPE
			Without MPE	With MPE	
M5 Motorway East of Moorebank Ave	Day (7.00am to 10.00pm)	25	64.5	64.5	0.0
	Night (10.00pm to 7.00am)	25	59.8	59.8	0.0
M5 Motorway On/Off ramps to West	Day (7.00am to 10.00pm)	25	65.2	65.2	0.0
	Night (10.00pm to 7.00am)	25	60.5	60.5	0.0
Moorebank Avenue North of M5 Motorway	Day (7.00am to 10.00pm)	10	71.7	71.8	0.1
	Night (10.00pm to 7.00am)	10	65.9	66.0	0.1
Moorebank Avenue South of M5 Motorway	Day (7.00am to 10.00pm)	n/a	No nearby residential receivers		0.3
	Night (10.00pm to 7.00am)	n/a	No nearby residential receivers		0.2
Anzac Road	Day (7.00am to 10.00pm)	6	71.9	71.9	0.0
	Night (10.00pm to 7.00am)	6	64.5	64.5	0.0
Cambridge Avenue	Day (7.00am to 10.00pm)	145	55.3	55.4	0.1
	Night (10.00pm to 7.00am)	145	49.7	49.7	0.0
Moorebank Avenue South of Cambridge Avenue	Day (7.00am to 10.00pm)	n/a	No nearby residential receivers		0.0
	Night (10.00pm to 7.00am)	n/a	No nearby residential receivers		0.0

Note: Overall noise levels are shown to 1 decimal place for the purpose of indicating the change in noise levels from MPE traffic. The accuracy of the overall noise level predictions is approximately ± 1 dB(A).

The results in the above table identify that the project-related increase in road traffic noise levels from MPE is 0.1 dB(A) or less at the nearest residential receivers.

The highest predicted increase of 0.3 dB(A) occurs in the area between the MPE site entry and the M5 interchange. It is noted that there are no residential receivers in this area.

6 Attended noise measurements

Attended noise measurements were performed at two locations on 27 May 2021 for the purpose of quantifying the noise levels of heavy vehicles entering / exiting MPE. The measurements were performed between 8:30 am and 10:30 am at the following locations.

- Near the MPE entry / exit on Moorebank Avenue (south of the M5 interchange) – opposite Target Warehouse
- Moorebank Avenue (north of the M5 interchange) – near King Lane

At each location, continuous noise measurements of road traffic noise were made. Video cameras were set up to provide a visual record of road traffic movements. These were time-synchronised with the noise recordings. The video recordings were reviewed to positively identify MPE heavy vehicles that entered / exited MPE and also passed by the Moorebank Avenue residential area, north of the M5 interchange.

The noise measurement results were post-processed to determine the noise contribution of MPE heavy vehicles in relation to non-MPE road traffic noise.

During the two-hour noise survey, 48 heavy vehicles were observed to enter / exit the MPE facility. Nine (9) MPE heavy vehicles were observed to pass the Moorebank Avenue residential area, north of the M5 interchange. The noise levels of these passbys were analysed and compared with the prevailing road traffic noise levels during the two-hour survey period and the noise increase from MPE heavy vehicles was determined to be 0.1 dB(A).

The measured traffic noise level increase of 0.1 dB(A) from MPE trucks in the residential area adjacent to Moorebank Avenue, north of the M5 interchange is consistent with the calculated 0.1 dB(A) increase presented in Table 7 and less than the 2 dB(A) allowance stipulated in Section 3.1.

7 Conclusion

The assessment presented in this report has been conducted to address the requirements of Approval Condition B86 of SSD 7628 and Approval Condition G15 of SSD 6766, and assesses the operational road traffic noise levels associated with MPE at the point in time when the subject site is 50% occupied.

This report presents the results of road traffic noise measurements and calculations at representative residential receiver locations along public roads in proximity to MPE. The measured and calculated increase in project-related road traffic noise have been compared with the 2 dB(A) allowance, derived from the NSW RNP.

Approval Condition B86 of SSD 7628 requires a validation of the operational road traffic prediction model. This has been performed in this current study via concurrent road traffic noise monitoring and road traffic counting at a representative residential receiver on Moorebank Avenue, north of the M5 interchange. The difference between the measured and predicted noise levels was less than the acceptable tolerance of ± 1.0 dB(A).

This validated noise model was subsequently utilised in conjunction with the Biannual Trip Origin and Destination Report, to understand the distribution of MPE traffic on the surrounding road network, and to predict the project-related increase in road traffic noise levels.

The project-related increase in road traffic noise levels from MPE was calculated to be 0.1 dB(A) or less at the nearest residential receivers. The highest calculated increase of 0.3 dB(A) occurs in the area between the MPE site entry and M5 interchange where there are no residential receivers in this area.

Attended noise measurements were performed in conjunction with visual observations of trucks entering / exiting MPE to directly measure the noise increase of MPE trucks over a two-hour period in the residential area on Moorebank Avenue, north of the M5 interchange. The measured noise level increase from MPE trucks was 0.1 dB(A), consistent with the noise model calculations.

It is concluded that the project-related increase in road traffic noise levels related to MPE is less than the 2 dB(A) allowance in the NSW RNP. Therefore, no re-calibration of the road traffic noise model and/or consideration of additional mitigation measures are required at this stage.

APPENDIX A Description of technical terms

The following is a brief description of the technical terms used to describe noise to assist in understanding the technical issues presented.

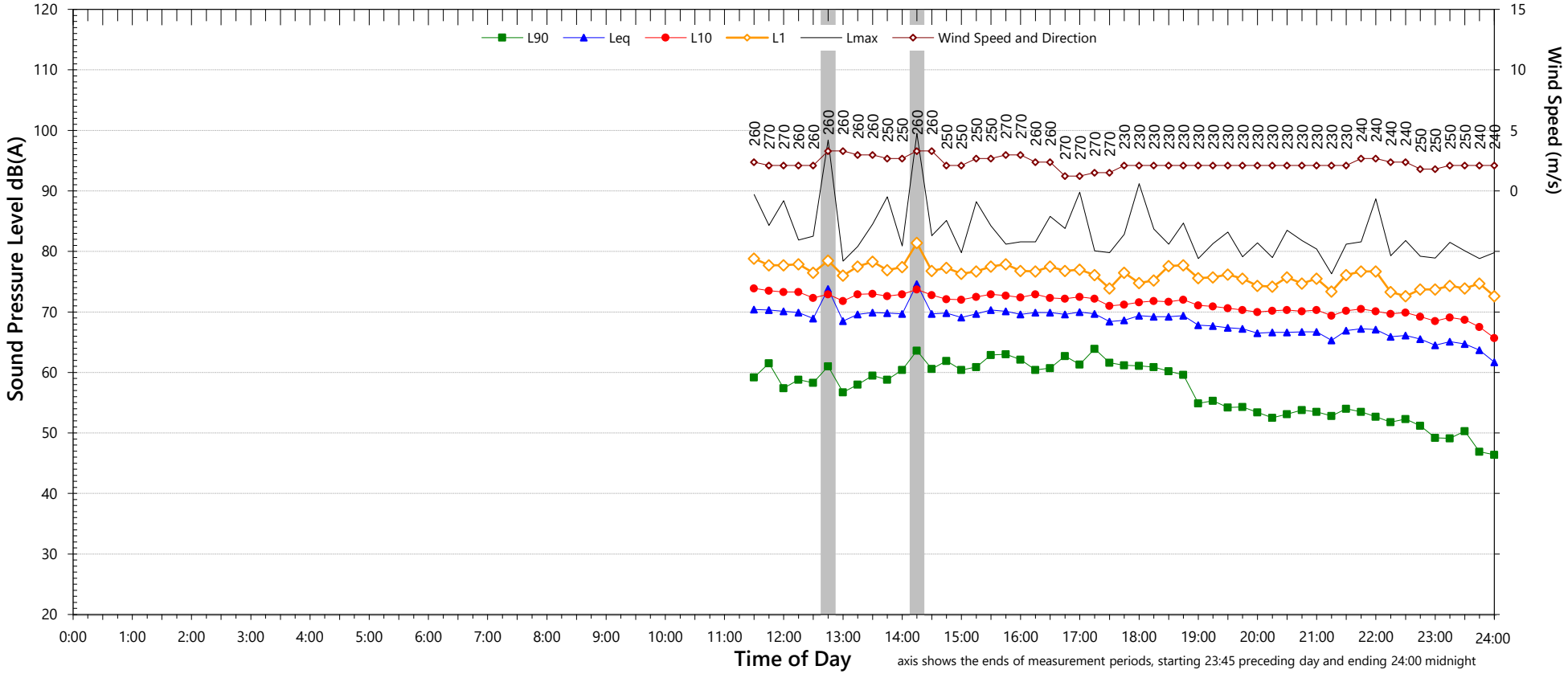
Adverse weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
Ambient noise	The all-encompassing noise associated within a given environment at a given time, usually composed of sound from all sources near and far.
Assessment period	The period in a day over which assessments are made.
Assessment point	A point at which noise measurements are taken or estimated. A point at which noise measurements are taken or estimated.
Background noise	Background noise is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation, when extraneous noise is removed. It is described as the average of the minimum noise levels measured on a sound level meter and is measured statistically as the A-weighted noise level exceeded for ninety percent of a sample period. This is represented as the L90 noise level (see below).
Decibel [dB]	The units that sound is measured in. The following are examples of the decibel readings of every day sounds: 0dB The faintest sound we can hear 30dB A quiet library or in a quiet location in the country 45dB Typical office space. Ambience in the city at night 60dB CBD mall at lunch time 70dB The sound of a car passing on the street 80dB Loud music played at home 90dB The sound of a truck passing on the street 100dB The sound of a rock band 115dB Limit of sound permitted in industry 120dB Deafening
dB(A)	A-weighted decibels. The A- weighting noise filter simulates the response of the human ear at relatively low levels, where the ear is not as effective in hearing low frequency sounds as it is in hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter.
dB(C)	C-weighted decibels. The C-weighting noise filter simulates the response of the human ear at relatively high levels, where the human ear is nearly equally effective at hearing from mid-low frequency (63Hz) to mid-high frequency (4kHz), but is less effective outside these frequencies.
Frequency	Frequency is synonymous to pitch. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.
Impulsive noise	Having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise.
Intermittent noise	The level suddenly drops to that of the background noise several times during the period of observation. The time during which the noise remains at levels different from that of the ambient is one second or more.
LMax	The maximum sound pressure level measured over a given period.
LMin	The minimum sound pressure level measured over a given period.

APPENDIX B Unattended noise monitoring results

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Thursday, 27 May 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day[2]	Evening[3]	Night[4 5]
L_{A90} ABL	-	53	45
L_{Aeq}	-	67	66

NSW Road Noise Policy (1m from facade)		(see note 6)
Descriptor	Day	Night[5]
	7am-10pm	10pm-7am
$L_{Aeq\ 15\ hr}$ and $L_{Aeq\ 9\ hr}$	-	-
$L_{Aeq\ 1hr}$ upper 10 percentile	-	-
$L_{Aeq\ 1hr}$ lower 10 percentile	-	-

Night Time Maximum Noise Levels			(see note 7)
L_{AFMax} (Range)	79	to	93
L_{AFMax} - L_{Aeq} (Range)	15	to	23

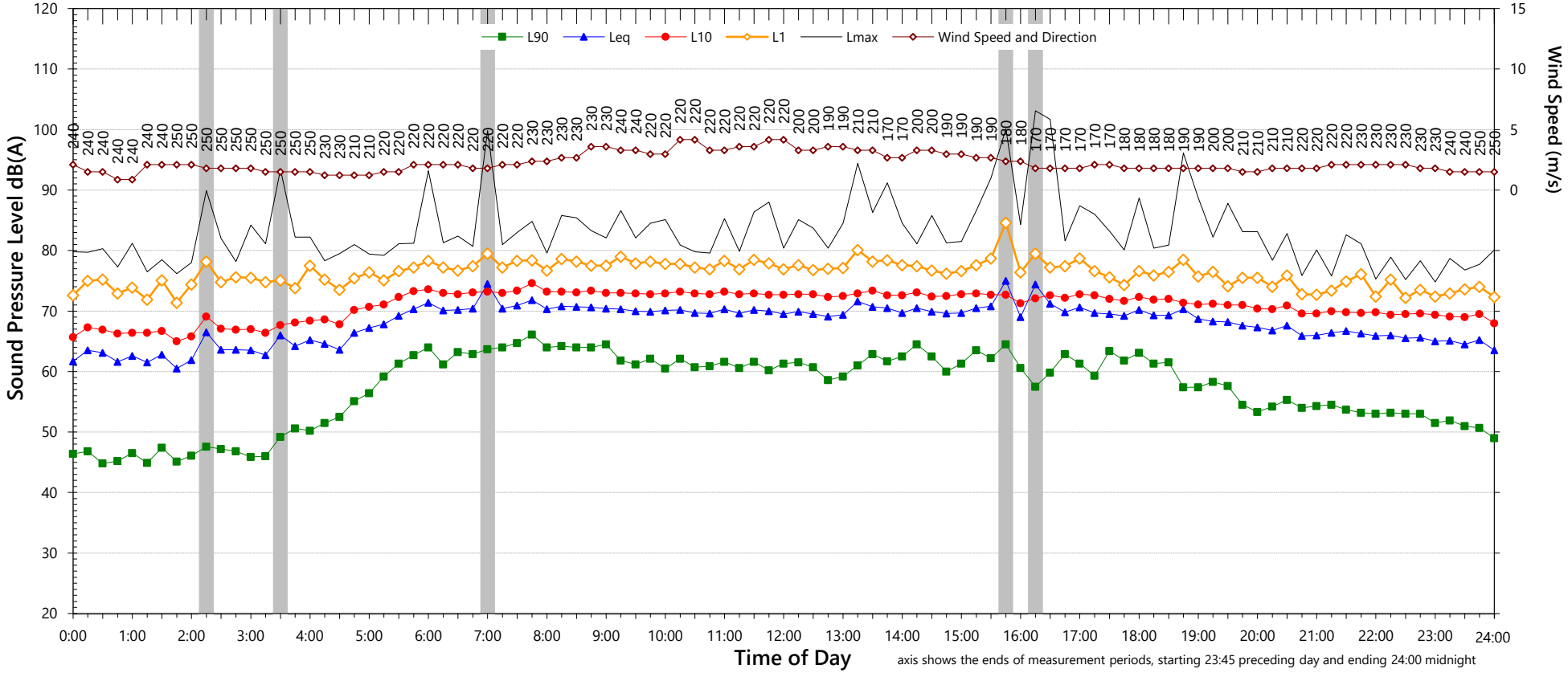
Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
3. "Evening" is the period from 6pm till 10pm
4. "Night" relates to the remaining periods
5. "Night" relates to period from 10pm on this graph to morning on the following graph.
6. Graphed data measured in free-field; tabulated results facade corrected
7. 1-hour values for L_{AFMax} are shown only where L_{AFMax} >65dB(A) and where L_{AFMax}- L_{Aeq} ≥15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Friday, 28 May 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	**Day[2]**	**Evening[3]**	**Night[4 5]**
L_{A90} ABL	60	53	45
L_{Aeq}	70	68	64

NSW Road Noise Policy (1m from facade)		(see note 6)
Descriptor	**Day**	**Night[5]**
	7am-10pm	**10pm-7am**
$L_{Aeq\ 15\ hr}$ and $L_{Aeq\ 9\ hr}$	72	67
$L_{Aeq\ 1hr}$ upper 10 percentile	73	68
$L_{Aeq\ 1hr}$ lower 10 percentile	70	64

Night Time Maximum Noise Levels			(see note 7)
L_{AFMax} (Range)	80	to	86
L_{AFMax} - L_{Aeq} (Range)	15	to	23

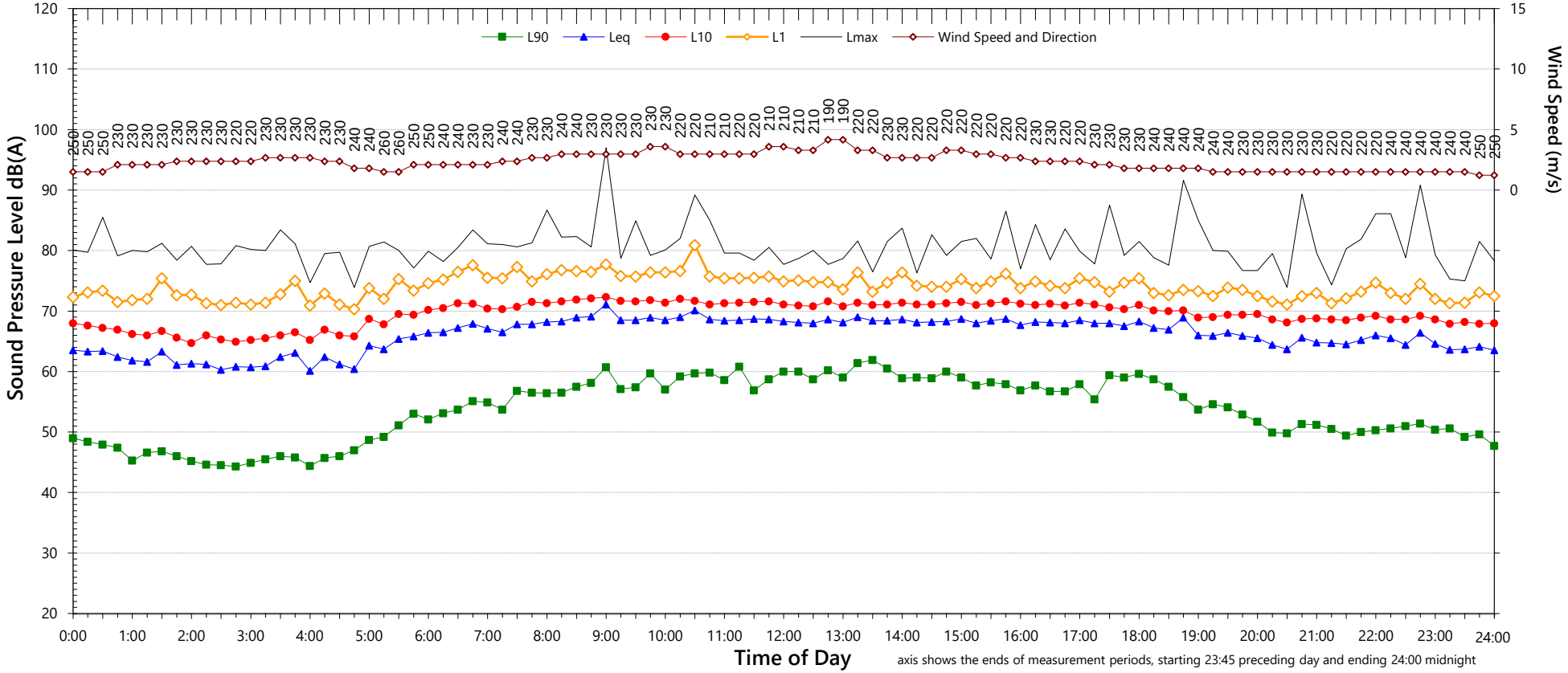
Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
3. "Evening" is the period from 6pm till 10pm
4. "Night" relates to the remaining periods
5. "Night" relates to period from 10pm on this graph to morning on the following graph.
6. Graphed data measured in free-field; tabulated results facade corrected
7. 1-hour values for L_{AFMax} are shown only where L_{AFMax} >65dB(A) and where L_{AFMax}- L_{Aeq} ≥15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Saturday, 29 May 2021



axis shows the ends of measurement periods, starting 23:45 preceding day and ending 24:00 midnight

NSW Noise Policy for Industry (Free Field)			
Descriptor	**Day[2]**	**Evening[3]**	**Night[4 5]**
L_{A90} ABL	57	50	43
L_{Aeq}	68	66	63

Night Time Maximum Noise Levels			(see note 7)
L_{AFMax} (Range)	78	to	91
L_{AFMax} - L_{Aeq} (Range)	16	to	26

NSW Road Noise Policy (1m from facade)		(see note 6)
Descriptor	**Day**	**Night[5]**
	7am-10pm	**10pm-7am**
$L_{Aeq\ 15\ hr}$ and $L_{Aeq\ 9\ hr}$	70	65
$L_{Aeq\ 1hr}$ upper 10 percentile	71	67
$L_{Aeq\ 1hr}$ lower 10 percentile	68	62

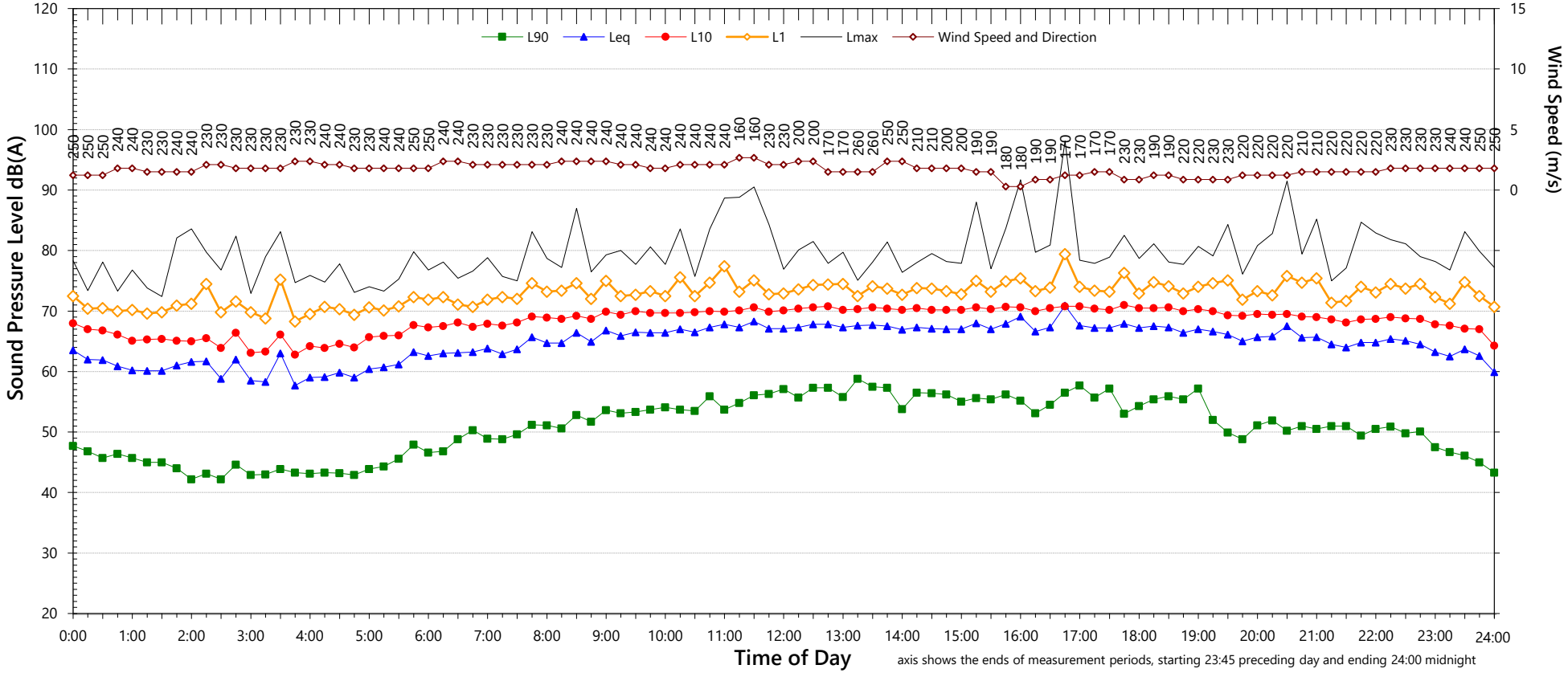
Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
3. "Evening" is the period from 6pm till 10pm
4. "Night" relates to the remaining periods
5. "Night" relates to period from 10pm on this graph to morning on the following graph.
6. Graphed data measured in free-field; tabulated results facade corrected
7. 1-hour values for L_{AFMax} are shown only where L_{AFMax} >65dB(A) and where L_{AFMax}- L_{Aeq} ≥15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Sunday, 30 May 2021



axis shows the ends of measurement periods, starting 23:45 preceding day and ending 24:00 midnight

NSW Noise Policy for Industry (Free Field)			
Descriptor	Day[2]	Evening[3]	Night[4 5]
L_{A90} ABL	53	50	40
L_{Aeq}	67	66	65

NSW Road Noise Policy (1m from facade)		(see note 6)
Descriptor	Day	Night[5]
	7am-10pm	10pm-7am
$L_{Aeq\ 15\ hr}$ and $L_{Aeq\ 9\ hr}$	69	68
$L_{Aeq\ 1hr}$ upper 10 percentile	70	72
$L_{Aeq\ 1hr}$ lower 10 percentile	68	63

Night Time Maximum Noise Levels			(see note 7)
L_{AFMax} (Range)	81	to	88
L_{AFMax} - L_{Aeq} (Range)	17	to	23

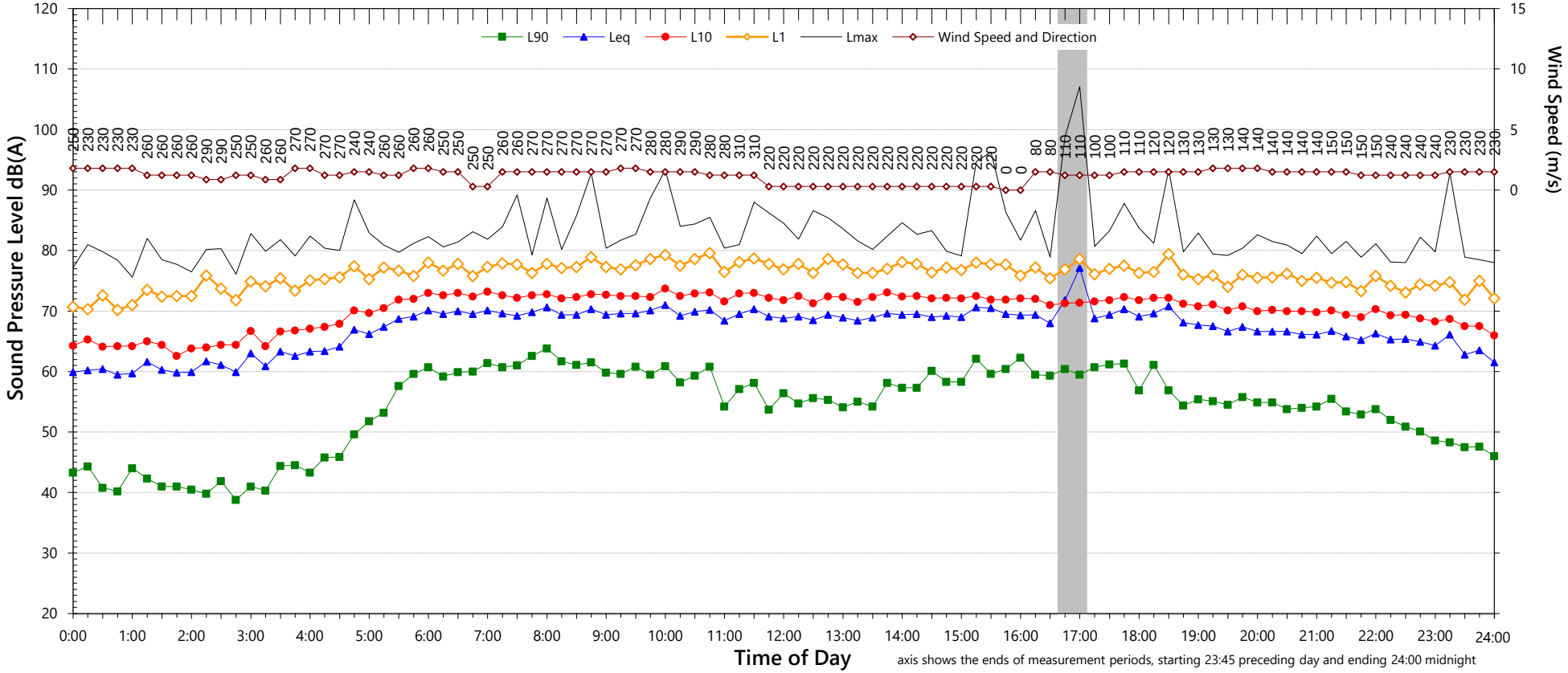
Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
3. "Evening" is the period from 6pm till 10pm
4. "Night" relates to the remaining periods
5. "Night" relates to period from 10pm on this graph to morning on the following graph.
6. Graphed data measured in free-field; tabulated results facade corrected
7. 1-hour values for L_{AFMax} are shown only where L_{AFMax} >65dB(A) and where L_{AFMax}- L_{Aeq} ≥15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Monday, 31 May 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	**Day[2]**	**Evening[3]**	**Night[4 5]**
L_{A90} ABL	55	54	41
L_{Aeq}	70	67	66

NSW Road Noise Policy (1m from facade)		(see note 6)
Descriptor	**Day**	**Night[5]**
	7am-10pm	**10pm-7am**
$L_{Aeq\ 15\ hr}$ and $L_{Aeq\ 9\ hr}$	72	69
$L_{Aeq\ 1hr}$ upper 10 percentile	72	72
$L_{Aeq\ 1hr}$ lower 10 percentile	69	64

Night Time Maximum Noise Levels			(see note 7)
L_{AFMax} (Range)	81	to	93
L_{AFMax} - L_{Aeq} (Range)	17	to	29

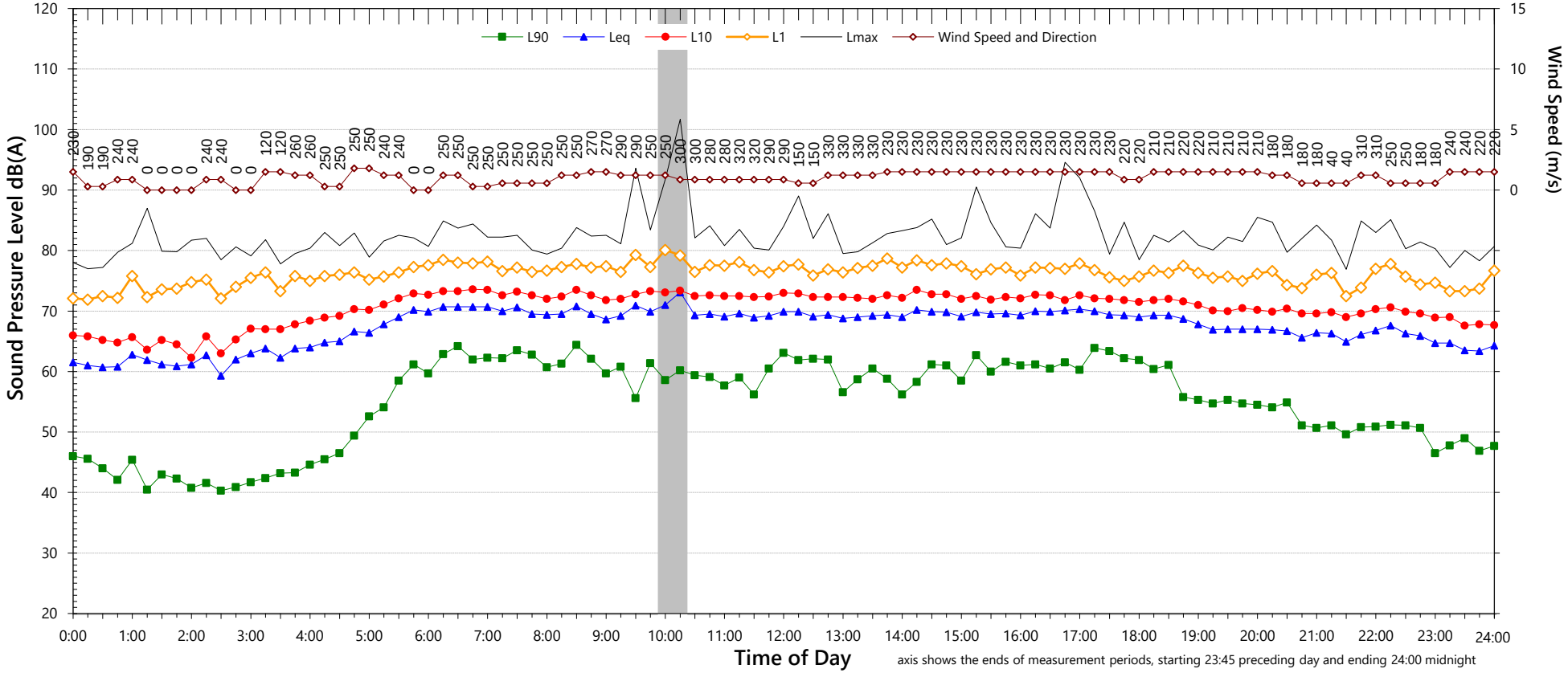
Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
3. "Evening" is the period from 6pm till 10pm
4. "Night" relates to the remaining periods
5. "Night" relates to period from 10pm on this graph to morning on the following graph.
6. Graphed data measured in free-field; tabulated results facade corrected
7. 1-hour values for L_{AFMax} are shown only where L_{AFMax} >65dB(A) and where L_{AFMax}- L_{Aeq} ≥15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Tuesday, 1 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	**Day[2]**	**Evening[3]**	**Night[4 5]**
L_{A90} ABL	58	51	41
L_{Aeq}	70	67	66

NSW Road Noise Policy (1m from facade)		(see note 6)
Descriptor	**Day**	**Night[5]**
	7am-10pm	**10pm-7am**
$L_{Aeq\ 15\ hr}$ and $L_{Aeq\ 9\ hr}$	72	69
$L_{Aeq\ 1hr}$ upper 10 percentile	72	72
$L_{Aeq\ 1hr}$ lower 10 percentile	69	64

Night Time Maximum Noise Levels			(see note 7)
L_{AFMax} (Range)	81	to	88
L_{AFMax} - L_{Aeq} (Range)	17	to	22

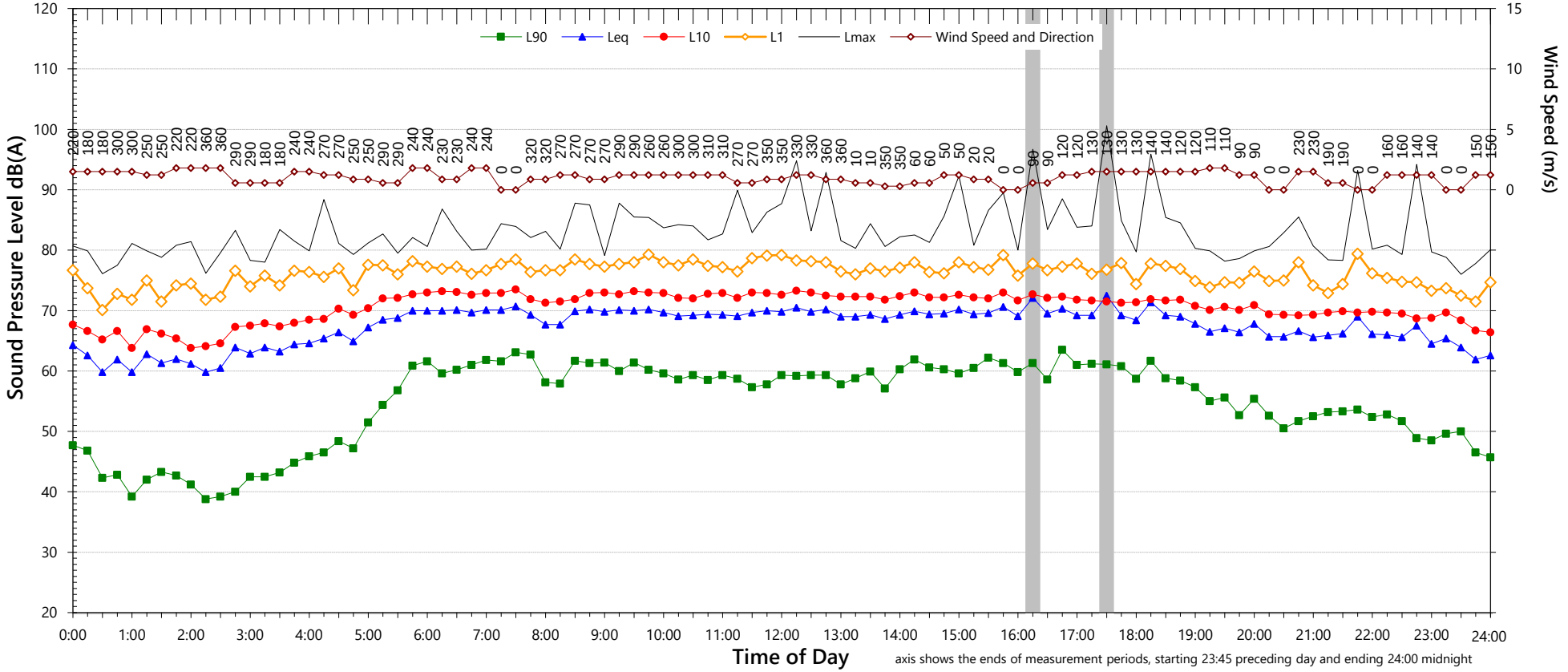
Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
3. "Evening" is the period from 6pm till 10pm
4. "Night" relates to the remaining periods
5. "Night" relates to period from 10pm on this graph to morning on the following graph.
6. Graphed data measured in free-field; tabulated results facade corrected
7. 1-hour values for L_{AFMax} are shown only where L_{AFMax} >65dB(A) and where L_{AFMax}- L_{Aeq} ≥15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Wednesday, 2 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day[2]	Evening[3]	Night[4 5]
L_{A90} ABL	58	52	43
L_{Aeq}	70	68	66

NSW Road Noise Policy (1m from facade)		(see note 6)
Descriptor	Day	Night[5]
	7am-10pm	10pm-7am
$L_{Aeq\ 15\ hr}$ and $L_{Aeq\ 9\ hr}$	72	68
$L_{Aeq\ 1hr}$ upper 10 percentile	72	72
$L_{Aeq\ 1hr}$ lower 10 percentile	69	64

Night Time Maximum Noise Levels			(see note 7)
L_{AFMax} (Range)	80	to	94
L_{AFMax} - L_{Aeq} (Range)	16	to	28

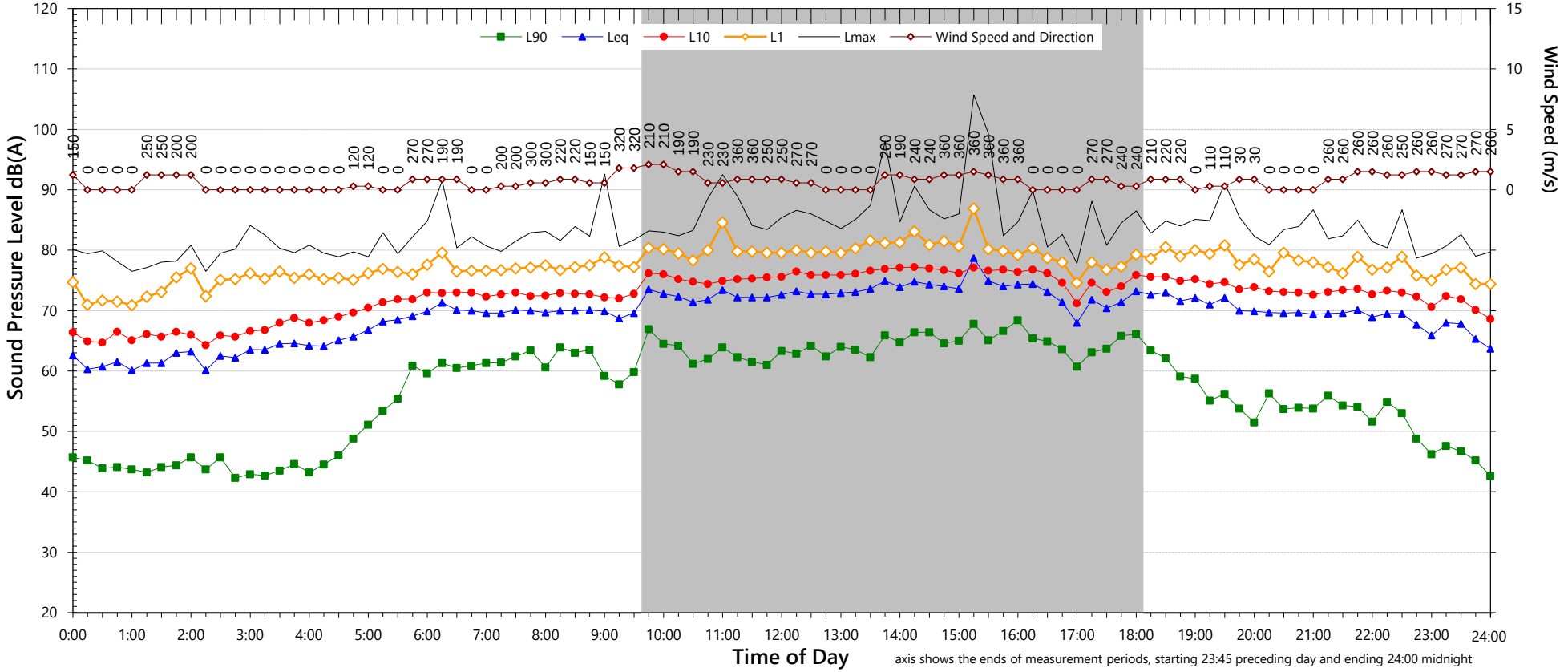
Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
3. "Evening" is the period from 6pm till 10pm
4. "Night" relates to the remaining periods
5. "Night" relates to period from 10pm on this graph to morning on the following graph.
6. Graphed data measured in free-field; tabulated results facade corrected
7. 1-hour values for L_{AFMax} are shown only where L_{AFMax} >65dB(A) and where L_{AFMax}- L_{Aeq} ≥15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Thursday, 3 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day[2]	Evening[3]	Night[4 5]
L_{A90} ABL	-	53	44
L_{Aeq}	-	71	69

Night Time Maximum Noise Levels			(see note 7)
L_{AFMax} (Range)	81	to	91
L_{AFMax} - L_{Aeq} (Range)	16	to	23

NSW Road Noise Policy (1m from facade)		(see note 6)
Descriptor	Day	Night[5]
	7am-10pm	10pm-7am
$L_{Aeq\ 15\ hr}$ and $L_{Aeq\ 9\ hr}$	73	71
$L_{Aeq\ 1hr}$ upper 10 percentile	74	75
$L_{Aeq\ 1hr}$ lower 10 percentile	72	67

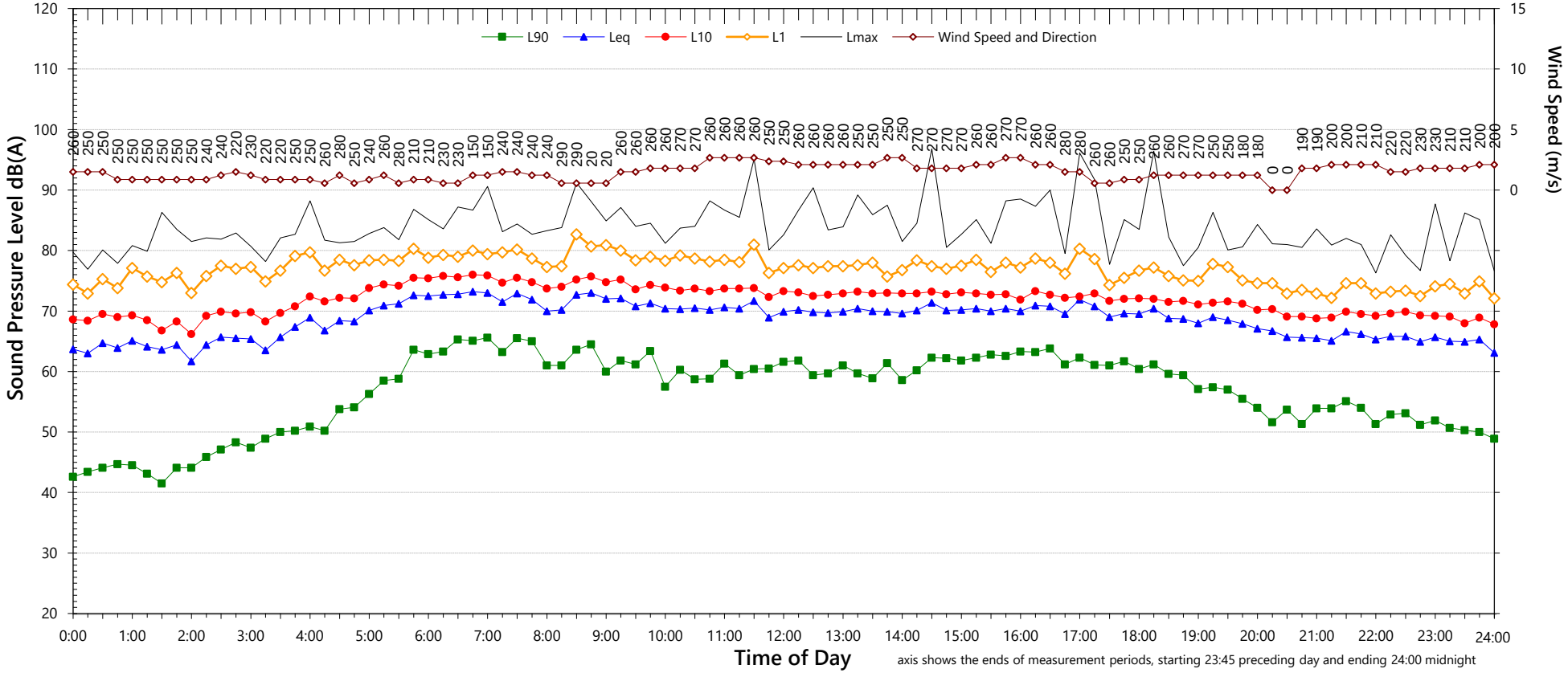
Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
3. "Evening" is the period from 6pm till 10pm
4. "Night" relates to the remaining periods
5. "Night" relates to period from 10pm on this graph to morning on the following graph.
6. Graphed data measured in free-field; tabulated results facade corrected
7. 1-hour values for L_{AFMax} are shown only where L_{AFMax} >65dB(A) and where L_{AFMax}- L_{Aeq} ≥15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Friday, 4 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	**Day[2]**	**Evening[3]**	**Night[4 5]**
L_{A90} ABL	59	51	46
L_{Aeq}	71	67	64

NSW Road Noise Policy (1m from facade)		(see note 6)
Descriptor	**Day**	**Night[5]**
	7am-10pm	**10pm-7am**
$L_{Aeq\ 15\ hr}$ and $L_{Aeq\ 9\ hr}$	73	67
$L_{Aeq\ 1hr}$ upper 10 percentile	74	68
$L_{Aeq\ 1hr}$ lower 10 percentile	69	64

Night Time Maximum Noise Levels			(see note 7)
L_{AFMax} (Range)	78	to	93
L_{AFMax} - L_{Aeq} (Range)	15	to	30

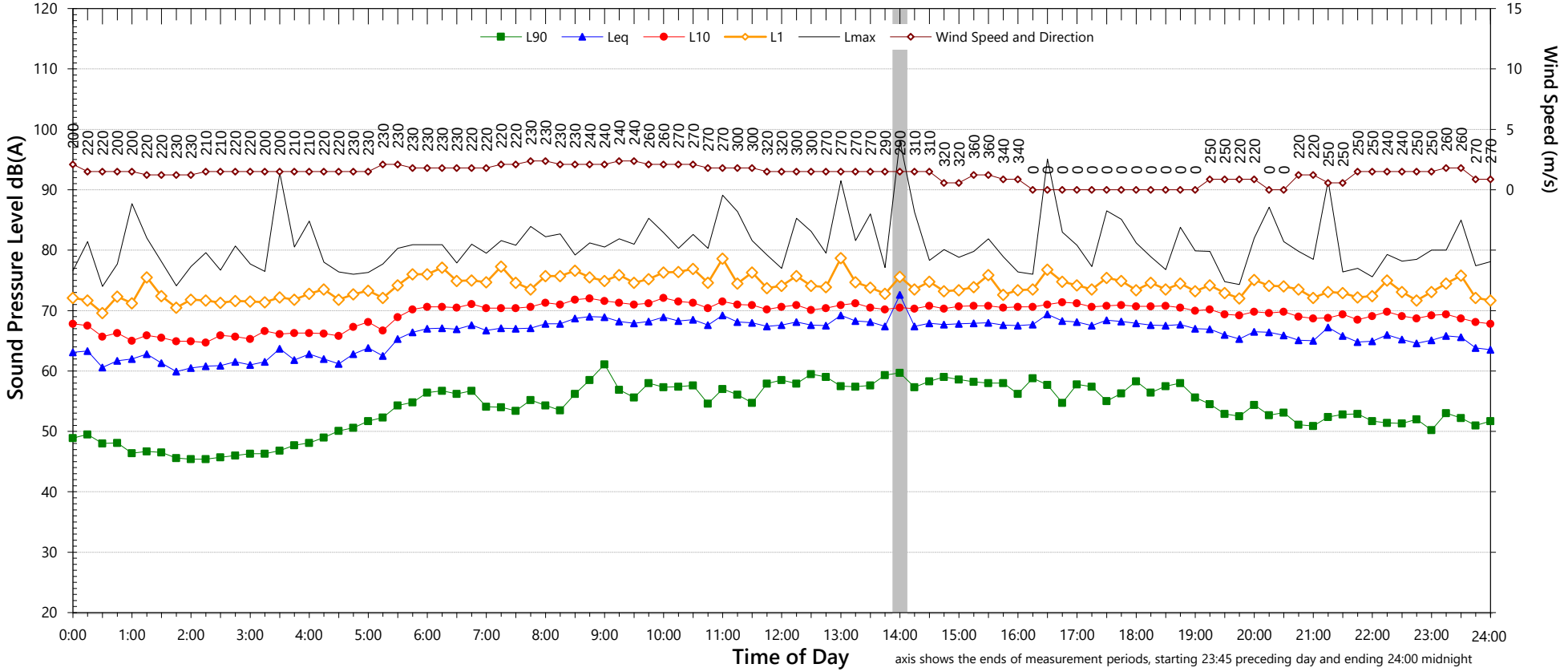
Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
3. "Evening" is the period from 6pm till 10pm
4. "Night" relates to the remaining periods
5. "Night" relates to period from 10pm on this graph to morning on the following graph.
6. Graphed data measured in free-field; tabulated results facade corrected
7. 1-hour values for L_{AFMax} are shown only where L_{AFMax} >65dB(A) and where L_{AFMax}- L_{Aeq} ≥15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Saturday, 5 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day[2]	Evening[3]	Night[4 5]
L_{A90} ABL	55	51	44
L_{Aeq}	68	66	63

NSW Road Noise Policy (1m from facade)		(see note 6)
Descriptor	Day	Night[5]
	7am-10pm	10pm-7am
$L_{Aeq\ 15\ hr}$ and $L_{Aeq\ 9\ hr}$	70	65
$L_{Aeq\ 1hr}$ upper 10 percentile	71	67
$L_{Aeq\ 1hr}$ lower 10 percentile	68	62

Night Time Maximum Noise Levels			(see note 7)
L_{AFMax} (Range)	78	to	90
L_{AFMax} - L_{Aeq} (Range)	15	to	29

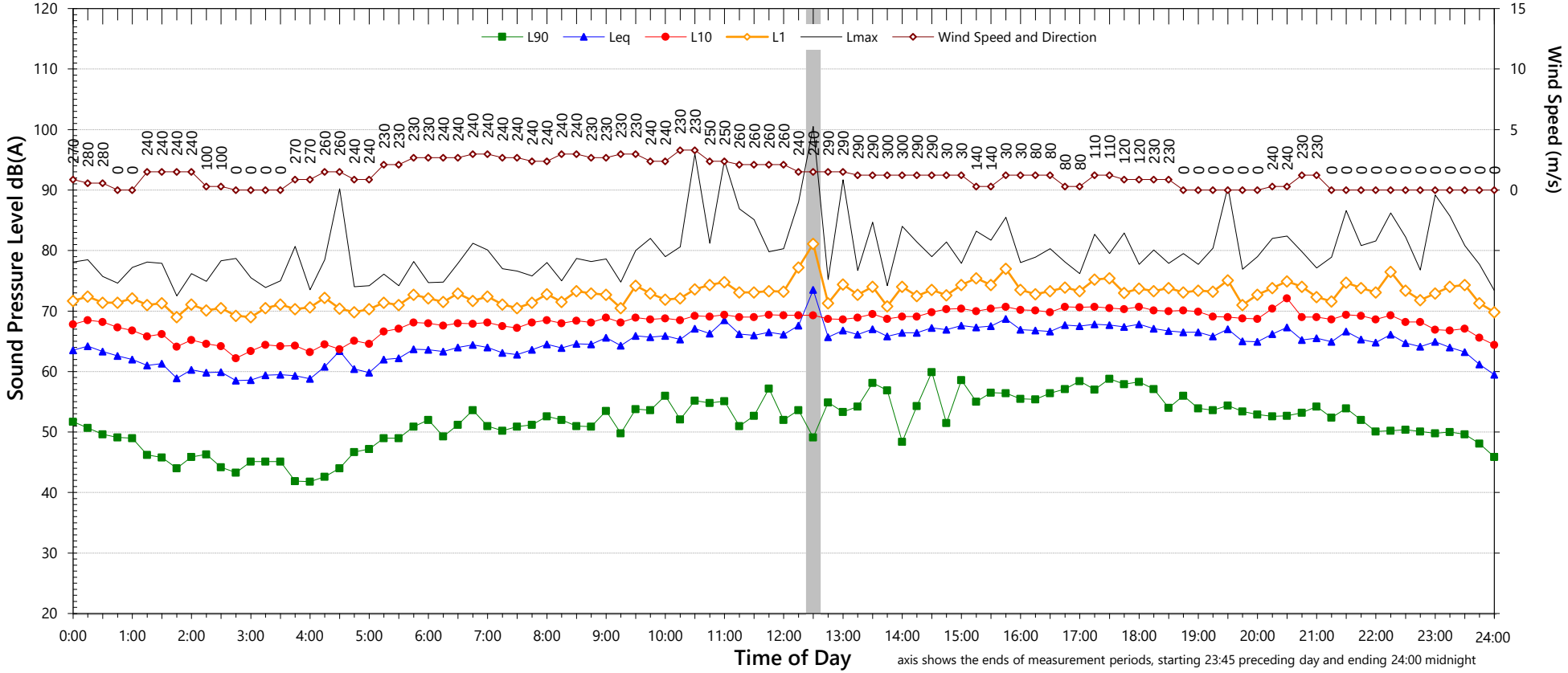
Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
3. "Evening" is the period from 6pm till 10pm
4. "Night" relates to the remaining periods
5. "Night" relates to period from 10pm on this graph to morning on the following graph.
6. Graphed data measured in free-field; tabulated results facade corrected
7. 1-hour values for L_{AFMax} are shown only where L_{AFMax} >65dB(A) and where L_{AFMax}- L_{Aeq} ≥15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Sunday, 6 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day[2]	Evening[3]	Night[4 5]
L_{A90} ABL	51	52	44
L_{Aeq}	67	66	65

Night Time Maximum Noise Levels			(see note 7)
L_{AFMax} (Range)	79	to	91
L_{AFMax} - L_{Aeq} (Range)	18	to	24

NSW Road Noise Policy (1m from facade)		(see note 6)
Descriptor	Day	Night[5]
	7am-10pm	10pm-7am
$L_{Aeq\ 15\ hr}$ and $L_{Aeq\ 9\ hr}$	69	68
$L_{Aeq\ 1hr}$ upper 10 percentile	70	71
$L_{Aeq\ 1hr}$ lower 10 percentile	68	64

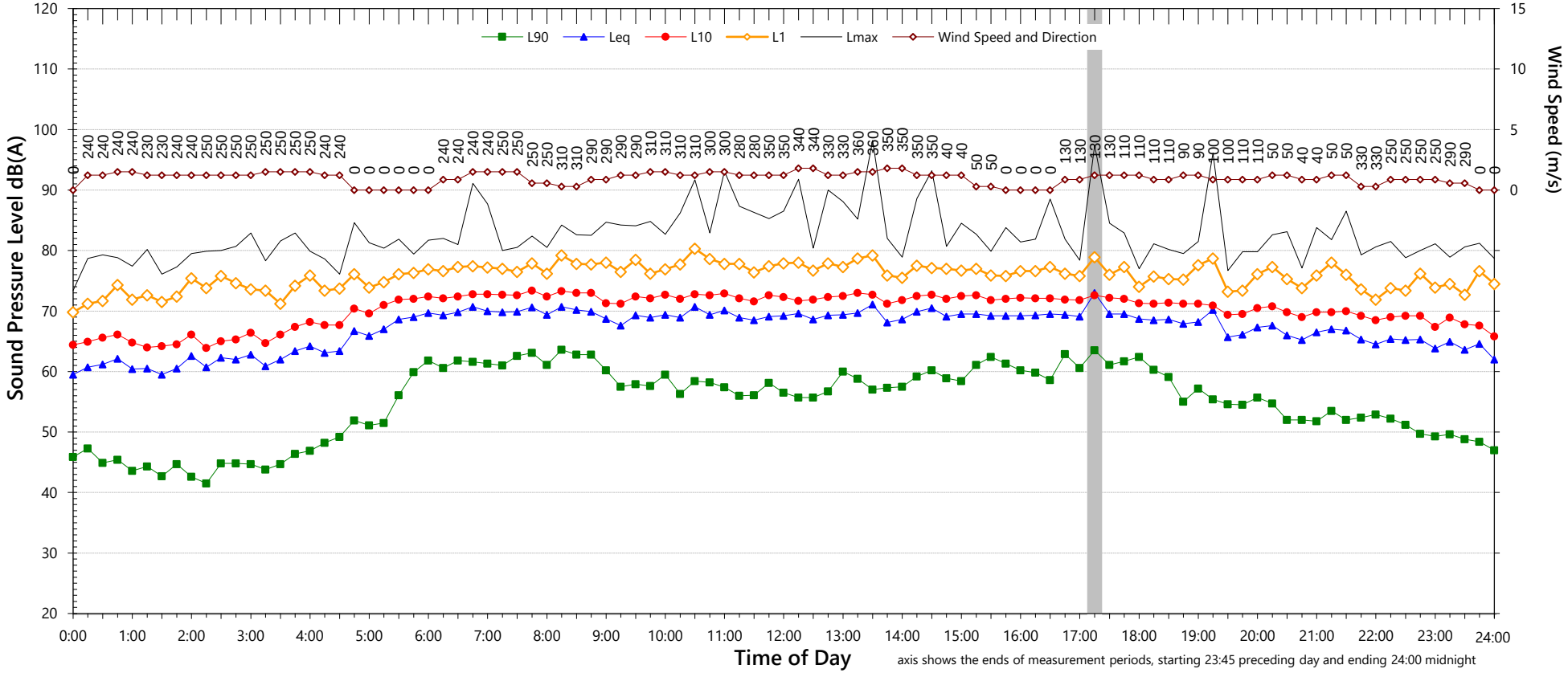
Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
3. "Evening" is the period from 6pm till 10pm
4. "Night" relates to the remaining periods
5. "Night" relates to period from 10pm on this graph to morning on the following graph.
6. Graphed data measured in free-field; tabulated results facade corrected
7. 1-hour values for L_{AFMax} are shown only where L_{AFMax} >65dB(A) and where L_{AFMax}- L_{Aeq} ≥15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Monday, 7 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	**Day[2]**	**Evening[3]**	**Night[4 5]**
L_{A90} ABL	56	52	47
L_{Aeq}	69	67	66

NSW Road Noise Policy (1m from facade)		(see note 6)
Descriptor	**Day**	**Night[5]**
	7am-10pm	**10pm-7am**
$L_{Aeq\ 15\ hr}$ and $L_{Aeq\ 9\ hr}$	71	68
$L_{Aeq\ 1hr}$ upper 10 percentile	72	72
$L_{Aeq\ 1hr}$ lower 10 percentile	69	64

Night Time Maximum Noise Levels			(see note 7)
L_{AFMax} (Range)	79	to	90
L_{AFMax} - L_{Aeq} (Range)	17	to	20

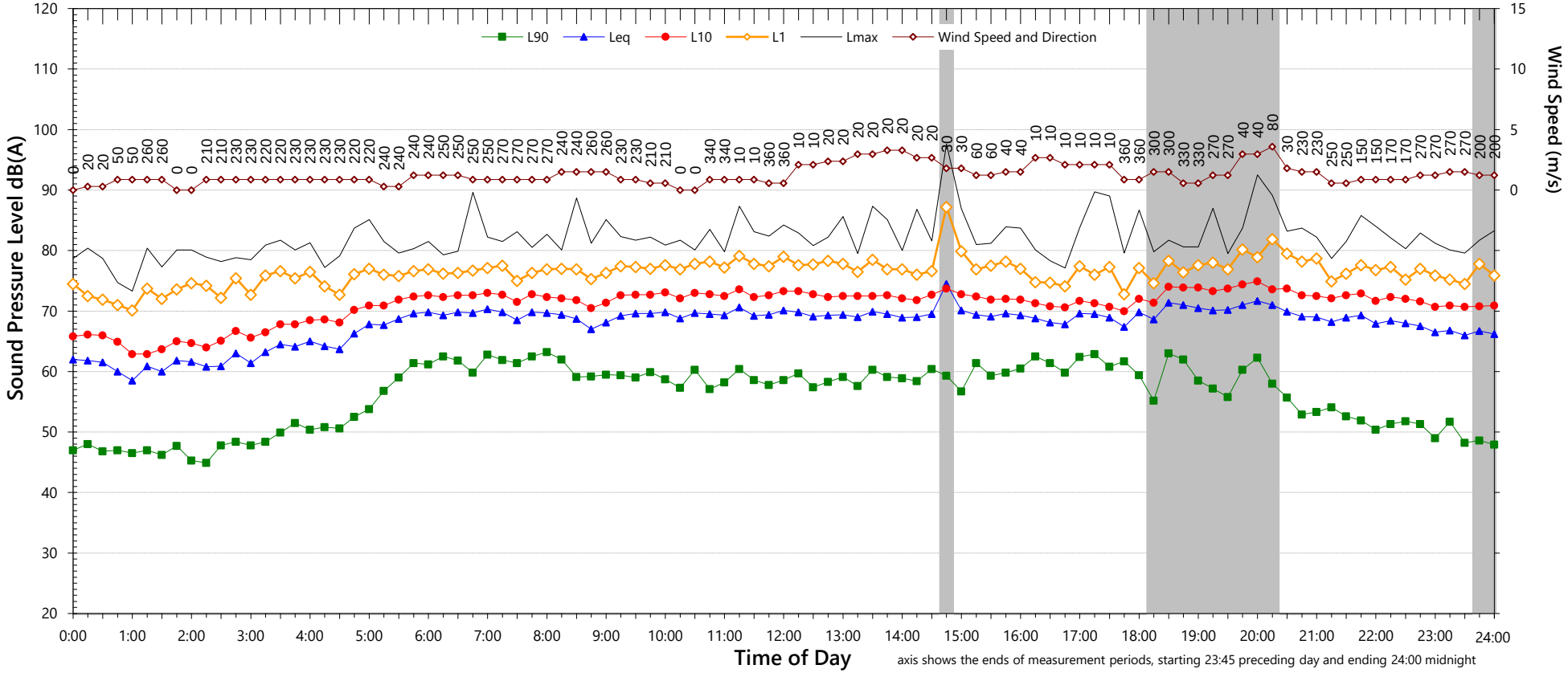
Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
3. "Evening" is the period from 6pm till 10pm
4. "Night" relates to the remaining periods
5. "Night" relates to period from 10pm on this graph to morning on the following graph.
6. Graphed data measured in free-field; tabulated results facade corrected
7. 1-hour values for L_{AFMax} are shown only where L_{AFMax} >65dB(A) and where L_{AFMax}- L_{Aeq} ≥15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Tuesday, 8 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	**Day[2]**	**Evening[3]**	**Night[4 5]**
L_{A90} ABL	58	-	41
L_{Aeq}	69	-	69

NSW Road Noise Policy (1m from facade)		(see note 6)
Descriptor	**Day**	**Night[5]**
	7am-10pm	**10pm-7am**
$L_{Aeq\ 15\ hr}$ and $L_{Aeq\ 9\ hr}$	72	71
$L_{Aeq\ 1hr}$ upper 10 percentile	72	74
$L_{Aeq\ 1hr}$ lower 10 percentile	71	67

Night Time Maximum Noise Levels			(see note 7)
L_{AFMax} (Range)	81	to	94
L_{AFMax} - L_{Aeq} (Range)	15	to	28

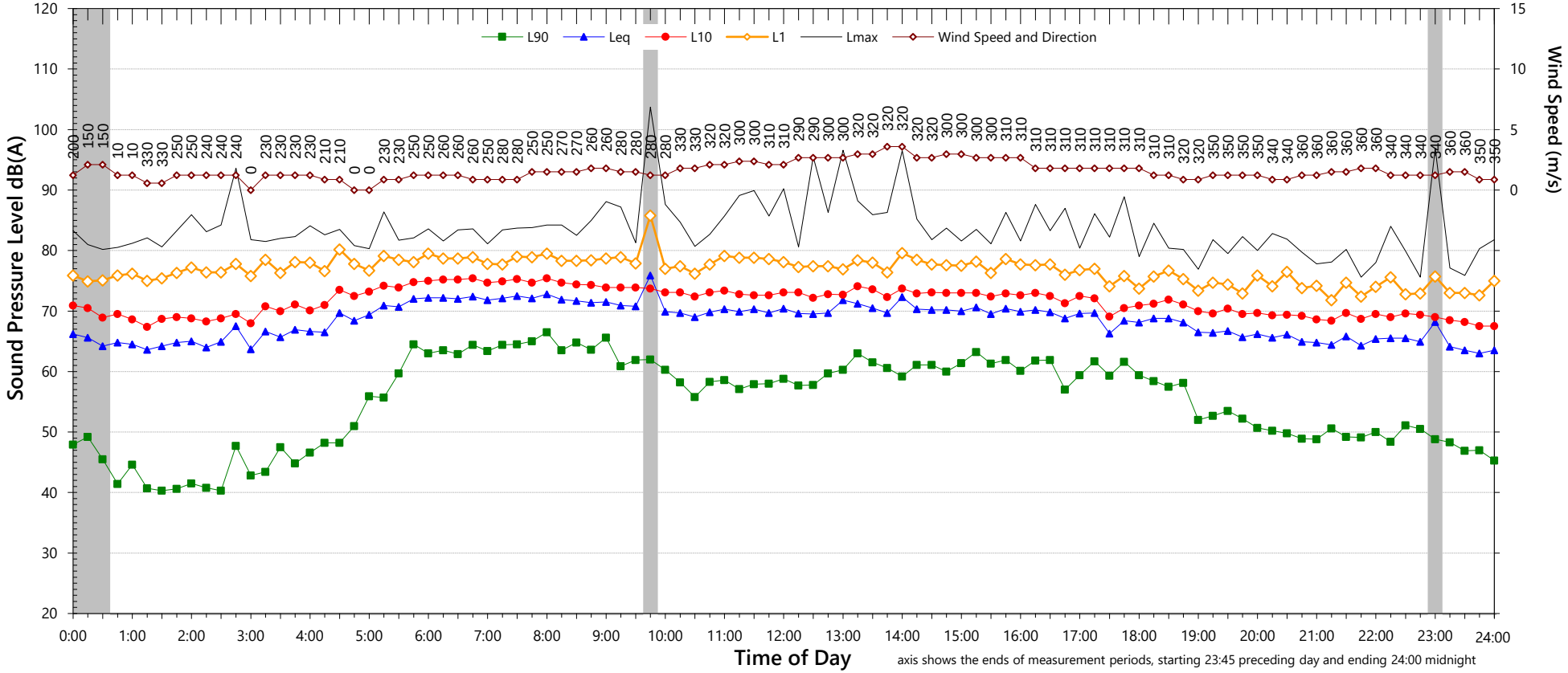
Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
3. "Evening" is the period from 6pm till 10pm
4. "Night" relates to the remaining periods
5. "Night" relates to period from 10pm on this graph to morning on the following graph.
6. Graphed data measured in free-field; tabulated results facade corrected
7. 1-hour values for L_{AFMax} are shown only where L_{AFMax} >65dB(A) and where L_{AFMax}- L_{Aeq} ≥15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Wednesday, 9 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	**Day[2]**	**Evening[3]**	**Night[4 5]**
L_{A90} ABL	58	49	42
L_{Aeq}	70	66	66

NSW Road Noise Policy (1m from facade)		(see note 6)
Descriptor	**Day**	**Night[5]**
	7am-10pm	**10pm-7am**
$L_{Aeq\ 15\ hr}$ and $L_{Aeq\ 9\ hr}$	72	68
$L_{Aeq\ 1hr}$ upper 10 percentile	74	72
$L_{Aeq\ 1hr}$ lower 10 percentile	68	64

Night Time Maximum Noise Levels			(see note 7)
L_{AFMax} (Range)	80	to	92
L_{AFMax} - L_{Aeq} (Range)	17	to	23

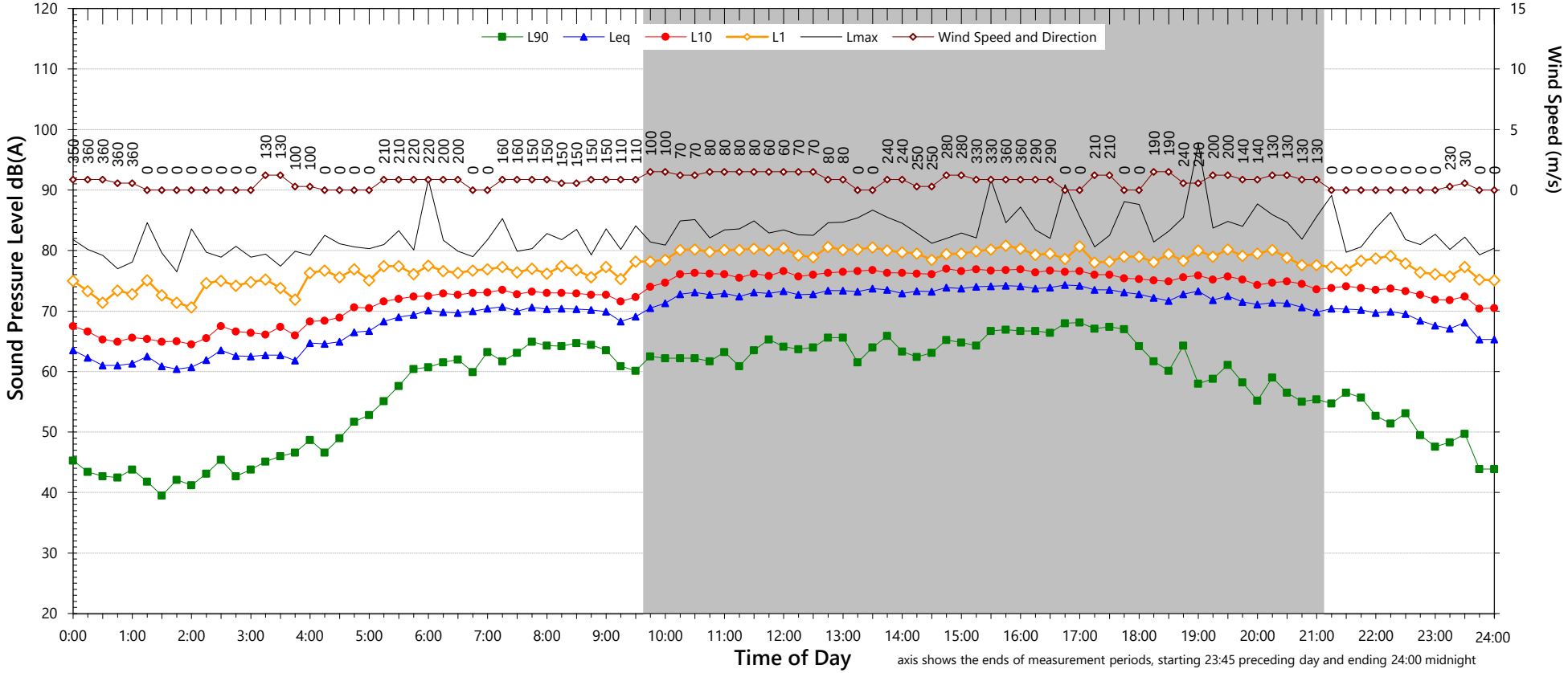
Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
3. "Evening" is the period from 6pm till 10pm
4. "Night" relates to the remaining periods
5. "Night" relates to period from 10pm on this graph to morning on the following graph.
6. Graphed data measured in free-field; tabulated results facade corrected
7. 1-hour values for L_{AFMax} are shown only where L_{AFMax} >65dB(A) and where L_{AFMax}- L_{Aeq} ≥15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Thursday, 10 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day[2]	Evening[3]	Night[4 5]
L_{A90} ABL	-	-	42
L_{Aeq}	-	-	69

Night Time Maximum Noise Levels			(see note 7)
L_{AFMax} (Range)	82	to	97
L_{AFMax} - L_{Aeq} (Range)	16	to	28

NSW Road Noise Policy (1m from facade)		(see note 6)
Descriptor	Day	Night[5]
	7am-10pm	10pm-7am
$L_{Aeq\ 15\ hr}$ and $L_{Aeq\ 9\ hr}$	73	71
$L_{Aeq\ 1hr}$ upper 10 percentile	73	74
$L_{Aeq\ 1hr}$ lower 10 percentile	72	67

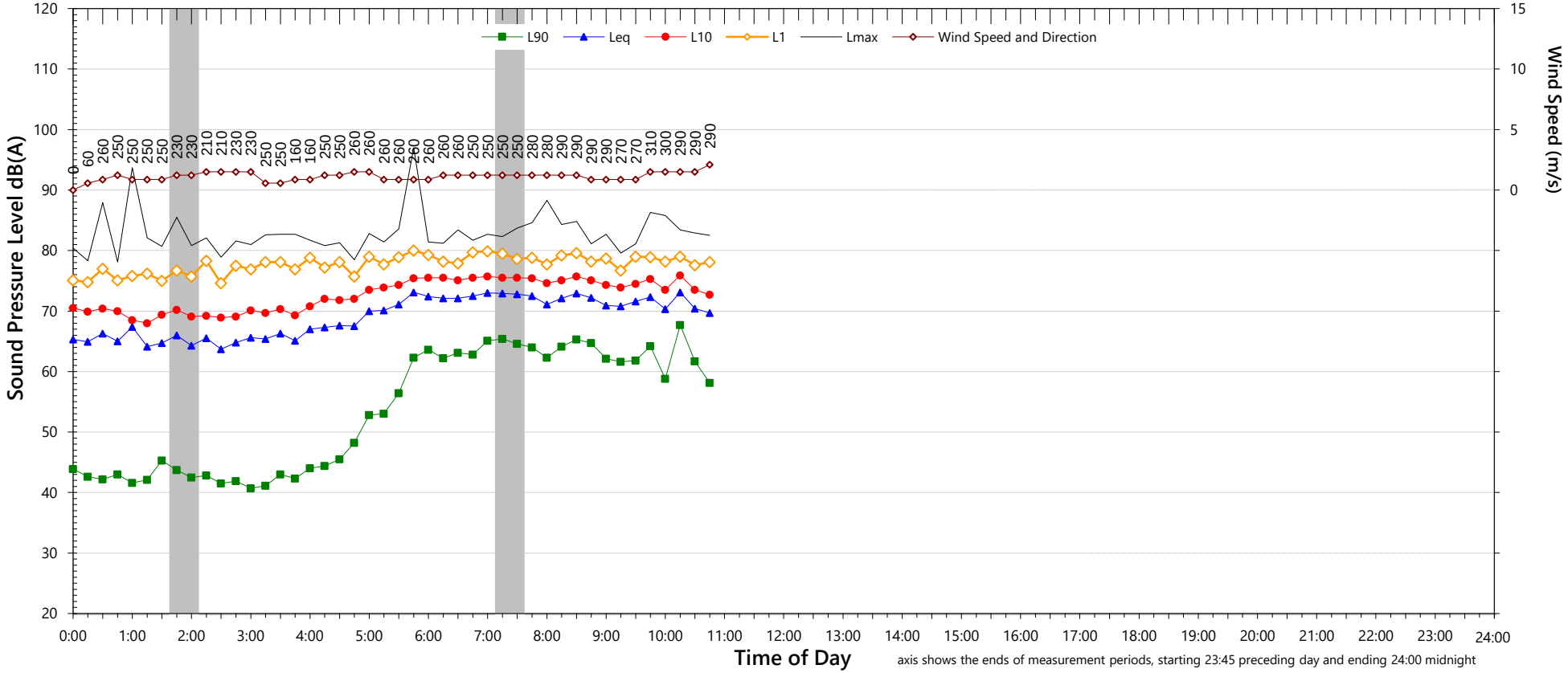
Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
3. "Evening" is the period from 6pm till 10pm
4. "Night" relates to the remaining periods
5. "Night" relates to period from 10pm on this graph to morning on the following graph.
6. Graphed data measured in free-field; tabulated results facade corrected
7. 1-hour values for L_{AFMax} are shown only where L_{AFMax} >65dB(A) and where L_{AFMax}- L_{Aeq} ≥15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Friday, 11 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	**Day[2]**	**Evening[3]**	**Night[4 5]**
L_{A90} ABL	-	-	-
L_{Aeq}	-	-	-

Night Time Maximum Noise Levels			(see note 7)
L_{AFMax} (Range)	-	to	-
L_{AFMax} - L_{Aeq} (Range)	-	to	-

NSW Road Noise Policy (1m from facade)		(see note 6)
Descriptor	**Day**	**Night[5]**
	7am-10pm	**10pm-7am**
$L_{Aeq\ 15\ hr}$ and $L_{Aeq\ 9\ hr}$	-	-
$L_{Aeq\ 1hr}$ upper 10 percentile	-	-
$L_{Aeq\ 1hr}$ lower 10 percentile	-	-

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
3. "Evening" is the period from 6pm till 10pm
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6. Graphed data measured in free-field; tabulated results facade corrected
7. 1-hour values for L_{AFMax} are shown only where L_{AFMax} >65dB(A) and where L_{AFMax}- L_{Aeq} ≥15dB(A)