

**ENVIRONMENTAL NOISE COMPLIANCE
REPORT FOR
VISY PULP AND PAPER PTY LIMITED
TUMUT, NSW**

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Benbow
ENVIRONMENTAL

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 - Attachment 3: Logger Graphs
 - Attachment 4: Instrument Calibration Certificates
 - Attachment 5: Noise Complaint Register (past 12 months)





1. INTRODUCTION

This report presents the findings of the environmental noise compliance assessment undertaken by Benbow Environmental for Visy Pulp and Paper Pty Limited. The site is located at 436 Gadara St. Tumut, NSW.

Benbow Environmental (BE) was commissioned to prepare the noise compliance assessment as part of the actions required in the environmental management plan for the site.

Both long-term unattended and short-term attended noise monitoring was undertaken at several locations in the vicinity of the site. The locations utilised represent the most sensitive receivers that were accessible in the site surroundings and are locations used previously in noise assessments of the site.

Unattended noise monitoring was conducted between 15th November 2011 and 26th November 2011. Attended noise measurements were conducted on 16th November 2011 and on 7th/ 8th March 2012.

1.1 SCOPE

The scope of works for this study was to prepare a noise compliance assessment under standard operations for the Visy Pulp and Paper site in accordance with the Director General's Environmental Assessment Report and the NSW EPA Industrial Noise Policy (INP).

The scope of the study was limited to the following:

- Unattended noise logging over a minimum 7 days at the nearest potentially affected receivers;
- Attended daytime, evening and night time noise monitoring at the nearest potentially affected receivers;
- Analysis of all recorded noise data including filtering periods of weather that, in accordance with the NSW Environment Protection Authority requirements, is deemed to affect noise results;
- Details of any entries in the Complaints Register relating to noise impacts;
- Preparation of report compiling results; and
- Statement of current environmental noise compliance.

Supporting documentation has been included within the Attachments section of this report.

Noise complaints received in the past 12 months have been recorded in the Complaint Register. Details are displayed in attachment 5.



2. RELEVANT ACOUSTIC CRITERIA

2.1 ALLOWABLE NOISE LEVELS - RESIDENCES

Allowable noise levels detailed in the Director General's Environmental Assessment Report are provided as follows. The locations of residential receptors are presented in the following section.

Table 2-1: Maximum Allowable Noise Contribution				
Location	Day 7.00am to 6.00pm Mondays to Saturdays, 8.00am to 6.00pm Sundays & Public Holidays	Evening 6.00pm to 10.00pm on any day	Night 10.00pm to 7.00am Mondays to Saturdays, 10.00pm to 8.00am Sundays & Public Holidays	
	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{Amax}
Pleasant View	40	40	40	45
Deep Creek	39	39	39	45
Reka & Glengarry	36	36	36	45
Any other residence	35	35	35	45

The above limits apply with wind speeds of up to 3 m/s and temperature inversions of up to 3 °C with wind speeds of up to 2 m/s.

Noise must be assessed at any point within the residential boundary, or at any point within 30 metres from the dwelling where the dwelling is more than 30 metres from the boundary.



3. NOISE MONITORING LOCATIONS AND METHODOLOGY

A brief outline of the methodology applied to the measurement of the existing ambient noise environment has been detailed below.

3.1 INSTRUMENTATION

The background noise level measurements were carried out using a Svantek SVAN949 and SVAN957 Type 1 Precision Sound Level Meter (short-term monitoring) and five (5) EL-215 Environmental Noise Loggers (long-term unattended noise monitoring). The instrument sets were calibrated by a NATA accredited laboratory within two years of the measurement period and comply with AS 1259.

The instruments were set on A-weighted, fast response and logged noise levels over fifteen minute statistical intervals. Observations were recorded during logger establishment for unattended noise monitoring and during the measurement interval for attended noise monitoring.

The microphones were positioned at 1.2 m above ground level and were fitted with windsocks. Each instrument was calibrated using a Rion NC 74 acoustic calibrator before and after the measurement period to ensure the reliability and accuracy of the instrument sets. There were no significant variances observed in the reference signal between the pre-measurement and post-measurement calibrations.

QA/QC procedures as applied to the measurement and analysis of noise levels are presented in the Attachments section of this report. Instrument calibration certificates have also been included in the Attachments section.

3.2 NOISE MONITORING LOCATIONS

Detailed below is a description of the noise monitoring locations utilised in the undertaking of this environmental noise assessment.

The residential locations are shown in Figure 3-1 and the noise monitoring locations are presented in Figure 3-2. The following are the Residential locations considered in the previous noise assessment:

- | | |
|------------------------|------------------------|
| 1. Havilah | 10. The Lagoon (Beale) |
| 2. Pleasant View | 11. Gentle |
| 3. Minjiary | 12. Moonapinna |
| 4. Reka | 13. Federal Estate |
| 5. Woomera | 14. Willow Bend |
| 6. Whispering Pine | 19. Property Residence |
| 7. Deep Creek | 21. Rip |
| 8. Glengarry | 22. Brentwood |
| 9. Glenroy Park | |
| 9a. Property Residence | |



Locations 1, 5 and 7 don't need to be assessed as they have been included within the Visy Pulp and Paper Boundaries and/or are owned by Visy Pulp and Paper.

Noise monitoring at location 8 is considered representative of locations 9 and 9a.

Location 10 is considered to be representative of locations 19 and 14, and location 11 has been utilised to represent locations 13 and 14.

For location 2, the resident was unable to provide access during this round of the noise monitoring. This residence is elevated to the site and although not exactly the same in terms of elevation, measurements at Reka are at similar separation distance and these noise readings can give an indication of the noise level at Pleasant View.

However for future noise compliance assessments access to Pleasant View is preferred in order to properly test noise compliance at this location.

Figure 3-1: Residential Locations

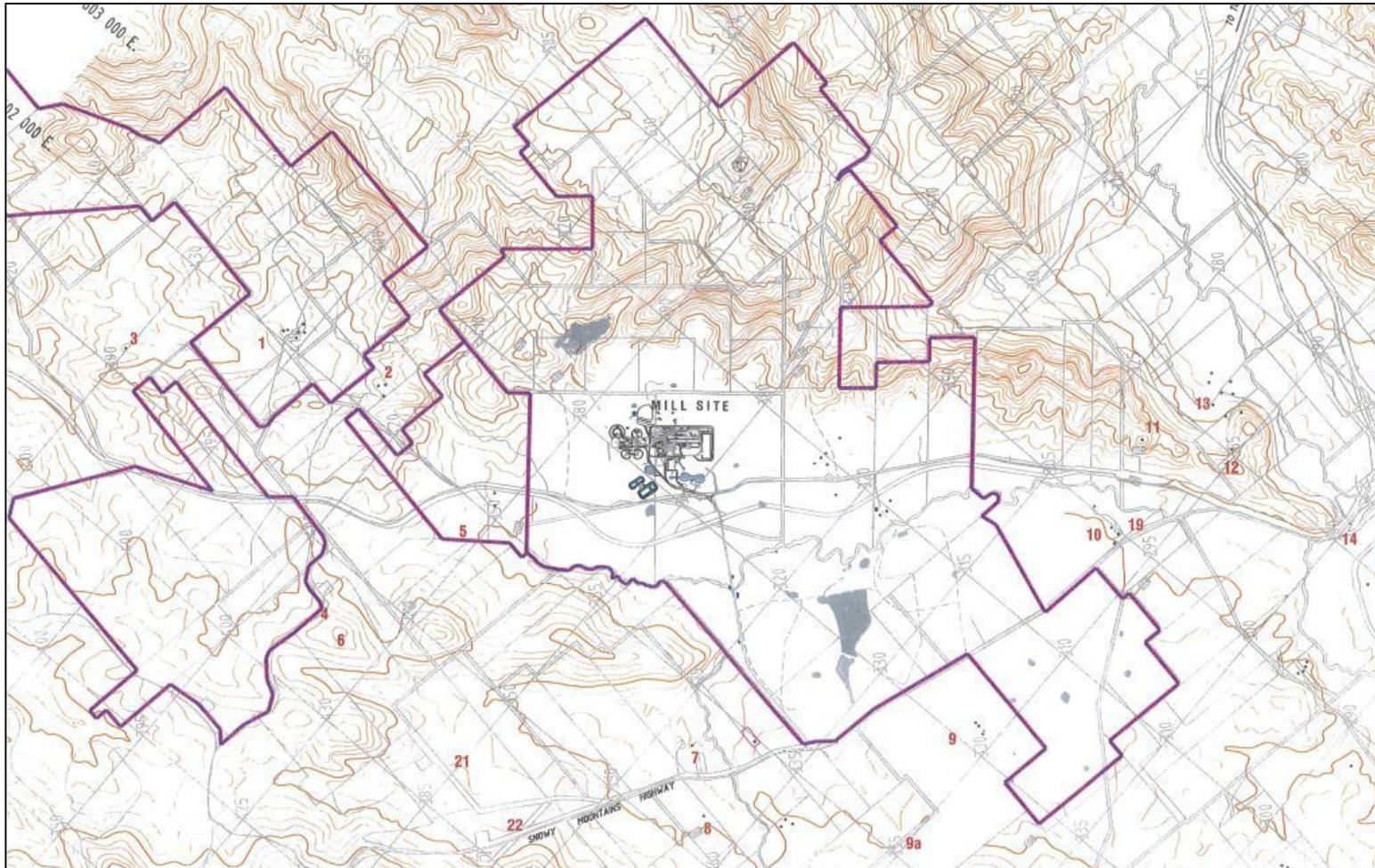
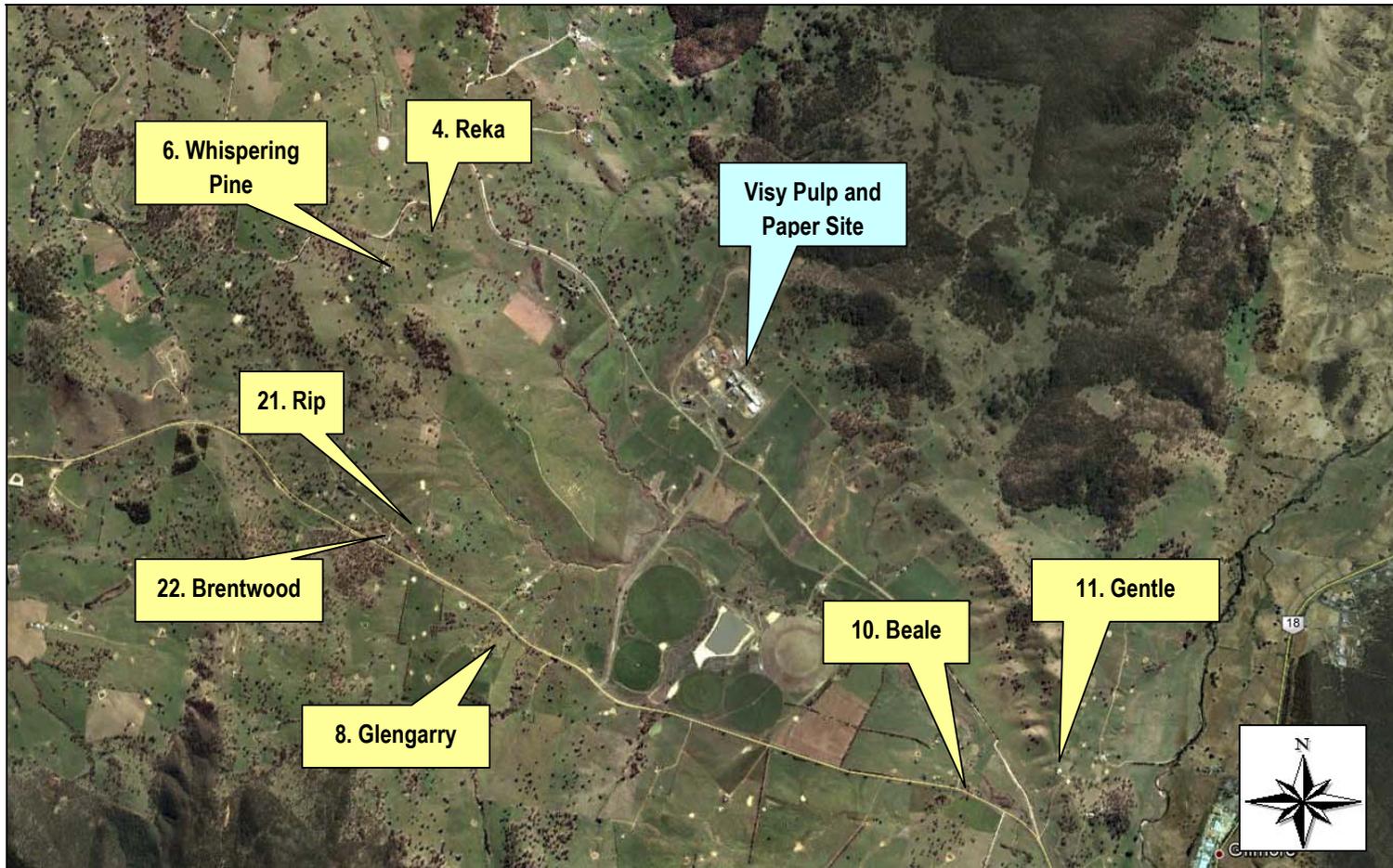


Figure 3-2: Noise Monitoring Locations



*Source: Google Maps 2011



4. NOISE MONITORING RESULTS

This section presents the results of the detailed noise-monitoring program. Relevant comments and observations are also presented in this section.

Unattended noise monitoring was undertaken at the following five residential locations:

4. Reka
8. Glengarry
11. Gentle
10. Beale
22. Brentwood

Operator attended noise monitoring was undertaken at the five aforementioned locations in addition to the following two locations:

6. Whispering Pine
21. Rip

For Pleasant View, two alternate locations were investigated, one near the Visy site on a line of sight between the site and Pleasant View and the other on the roadway west of Pleasant View and at the same elevation. However, neither was suitable for compliance noise testing and the results are only indicative of the possible noise level at Pleasant View.

4.1 UNATTENDED NOISE MONITORING RESULTS

The results recorded by the environmental noise loggers at the five residential locations are presented from Table 4-1 to Table 4-5.

Meteorological data including precipitation and wind speed was obtained from the Meteorological Station installed at the Visy Pulp and Paper site. This data was considered to be representative of the weather conditions at the noise logger locations. Noise logger data recorded during potentially inclement weather including precipitation and wind speeds greater than 5 m/s was excluded from the analysis.

In viewing the reported results, it is important to note that the values obtained from the noise loggers are influenced by all sources within the localised region. As such, the results of the attended monitoring program need to be considered.

The daily noise logger graphs have been included in the Attachments section. The unattended noise monitoring results are presented in the following pages.



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Table 4-1: Measured Noise Levels – Unattended Noise Monitoring (Location 4 Reka)
 Values expressed in dB(A)

Date	Average L _{A10} Noise Level			Assessment Background Noise Level (L _{A90})			Average L _{Aeq} Noise Level		
	Day (7am – 6pm)	Evening (6pm – 10pm)	Night (10pm – 7am)	Day (7am – 6pm)	Evening (6pm – 10pm)	Night (10pm – 7am)	Day (7am – 6pm)	Evening (6pm – 10pm)	Night (10pm – 7am)
Wed, 16/11/2011	45	40	42	31	26	33	50	40	40
Thu, 17/11/2011	41	44	42	29	29	33	43	44	43
Fri, 18/11/2011	42	45	44	31	33	37	43	44	44
Sat, 19/11/2011	43	43	45	31	34	37	43	43	45
Sun, 20/11/2011	-	-	41	-	-	32	-	-	40
Mon, 21/11/2011	39	41	43	29	30	36	41	40	43
Tue, 22/11/2011	42	36	43	29	26	31	43	37	44
Wed, 23/11/2011	41	48	42	32	37	32	41	48	43
Thu, 24/11/2011	-	48	45	-	40	36	-	46	46
Average Value	42	43	43	-	-	-	-	-	-
Median Value	-	-	-	31	31	33	-	-	-
Logarithmic Average	-	-	-	-	-	-	45	44	43

Note: * denotes values have been affected by inclement weather therefore withdrawn from the statistical analysis.
 - denotes irrelevant values for noise descriptor.
 # denotes no measured data for the time period.



Comments:

The noise emission from the Visy Pulp and Paper site is composed of both steady and intermittent noise sources.

During the logger placement and retrieval, the subject site was observed to give the major contribution to the background noise levels and therefore the L_{A90} can be considered as totally given by the Visy site and be representative of the steady noise sources. However, the L_{A90} descriptor cannot be compared with the criteria, as the criteria utilise the equivalent noise level over any 15 minute period ($L_{Aeq(15 \text{ minute})}$) as the descriptor.

The intermittent noise sources, in particular chipping, are likely to increase the overall noise emission from the Visy Pulp and Paper site over any 15 minute assessment period ($L_{Aeq(15 \text{ minute})}$); this level is likely to exceed the statutory limits outlined in the criteria section.

The L_{Aeq} obtained from the unattended monitoring includes site-related noise sources and extraneous noise sources (community activities, wildlife). It does not represent the noise emission from the site but it can be utilised as a cross reference with the operator attended noise monitoring and observations.

Attended noise monitoring is considered to be the appropriate method to assess the intermittent noise contribution and the overall noise emission from the site.



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Table 4-2: Measured Noise Levels – Unattended Noise Monitoring (Location 8 Glengarry)

Values expressed in dB(A)

Date	Average L _{A10} Noise Level			Assessment Background Noise Level (L _{A90})			Average L _{Aeq} Noise Level		
	Day (7am – 6pm)	Evening (6pm – 10pm)	Night (10pm – 7am)	Day (7am – 6pm)	Evening (6pm – 10pm)	Night (10pm – 7am)	Day (7am – 6pm)	Evening (6pm – 10pm)	Night (10pm – 7am)
Wed, 16/11/2011	48	48	46	34	36	36	46	46	45
Thu, 17/11/2011	45	48	47	33	35	34	44	46	45
Fri, 18/11/2011	47	48	47	33	35	38	56	46	46
Sat, 19/11/2011	50	49	46	35	38	38	48	48	45
Sun, 20/11/2011	-	-	47	-	-	35	-	-	47
Mon, 21/11/2011	45	51	45	33	35	33	44	55	44
Tue, 22/11/2011	47	44	45	33	34	33	46	43	46
Wed, 23/11/2011	45	51	46	33	38	33	45	49	48
Thu, 24/11/2011	-	49	45	-	38	35	-	46	44
Average Value	47	49	46	-	-	-	-	-	-
Median Value	-	-	-	33	36	35	-	-	-
Logarithmic Average	-	-	-	-	-	-	50	49	46

Note: * denotes values have been affected by inclement weather therefore withdrawn from the statistical analysis.
 - denotes irrelevant values for noise descriptor.
 # denotes no measured data for the time period.



Comments:

This location is surrounded by vegetation, and birds and crickets were observed to be present in the vicinity of the noise logger.

The birds are likely to influence the noise measurement during the daytime and consequently increase the L_{Aeq} . However, road traffic noise was observed to give the main contribution to the L_{Aeq} levels.

Crickets contribute to increase the background noise level during evening and night time, increasing the L_{A90} and therefore steady noise emission from the subject site is expected to be less than the measured L_{A90} .



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Table 4-3: Measured Noise Levels – Unattended Noise Monitoring (Location 11 Brian and Kerry Gentle)

Values expressed in dB(A)

Date	Average L _{A10} Noise Level			Assessment Background Noise Level (L _{A90})			Average L _{Aeq} Noise Level		
	Day (7am – 6pm)	Evening (6pm – 10pm)	Night (10pm – 7am)	Day (7am – 6pm)	Evening (6pm – 10pm)	Night (10pm – 7am)	Day (7am – 6pm)	Evening (6pm – 10pm)	Night (10pm – 7am)
Wed, 16/11/2011	50	48	48	35	32	33	47	45	45
Thu, 17/11/2011	52	49	48	35	32	33	60	45	46
Fri, 18/11/2011	51	48	49	34	32	32	50	48	46
Sat, 19/11/2011	48	49	45	33	35	31	48	68	45
Sun, 20/11/2011	-	-	44	-	-	31	-	-	45
Mon, 21/11/2011	51	50	46	35	33	30	48	46	46
Tue, 22/11/2011	51	49	49	37	30	28	50	47	47
Wed, 23/11/2011	50	53	49	34	39	28	47	52	47
Thu, 24/11/2011	-	46	47	-	36	30	-	46	45
Average Value	50	49	47	-	-	-	-	-	-
Median Value	-	-	-	35	32	31	-	-	-
Logarithmic Average	-	-	-	-	-	-	53	59	46

Note: * denotes values have been affected by inclement weather therefore withdrawn from the statistical analysis.
 - denotes irrelevant values for noise descriptor.
 # denotes no measured data for the time period.



Comments:

The residence is located on a hill and the subject site was observed to be inaudible during the logger placement and retrieval.

The road traffic noise and wildlife are the main noise sources that would contribute to the measured L_{Aeq} .

Steady noise emissions from the Visy Pulp and Paper site are considered to be equal or minor to the measured $LA90$.



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Table 4-4: Measured Noise Levels – Unattended Noise Monitoring (Location 10 Beale)
Values expressed in dB(A)

Date	Average L _{A10} Noise Level			Assessment Background Noise Level (L _{A90})			Average L _{Aeq} Noise Level		
	Day (7am – 6pm)	Evening (6pm – 10pm)	Night (10pm – 7am)	Day (7am – 6pm)	Evening (6pm – 10pm)	Night (10pm – 7am)	Day (7am – 6pm)	Evening (6pm – 10pm)	Night (10pm – 7am)
Wed, 16/11/2011	61	57	56	39	33	31	63	54	54
Thu, 17/11/2011	58	59	56	36	36	30	54	55	54
Fri, 18/11/2011	59	59	56	35	35	32	55	55	54
Sat, 19/11/2011	56	57	52	34	37	32	55	54	51
Sun, 20/11/2011	-	-	47	-	-	31	-	-	48
Mon, 21/11/2011	60	59	53	37	33	29	56	55	54
Tue, 22/11/2011	60	58	55	38	30	29	56	55	54
Wed, 23/11/2011	58	57	54	36	39	29	55	54	54
Thu, 24/11/2011	59	55	55	44	36	31	55	54	54
Average Value	59	58	54	-	-	-	-	-	-
Median Value	-	-	-	36	35	31	-	-	-
Logarithmic Average	-	-	-	-	-	-	57	55	53

Note: * denotes values have been affected by inclement weather therefore withdrawn from the statistical analysis.
- denotes irrelevant values for noise descriptor.
denotes no measured data for the time period.



Comments:

This location has been observed to be highly affected by road traffic noise, and the site noise was inaudible during the noise logger placement and retrieval.

The results in the table show high levels of L_{A10} and this describes the high influence of road traffic noise.

Low levels of background noise have been recorded during night-time; this indicates low contributions from the steady on-site noise sources.



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Table 4-5: Measured Noise Levels – Unattended Noise Monitoring (Location 22 Brentwood)

Values expressed in dB(A)

Date	Average L _{A10} Noise Level			Assessment Background Noise Level (L _{A90})			Average L _{Aeq} Noise Level		
	Day (7am – 6pm)	Evening (6pm – 10pm)	Night (10pm – 7am)	Day (7am – 6pm)	Evening (6pm – 10pm)	Night (10pm – 7am)	Day (7am – 6pm)	Evening (6pm – 10pm)	Night (10pm – 7am)
Wed, 16/11/2011	55	51	51	40	34	34	57	49	52
Thu, 17/11/2011	54	56	51	37	35	33	51	55	55
Fri, 18/11/2011	54	56	55	38	39	36	53	55	57
Sat, 19/11/2011	54	54	56	40	35	38	52	52	55
Sun, 20/11/2011	-	-	49	-	-	32	-	-	51
Mon, 21/11/2011	55	51	47	39	35	33	52	49	49
Tue, 22/11/2011	54	49	48	38	32	32	53	49	58
Wed, 23/11/2011	54	55	50	38	41	30	51	53	50
Average Value	54	53	51	-	-	-	-	-	-
Median Value	-	-	-	38	35	33	-	-	-
Logarithmic Average	-	-	-	-	-	-	53	52	54

Note: * denotes values have been affected by inclement weather therefore withdrawn from the statistical analysis.

- denotes irrelevant values for noise descriptor.

denotes no measured data for the time period.



Comments:

Extreme intense activity from parrots was observed at this location and this affected all the measured descriptors during the daytime.

Noise emission from the subject site is expected to be lower than the measured LA90 during the day time and equal or less than the LA90s measured during the evening and night time.

Road traffic noise and wildlife give the main noise contribution to the measured LAeq.

4.2 ATTENDED NOISE MONITORING RESULTS

Attended noise monitoring was carried out at the seven noise monitoring locations during the day and night time periods.

Attended monitoring was undertaken during what was considered to be normal operations. This procedure therefore allows for a more detailed understanding of site-specific noise characteristics and meaningful final analysis to be undertaken.

The results of the attended monitoring are presented in the following pages. Noise levels generally consistent with the values recorded by the environmental noise loggers were observed. The values obtained during the detailed attended noise-monitoring program were the primary reference in the assessment of site compliance with the relevant acoustic criteria.

The following tables present the results of the attended noise measurement undertaken on 16th November 2011 and 7th/8th March 2012.

Several noise sources have been identified during the measurements. Thus, during the attended monitoring period, the site-related noise levels have been observed and reported for this assessment.

The site-related main noise contributions have been observed to be given by the wood yard area, in particular the highest noise emission was from the wood chipping operation.

A hum from the other sections of the paper mill has been observed and its contribution was measured when the wood yard was not operating.



Table 4-6: Measured Noise Levels, Attended Noise Monitoring – Daytime Period, dB(A)				
Measurement Location	Noise Descriptor	dB(A)	Observed Meteorological Conditions	Comments
Location 11 Brian and Kerry Gentle Wednesday 16/11/2011 9:10am – 9:25am	L _{A10}	52.7	Cloudy, light wind	<ul style="list-style-type: none"> • Dog running near sound level meter ~ 50 dB(A) • Cars on Snowy Mountain Hwy ~ 44 - 52 dB(A) • Site noise inaudible < 39 dB(A) • Airplane ~ 51dB(A) • Insects ~ 43 dB(A) • Trucks on Snowy Mountains Hwy ~ 54 - 57 dB(A) • Dog bark ~ 60 dB(A) • Quiet period ~ 40 dB(A) site still inaudible
	L _{Aeq}	49.2		
	L _{A90}	42.1		
Location 4 Reka Wednesday 16/11/2011 10:05am – 10:20am	L _{A10}	46.9	Cloudy, light wind	<ul style="list-style-type: none"> • Traffic noise audible in the distance ~ 39-43 dB(A) • Truck on Snowy Mountain Hwy ~ 44 dB(A) • Site noise audible but measurement influenced by extraneous noise (e.g. birds and insects) ~ 39 - 41 dB(A) • Birds ~ 57dB(A) • Insects ~ 43 dB(A) • Quiet period ~ 39 - 41 dB(A) (birds, distant traffic and site hum audible)
	L _{Aeq}	44.8		
	L _{A90}	39.3		
Location 6 Whispering Pine Wednesday 16/11/2011 10:31am – 10:46am	L _{A10}	49.1	Cloudy, light wind	<ul style="list-style-type: none"> • Rooster (every ~ 10 seconds) ~ 60-62 dB(A) • Birds ~ 42- 63 dB(A) • Site noise audible ~ 39 dB(A) • Distant traffic noise ~ 39 dB(A) • Intermittent insects noise (every few seconds) ~ 42 dB(A) • Wind blast (for 5-6 seconds) ~ 43 dB(A) • Quiet period ~ 39 -40 dB(A) (distant birds, distant traffic and site audible)
	L _{Aeq}	46.8		
	L _{A90}	37.7		



Table 4-7: Measured Noise Levels, Attended Noise Monitoring – Daytime Period, dB(A)				
Measurement Location	Noise Descriptor	dB(A)	Observed Meteorological Conditions	Comments
Location 22 Brentwood Wednesday 16/11/2011 11:10am – 11:25am	L _{A10}	56.2	Cloudy, light wind	<ul style="list-style-type: none"> • Constant parrot noise ~ max 59.3 dB(A) • Cars on Snowy Mountain Hwy ~ 48 – 57 dB(A) • Site noise inaudible because of parrot activity < 43 dB(A) • Neighbour's mower ~ 48dB(A) • Two events of pump hiss ~ 52 dB(A) • Trucks on Snowy Mountains Hwy ~ 57 – 59 dB(A)
	L _{Aeq}	52.9		
	L _{A90}	44.5		
Location 21 Rip Wednesday 16/11/2011 11:35am – 11:50am	L _{A10}	51.1	Cloudy, light wind	<ul style="list-style-type: none"> • Traffic on Snowy Mountain Hwy ~ 48-53 dB(A) • Birds ~ 45 – 53 dB(A) • Site noise inaudible • Door Slam (3 times) ~ 75dB(A) • Few hits in the garden area ~ 73dB(A) • Voice and cough ~ 50-58dB(A) • Birds ~ 57dB(A) • Insects ~ 43 dB(A) • Quiet periods ~ 42dB(A) Site inaudible
	L _{Aeq}	51		
	L _{A90}	40.1		
Location 8 Glengarry Wednesday 16/11/2011 12:00 pm – 12:15pm	L _{A10}	49.9	Cloudy, light wind	<ul style="list-style-type: none"> • Trucks on Snowy Mountains Hwy ~ 50 - 53 dB(A) • Birds ~ 45-46 dB(A) • Site noise inaudible • Insects ~ 42 dB(A) • Intermittent insects noise (every few seconds) ~ 43dB(A) • Wind blast ~ 48 - 52 dB(A) excluded from the measurement • Quiet period ~ 43 dB(A) site inaudible (wildlife and traffic main sources)
	L _{Aeq}	47.2		
	L _{A90}	41.5		



Table 4-8: Measured Noise Levels, Attended Noise Monitoring – Daytime Period, dB(A)				
Measurement Location	Noise Descriptor	dB(A)	Observed Meteorological Conditions	Comments
Location 10 Beale Wednesday 16/11/2011 12:25pm – 12:40am	L _{A10}	56.2	Cloudy, light wind	<ul style="list-style-type: none"> Trucks on Snowy Mountain Hwy ~ 65 – 69 dB(A) Site noise inaudible ≤ 35 dB(A) Child playing ~ 59-60dB(A) Birds ~ 54 dB(A) Voices ~ 50 dB(A) Quiet period ~ 34-35 dB(A) distant hum audible (traffic + site noise)
	L _{Aeq}	52.9		
	L _{A90}	44.5		



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Table 4-9: Measured Noise Levels, Attended Noise Monitoring – Evening time Period, dB(A)				
Measurement Location	Noise Descriptor	dB(A)	Observed Meteorological Conditions	Comments
Location 11 Brian and Kerry Gentle Wednesday 7/03/2012 7:08pm – 7:23pm	L _{A10}	53.0	Clear, light wind	<ul style="list-style-type: none"> Trucks on Snowy Mountains Highway audible ~ 56 - 60 dB(A) Dog Steps ~ 55 dB(A) Crickets (constant) ~ 50-51 dB(A) Birds ~ 51 dB(A) Wind through leaves ~ 50 dB(A) Site noise inaudible Quiet period ~ 46 dB(A) site inaudible
	L _{Aeq}	51.2		
	L _{A90}	48.7		
Location 4 Reka Wednesday 7/03/2012 8:50pm – 9:05pm	L _{A10}	58.1	Clear, no wind	<ul style="list-style-type: none"> Crickets ~ 55-60 dB(A) Frogs ~ 54-60 dB(A) Site noise audible ~ 40-43 dB(A) Sources – chipping, steady state noise
	L _{Aeq}	56.7		
	L _{A90}	54.7		
Location 6 Whispering Pine Wednesday 7/03/2012 8:30pm – 8:45pm	L _{A10}	52.7	Clear, no wind	<ul style="list-style-type: none"> Crickets ~ 51-52 dB(A) Cow ~ 51-52 dB(A) One Truck particularly noisy ~ 45 dB(A) Site noise audible ~ 40-42 dB(A) Sources – chipping, steady state noise
	L _{Aeq}	51.6		
	L _{A90}	50.3		
Location 22 Brentwood Wednesday 7/03/2012 7:34pm – 7:49pm	L _{A10}	58.8	Clear, light wind	<ul style="list-style-type: none"> Cars on Snowy Mountain Hwy ~ 57- 61 dB(A) Site noise inaudible Crickets (constant) ~ 53- 56 dB(A) Birds ~ 57- 61 dB(A) with max of 67 dB(A) Wind through leaves ~ 55 dB(A) Quiet period ~ 44 dB(A) site still inaudible
	L _{Aeq}	57.2		
	L _{A90}	53.1		



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Table 4-9: Measured Noise Levels, Attended Noise Monitoring – Evening time Period, dB(A)				
Measurement Location	Noise Descriptor	dB(A)	Observed Meteorological Conditions	Comments
Location 21 Rip Wednesday 7/03/2012 7:57pm – 8:12pm	L _{A10}	51.9	Clear, light wind	<ul style="list-style-type: none"> Trucks on Snowy Mountain Hwy ~ 49-56 dB(A) Crickets (constant) ~ 48-49 dB(A) Birds ~ 48-59 dB(A) Wind through leaves ~ 52 dB(A) Water pump ~ 52 dB(A) Dog barking ~ 50 dB(A) Site noise inaudible Quiet period ~ 46 dB(A)
	L _{Aeq}	50.2		
	L _{A90}	47.4		
Location 8 Glengarry Wednesday 7/03/2012 6:40pm – 6:55pm	L _{A10}	52.3	Light cloudy, light wind	<ul style="list-style-type: none"> Wind through leaves ~ 52 dB(A) Cows ~ 54-56 dB(A) Crickets ~ 51-53 dB(A) Traffic on Snowy mountain hwy ~ 53 dB(A) Birds ~ 57 dB(A) Site noise inaudible No quiet period observed during the 15 minute measurement
	L _{Aeq}	51.3		
	L _{A90}	50.0		
Location 10 Beale Wednesday 7/03/2012 6:18pm – 6:33pm	L _{A10}	60.7	Cloudy, light wind	<ul style="list-style-type: none"> Site noise inaudible Trucks on Snowy Mountains Hwy ~ 66-70 dB(A) Cars on Snowy Mountains Hwy ~ 60-64 dB(A) Birds ~ 56-58 dB(A) Airplane ~ 55-58 dB(A) Dog's Bark ~ 63 dB(A) Motorbike ~ 62 dB(A) No quiet period observed during the 15 minute measurement



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Table 4-10: Measured Noise Levels, Attended Noise Monitoring – Night time Period, dB(A)				
Measurement Location	Noise Descriptor	dB(A)	Observed Meteorological Conditions	Comments
Location 11 Brian and Kerry Gentle Wednesday 7/03/2012 10:26pm – 10:41pm	L _{A10}	51.7	Clear, light wind	<ul style="list-style-type: none"> • Crickets ~ 44-46 dB(A) • Cars on Snowy Mountains Hwy ~ 50-54dB(A) • Trucks on Snowy Mountains Hwy ~ 58-63 dB(A) • Wind through leaves ~ 49 dB(A) • Site noise inaudible during most of the time • Site noise ≤ 35 dB(A) when audible (few times only for few seconds) • Quiet period ~ 45 dB(A) and site inaudible
	L _{Aeq}	48.5		
	L _{Amax}	62.3		
	L _{A90}	44.2		
Location 4 Reka Thursday 8/03/2012 0:55am – 1:10am	L _{A10}	49.4	Clear, no wind	<ul style="list-style-type: none"> • Frogs ~ 45 -48dB(A) • Crickets ~ 45-49 dB(A) • Cricket close to the sound level meter ~ 58-59 dB(A) • Cow ~ 52 dB(A) • Site noise audible ~ 41-42 dB(A) • no chipping reported as operating • Site L_{Amax} ~ 50-52 dB(A)
	L _{Aeq}	47.8		
	L _{Amax}	63.2		
	L _{A90}	44.6		
Location 6 Whispering Pine Thursday 8/03/2012 0:34am – 0:49am	L _{A10}	45.6	Clear, light wind	<ul style="list-style-type: none"> • Cow ~ 41 dB(A) • Crickets ~ 44-46 dB(A) • Frogs ~ 44-46 dB(A) • Wind through leaves ~ 46 dB(A) • Site noise audible ~ 40-41 dB(A) • no chipping reported as operating • Site L_{Amax} ~ 50dB(A)
	L _{Aeq}	44.5		
	L _{Amax}	54.5		
	L _{A90}	43.2		
Location 22 Brentwood Wednesday 7/03/2012 11:42pm – 11:57pm	L _{A10}	54.4	Clear, light wind	<ul style="list-style-type: none"> • Crickets ~ 52-54 dB(A) • Trucks ~ 55-67 dB(A) • Frogs ~ 50 dB(A) • Site noise inaudible • Quiet period ~ 46 dB(A)
	L _{Aeq}	52.7		
	L _{Amax}	66.7		
	L _{A90}	47.7		



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Table 4-10: Measured Noise Levels, Attended Noise Monitoring – Night time Period, dB(A)

Measurement Location	Noise Descriptor	dB(A)	Observed Meteorological Conditions	Comments
Location 21 Rip Thursday 8/03/2012 0:02pm – 0:17pm	L _{A10}	48.0	Clear, light wind	<ul style="list-style-type: none"> • Site noise inaudible • Crickets ~ 51 dB(A) • Wind through leaves ~ 47 dB(A) • Dog barking ~ 46 dB(A) • Trucks on Snowy mountains Hwy ~ 55 dB(A) • Quiet period ~ 44 dB(A)
	L _{Aeq}	46.8		
	L _{Amax}	54.8		
	L _{A90}	45.0		
Location 8 Glengarry Wednesday 7/03/2012 11:19pm – 11:34pm	L _{A10}	51.3	Clear, light wind	<ul style="list-style-type: none"> • Trucks on Snowy Mountains Hwy ~ 53 dB(A) • Frogs ~ 49 dB(A) • Wildlife ~ 52 dB(A) • Site noise inaudible • Quiet period ~ 46 dB(A)
	L _{Aeq}	49.2		
	L _{Amax}	58.3		
	L _{A90}	46.9		
Location 10 Beale Wednesday 7/03/2012 10:56pm – 11:11pm	L _{A10}	52.8	Cloudy, no wind	<ul style="list-style-type: none"> • Crickets ~ 48-53 dB(A) • Dog Barking ~ 51 dB(A) • Trucks on Snowy Mountains Hwy ~ 68-69 dB(A) • Frogs ~ 50 dB(A) • Site noise inaudible • Quiet period ~ 43 dB(A)
	L _{Aeq}	53.1		
	L _{Amax}	70.1		
	L _{A90}	46.7		

Comments:

The operator observations during the attended monitoring highlighted that the measured L_{Amax} was always given by extraneous noise sources. Therefore the site related L_{Amax} have been identified by operator's real time observations during the attended monitoring.



5. STATEMENT OF COMPLIANCE

Comparison of the noise levels measured as part of this study with those of the previous assessment show no deterioration of the local noise environment. Noise emissions from the site are constant in nature, with no tonal, impulsive or other annoying characteristics.

5.1 SUMMARY OF OBSERVED SITE-RELATED NOISE IMPACTS

The observed site-related impacts were assessed against the acoustic criteria presented in Section 2. It was found that compliance was achieved at five (5) of the seven (7) noise monitoring locations. Most of the time the site noise contribution was estimated by considering the quiet periods of time, which are the intervals of time where traffic noise or birds activity were absent or barely audible in the vicinity of the measurement location.

A summary of the observed site-related noise impacts is as follows:

5.1.1 Site-related L_{Aeq}

- Location 11 Gentle

The Visy Pulp and Paper site noise was observed to be inaudible even during the quiet moments and therefore it is reasonable to consider the site noise contribution to be at least 10 dB below the measured quiet period.

Time Period	Attended L_{Aeq} dB(A)	Unattended L_{Aeq} dB(A)	Quiet Period SPL dB(A)	Estimated Site Noise Contribution dB(A)	Criteria dB(A)	Compliance
Day	49.2	53	40	< 30	35	YES
Evening	51.2	59	46	< 36	35	YES
Night	48.5	46	45	< 35	35	YES



- Location 4 Reka

Table 5-2: Reka - Measured Site Noise Contribution						
Time period	Attended L _{Aeq} dB(A)	Unattended L _{Aeq} dB(A)	Quiet Period SPL dB(A)	Measured Site Noise Contribution dB(A)	Criteria dB(A)	Compliance
Day	44.8	45	41	~ 39-41	36	NO
Evening	56.7	44	~43	~ 40-43	36	NO
Night	47.8	43	41	~ 41-42	36	NO

- Location 6 Whispering Pine

At this location during quiet periods of time, birds, traffic noise and noise from the subject site were observed as being the main noise contributors.

Table 5-3: Whispering Pine – Measured Site Noise Contribution						
Time Period	Attended L _{Aeq} dB(A)	Unattended L _{Aeq} dB(A)	Quiet Period SPL dB(A)	Measured Site Noise Contribution dB(A)	Criteria dB(A)	Compliance
Day	46.8	-	39-40	~ 39	35	NO
Evening	51.6	-	40-42	~ 40-42	35	NO
Night	44.5	-	40-41	~ 40-41	35	NO

- Location 22 Brentwood

Extremely intense noise from parrots made the noise compliance test unfeasible at this location during the daytime period. The site noise was inaudible and therefore it is reasonable to consider the noise emission from the subject site as 10 dB below the monitored background noise level (L_{A90}).

Site noise was observed to be inaudible even during quiet periods of time throughout evening and night time.

Table 5-4: Brentwood - Estimated Site Noise Contribution						
Time Period	Attended L _{Aeq} dB(A)	Unattended L _{Aeq} dB(A)	Quiet Period SPL dB(A)	Estimated Site Noise Contribution dB(A)	Criteria dB(A)	Compliance
Day	52.9	53	44	< 35	35	YES
Evening	57.2	52	44	< 35	35	YES
Night	52.7	54	46	< 35	35	YES



- Location 21 Rip

The Visy Pulp and Paper site is shielded by the local topography. Site noise was observed inaudible during the rare quiet period measured, consequently likely to be estimated as at least 10 dB below the SPL of the quiet periods measured.

Time Period	Attended L _{Aeq} dB(A)	Unattended L _{Aeq} dB(A)	Quiet Period SPL dB(A)	Estimated Site Noise Contribution dB(A)	Criteria dB(A)	Compliance
Day	51.0	-	42	< 35	35	YES
Evening	50.2	-	46	< 36	35	YES
Night	46.8	-	44	< 35	35	YES

- Location 8 Glengarry

At this location the site noise was inaudible even during quiet periods and therefore reasonably considered to be at least 10 dB below the sound pressure level measured during quiet periods of time.

Time Period	Attended L _{Aeq} dB(A)	Unattended L _{Aeq} dB(A)	Quiet Period SPL dB(A)	Estimated Site Noise Contribution dB(A)	Criteria dB(A)	Compliance
Day	47.2	50	43	< 35	36	YES
Evening	51.3	49	-	< 35	36	YES
Night	49.2	46	46	< 35	36	YES

Note: - indicates that no quiet periods were observed and therefore it was not possible to properly estimate the site noise contribution.

“Modifying Factor” Adjustments

Section 4 of the NSW Industrial Noise Policy define the modifying factor adjustment that need to be applied when the noise source contains certain characteristics, such as tonality, impulsiveness or low frequency component.

The attended noise measurements carried out at all the considered residential locations have been analysed and no tonality or low frequency component were observed, therefore adjustments are not applied.



- Location 10 Beale

High traffic noise contribution was observed at this location and the subject site noise was barely audible only during quiet periods of time throughout the daytime only. Also distant road traffic noise and wildlife was observed during quiet periods.

During the daytime the site noise contribution was inaudible and therefore less than the quiet period SPL, in this case it was considered equal or minor than the quiet period to give a more conservative reading.

Table 5-7: Beale - Estimated Site Noise Contribution						
Time Period	Attended L _{Aeq} dB(A)	Unattended L _{Aeq} dB(A)	Quiet Period SPL dB(A)	Estimated Site Noise Contribution dB(A)	Criteria dB(A)	Compliance
Day	52.9	57	34-35	≤ 35	35	YES
Evening	58.1	55	-	≤ 35	35	YES
Night	53.1	53	43	≤ 35	35	YES

- indicates that no quiet periods were observed and therefore it was not possible to properly estimate the site noise contribution.

5.1.2 Site-Related L_{Amax}

The observed site-related L_{Amax} comply with the criteria for five (5) of the seven (7) monitored locations.

Measurements were undertaken between Wednesday 7/03/2012 at 10:00pm and Thursday 8/03/2012 at 1:10am.

The following Table 5-8 presents the observed L_{Amax} at the considered residences.

Table 5-8: Observed site-related L _{Amax}							
Locations	Gentle	Reka	Whispering Pine	Brentwood	Rip	Glengarry	Beale
Measurement Time Period	10:26pm	0:55am	0:34am	11:42pm	0:02pm	11:19pm	10:56pm
	-	-	-	-	-	-	-
	10:41pm	1:10am	0:49am	11:57pm	0:17pm	11:34pm	11:11pm
Night	< 45	~ 50	~ 50	< 45	< 45	< 45	< 45
Compliance	YES	NO	NO	YES	YES	YES	YES

During the attended noise monitoring at Whispering Pine and Reka an L_{Amax} reading of 50 was recorded. The wood chipper/debarker was not operating when the night-time measurements were undertaken.



6. CONCLUSIONS AND RECOMMENDATIONS

This report presents the findings of the detailed noise compliance study undertaken for the Visy Pulp and Paper site. This investigation included both unattended and attended noise monitoring.

The noise monitoring conducted as part of this assessment has shown that noise emissions from the Visy Pulp and Paper site comply with the relevant acoustic criteria detailed in the Director General's Environmental Assessment Report at five (5) of the seven (7) residential locations considered.

Compliance is achieved at Beale, Glengarry, Rip, Brentwood and Gentle.

Compliance is not achieved at Reka and Whispering Pine therefore compliance is not expected to be achieved at Pleasant View. At these locations noise emissions associated with Woodyard operations have been observed to contribute the highest overall noise emission from the site. However noise emissions associated with other sections of the paper mill were also observed to exceed the noise criteria at these locations.

Future noise compliance assessments should include Pleasant View as a monitoring location.

This concludes the noise compliance assessment for the Visy Pulp and Paper site.

Prepared by:

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7. LIMITATIONS

Our services for this project are carried out in accordance with our current professional standards for site assessment investigations. No guarantees are either expressed or implied.

This report has been prepared solely for the use by Visy Pulp and Paper Pty , as per our agreement for providing environmental assessment services. Although all due care has been taken in the preparation of this study, no warranty is given, nor liability accepted (except that required by law) in relation to the information contained within this document.

Visy Pulp and Paper Pty is entitled to rely upon the findings in the report within the scope of work described in this report. No responsibility is accepted for the use of any part of the report in any other context or for any other purpose.

Opinions and judgements expressed herein, which are based on our understanding and interpretation of current regulatory standards, should not be construed as legal opinions.

ATTACHMENTS

Glossary of Noise Terminology

Acceptable Noise Level: The acceptable L_{Aeq} noise level from industrial sources, recommended by the EPA (Table 2.1, INP). Note that this noise level refers to all industrial sources at the receiver location, and not only noise due to a specific project under consideration.

Acoustic Barrier: Solid walls or partitions, solid fences, earth mounds, earth berms, buildings, etc used to reduce noise, without eliminating it.

Adverse Weather: Weather conditions that affect noise (wind and temperature inversions) that occur at a particular site for a significant period of time. The previous conditions are for wind occurring more than 30% of the time in any assessment period in any season and/or for 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: position at which noise measurements are undertaken 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 L_{90} noise level.

Decibel [dB] : The units of sound pressure level

dB(A): A-weighted decibels. Noise measured using the A filter.

Free field: An environment in which there are no acoustic reflective surfaces. Free field noise measurements are carried out outdoors at least 3.5m from any acoustic reflecting structures other than the ground.

Frequency: Frequency is synonymous to pitch. Frequency or pitch can be measured on a scale in units of Hertz (Hz).

Impulsive noise: 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: Level that drops to the background noise level several times during the period of observation.

L_{Amax} The maximum sound pressure level measured over a period.

L_{Amin} The minimum sound pressure level measured over a period.

L_{A1} The sound pressure level that is exceeded for 1% of the time for which the sound is measured.

L_{A10} The sound pressure level that is exceeded for 10% of the time for which the sound is measured.

L_{A90} 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_{Aeq} 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 meets on its path.

R-w: The Sound Insulation Rating R-w is a measure of the noise reduction performance of the partition.

SEL: Sound Exposure Level 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 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.

Attachment 2: Method for Attended and Unattended Measurements

UNATTENDED NOISE MONITORING

NOISE MONITORING EQUIPMENT

All long term noise monitoring was conducted using ARL noise loggers EL-215 S/N. The noise monitoring equipment used here complies with Australian Standard 1259.2-1990 "Acoustics - Sound Level Meters" and is designated as a Type 2 instrument suitable for field use.

A noise logger consists of a sound level meter and a computer housed in a waterproof enclosure. Ambient noise levels were recorded at a rate of 10 samples per second. Every 15 minutes, the data is processed statistically and stored in memory. The equipment was calibrated prior and subsequent to the measurement period using a Rion NC-73 sound level calibrator. No significant drift in calibration was observed.

METEOROLOGY DURING MONITORING

Measurements affected by extraneous noise, wind (greater than 5m/s) or rain were excluded from the recorded data in accordance with the INP. The weather data have been provided by Visy Pulp and Paper. The correction factor applied to the data was calculated according to the Australian Standard AS1170.2 1989 Section 4.2.5.1.

RESULTS: NOISE VS TIME GRAPHS

Noise varies with time. Noise environments can be described using various descriptors. In this report, noise values measured include the L_{10} , L_{90} , and L_{eq} levels. The statistical descriptors L_{10} and L_{90} measure the noise level exceeded for 10% and 90% of the sample measurement time. The L_{eq} level is the equivalent continuous noise level or the level averaged on an equal energy basis. Measurement sample periods are usually fifteen minutes. The Noise -vs- Time graphs representing measured noise levels at the four noise monitoring locations in Attachment 4 illustrate these concepts.

Noise levels are commonly measured in units of A-weighted decibels or dB(A). The "A-weighting" refers to standardised amplitude versus frequency curve used to "weight" sound measurements to represent the response of the human ear. The human ear is less sensitive to low pitch sound than it is to high pitch sound. Overall A-weighted measurements quantify sound with a single number to represent how people subjectively hear different frequencies at different levels.

Background noise is the term used to describe the noise measured in the absence of the noise under investigation. 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 time period. This is represented as the L_{90} noise level.

ATTENDED NOISE MONITORING

NOISE MONITORING EQUIPMENT

A Svantek SVAN949 and SVAN957 precision sound level meter were used to monitor and calculate statistical noise levels.

The instrument was calibrated by a NATA accredited laboratory within two years of the measurement period. The instrument sets comply with AS 1259. The instruments were set on A-weighted, fast response and logged noise levels over fifteen minute statistical intervals.

WEATHER CONDITIONS

The weather conditions were fine with relatively still conditions with slight wind gusts and partial cloud cover. The weather conditions on the day would not have adversely affected the results and were conducive for measuring noise under typical conditions.

METHODOLOGY

External noise measurements were carried out generally in accordance with Australian Standard AS1055-1997.

The following procedure was followed:

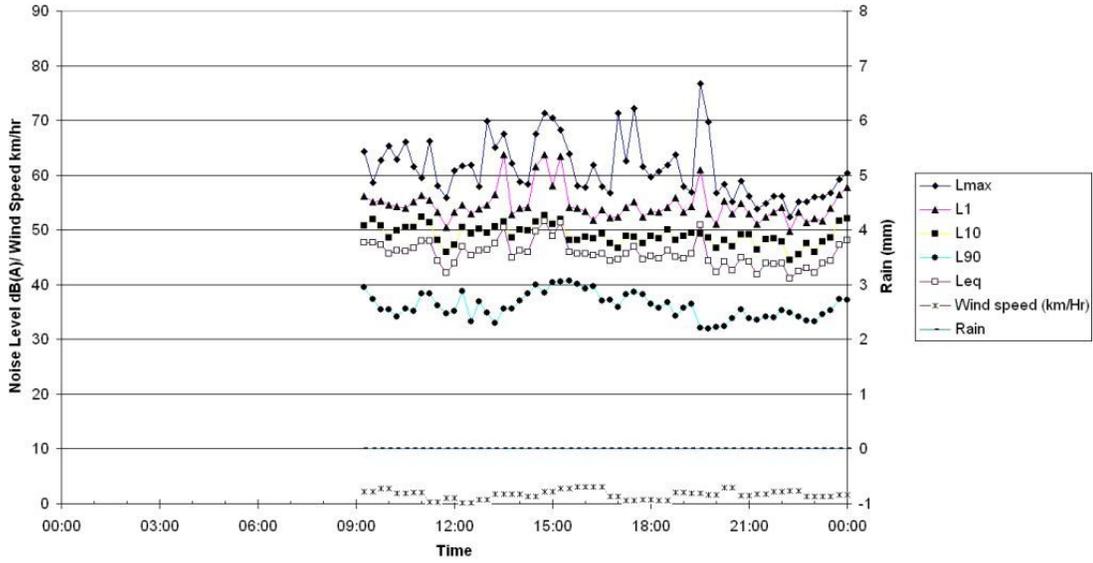
Measurements of the L_{Aeq} and L_{A10} of the noise emission from the premises at each assessment location during typical operation.

Measurements of the L_{A90} background noise level over a fifteen minute period at each assessment location prior to the in the absence of the noise source.

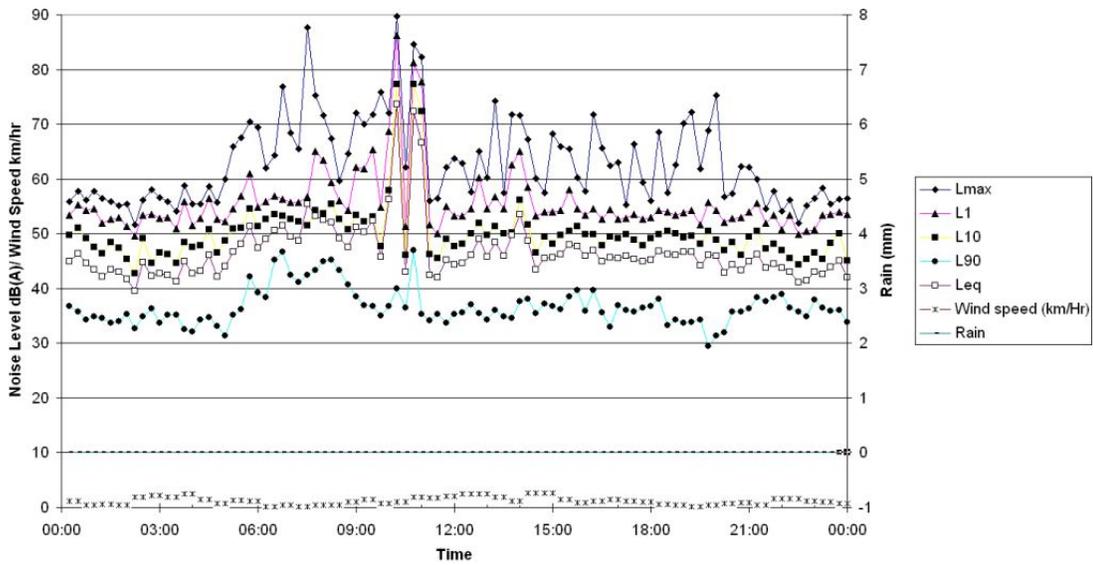
CALIBRATION

The calibration of the meter was checked in the field immediately before and after the noise measurements using a Rion NC-73 sound level calibrator and no drift in calibration was observed.

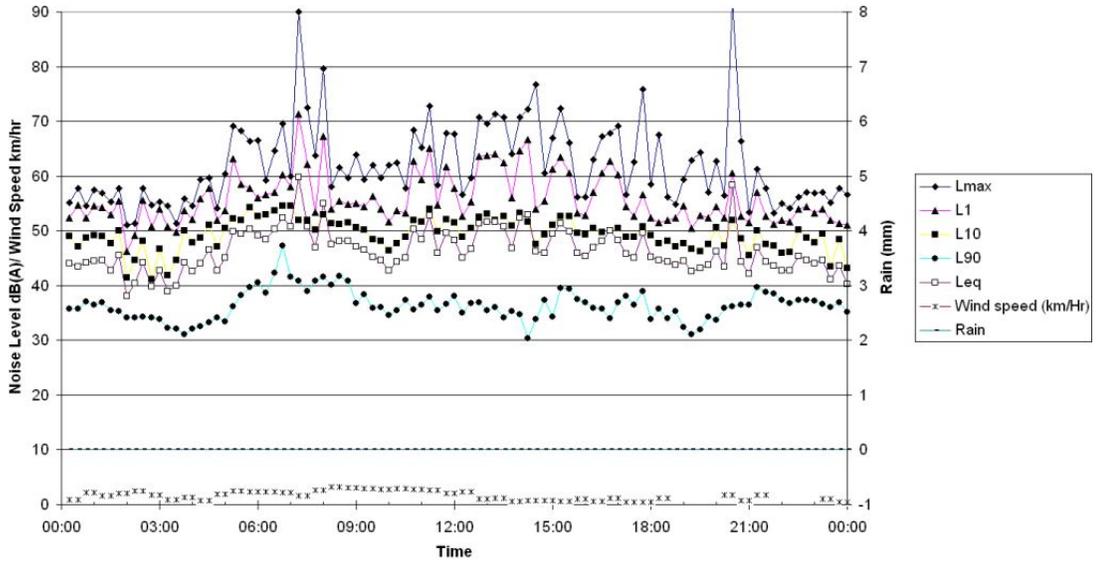
Measured Noise Levels
Location 11 - Brian and Kerry Gentle - Wednesday 16/11/2011



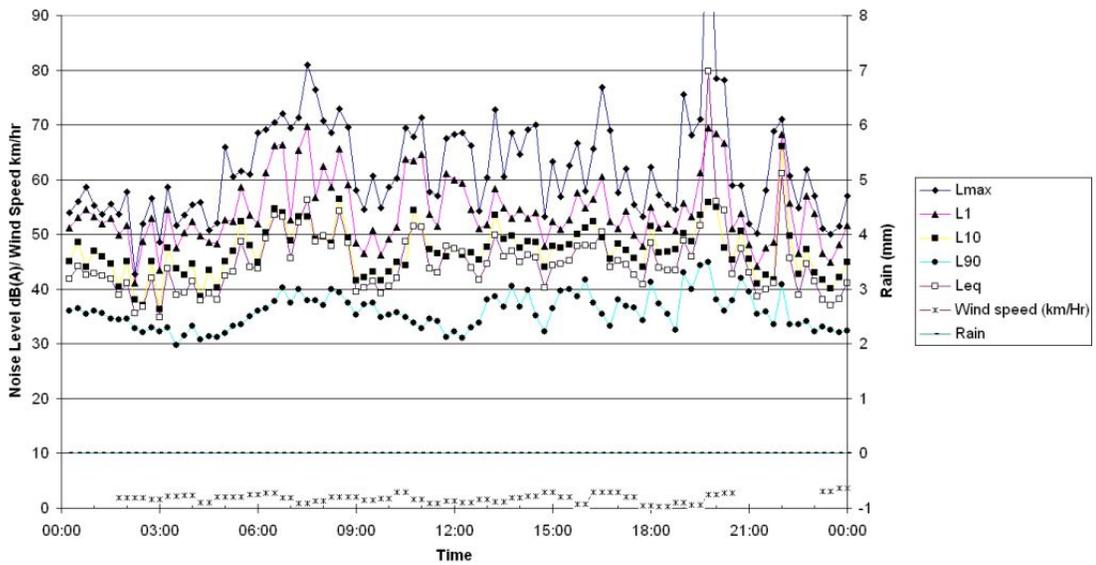
Measured Noise Levels
Location 11 - Brian and Kerry Gentle - Thursday 17/11/2011



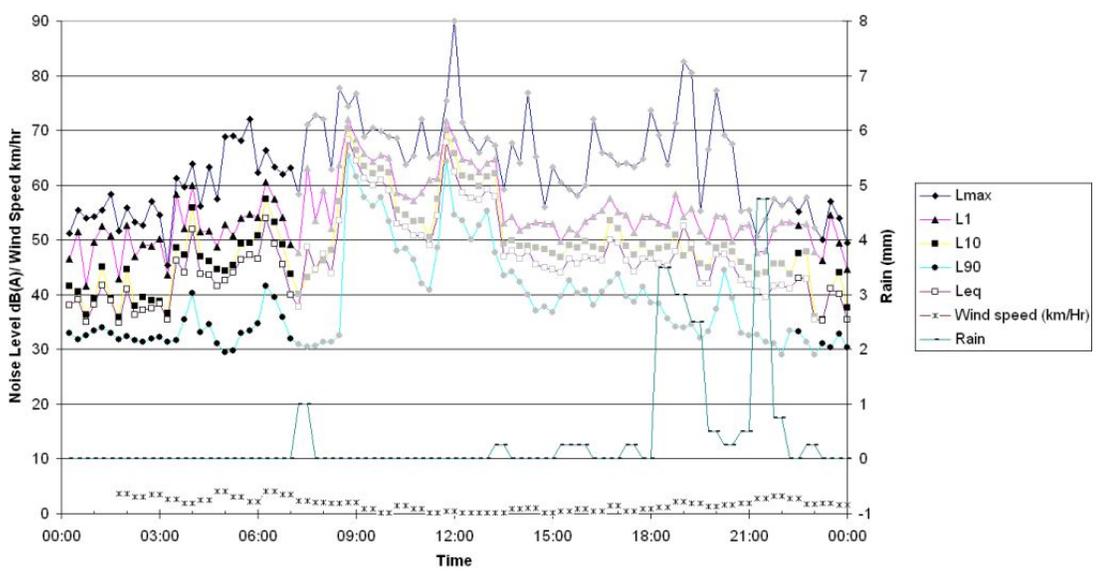
Measured Noise Levels
Location 11 - Brian and Kerry Gentle - Friday 18/11/2011



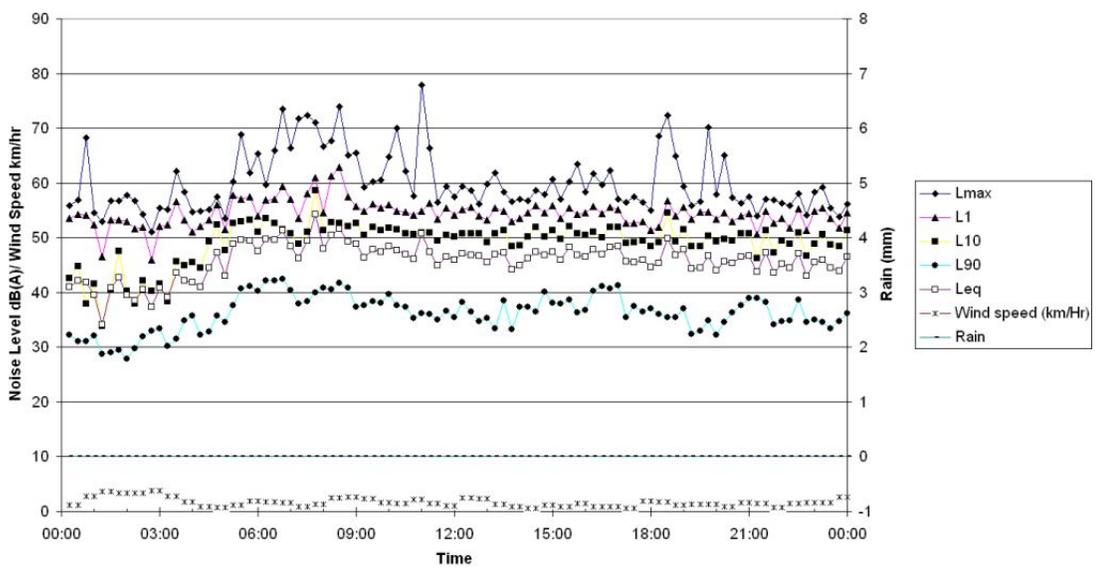
Measured Noise Levels
Location 11 - Brian and Kerry Gentle - Saturday 19/11/2011



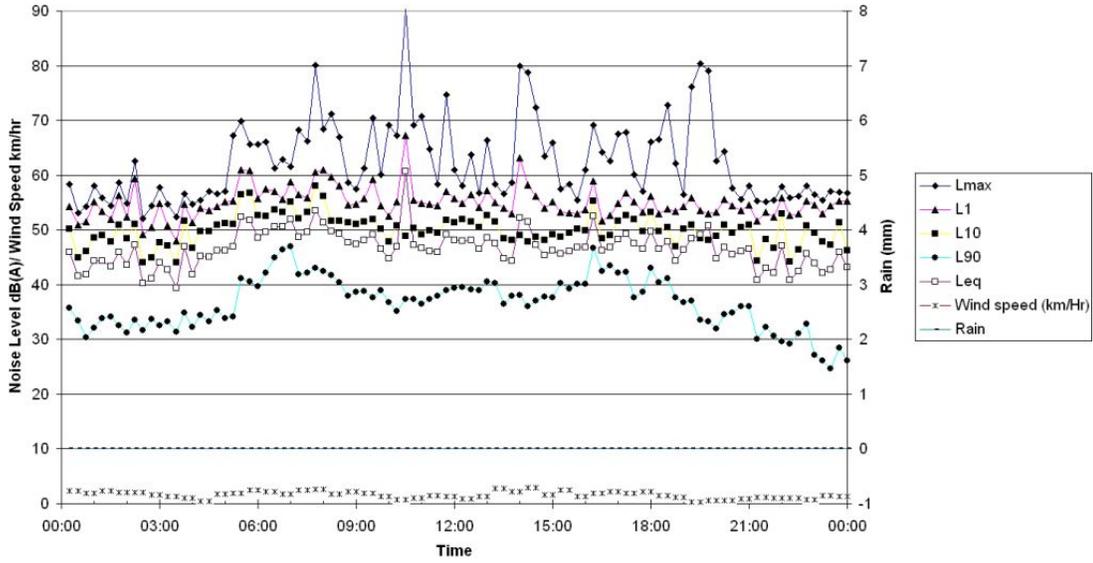
Measured Noise Levels
Location 11 - Brian and Kerry Gentle - Sunday 20/11/2011



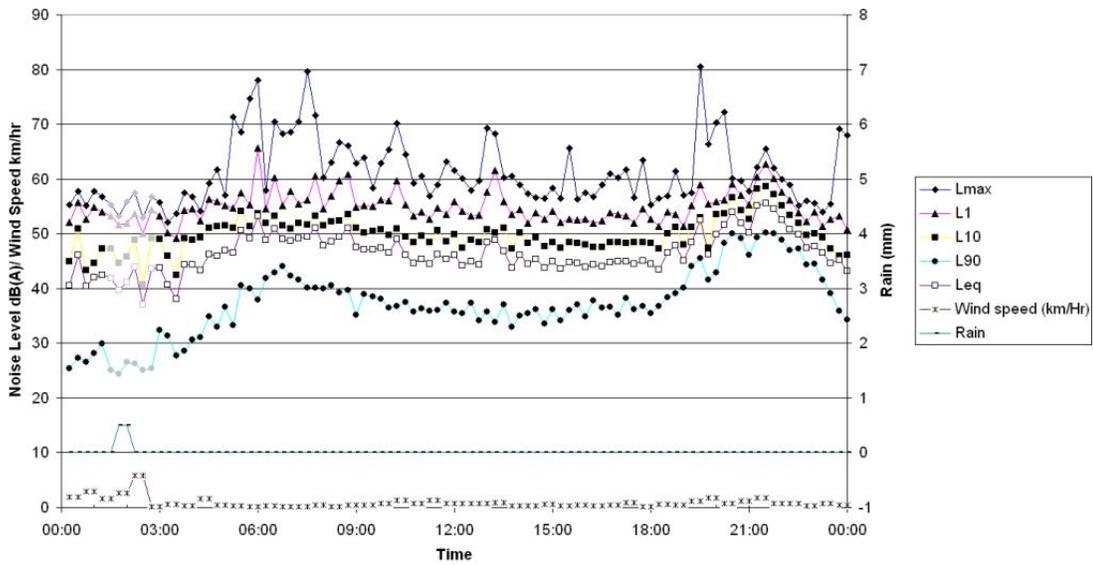
Measured Noise Levels
Location 11 - Brian and Kerry Gentle - Monday 21/11/2011



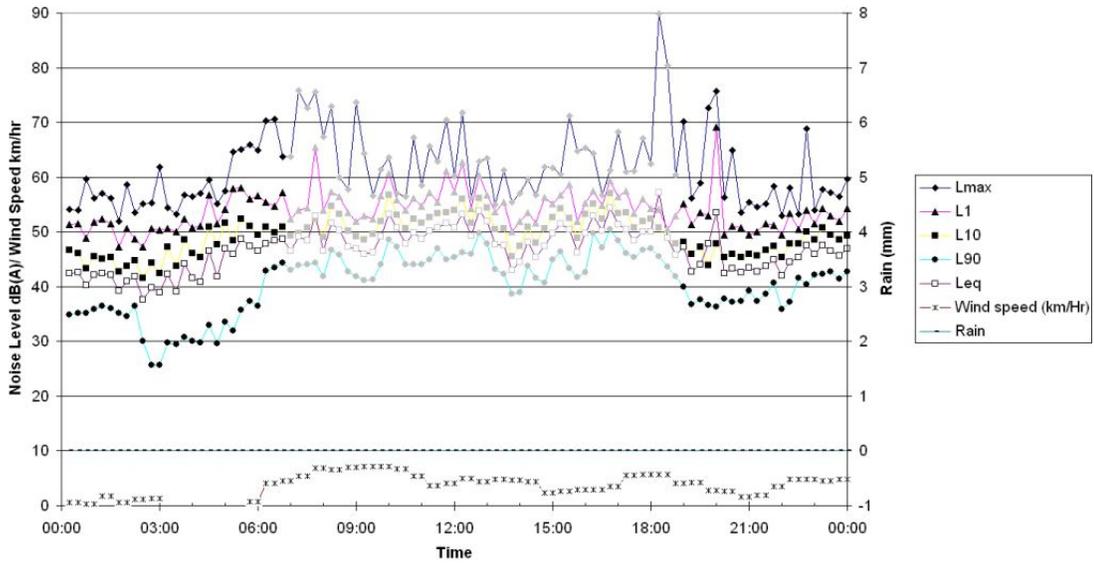
Measured Noise Levels
Location 11 - Brian and Kerry Gentle - Tuesday 22/11/2011



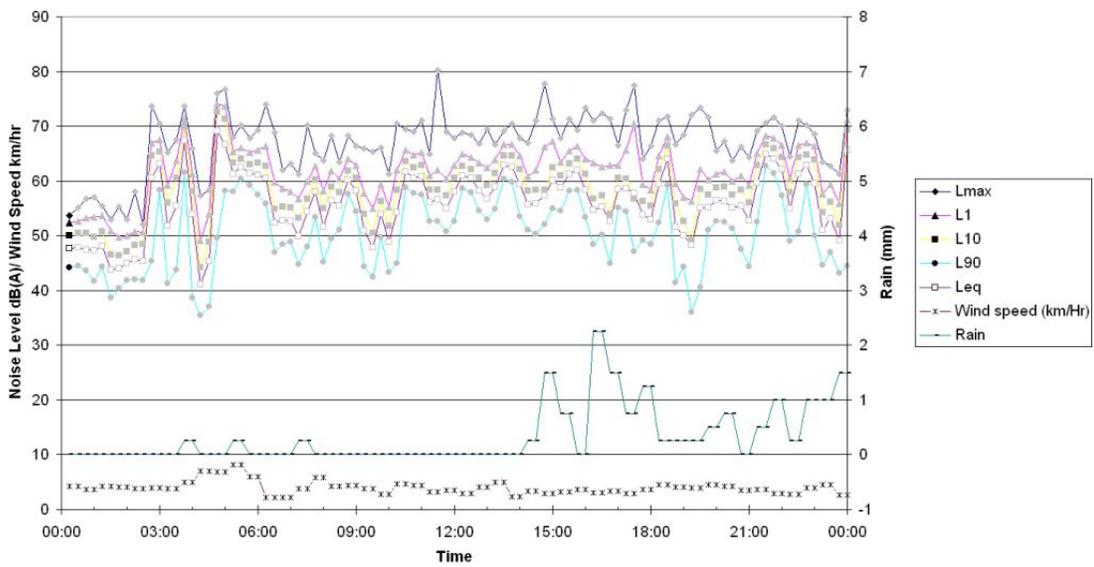
Measured Noise Levels
Location 11 - Brian and Kerry Gentle - Wednesday 23/11/2011



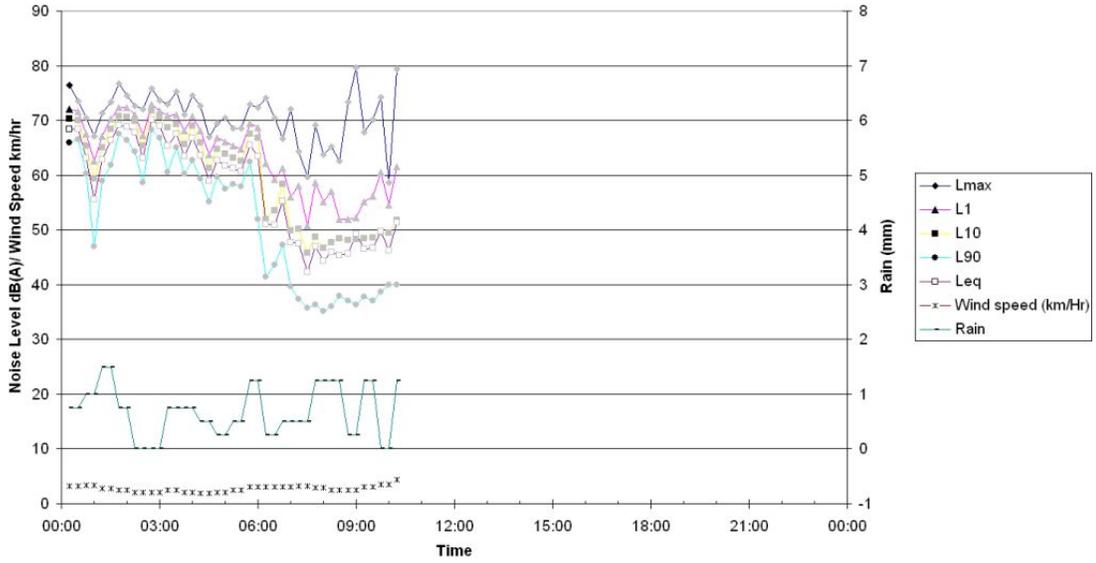
Measured Noise Levels
Location 11 - Brian and Kerry Gentle - Thursday 24/11/2011



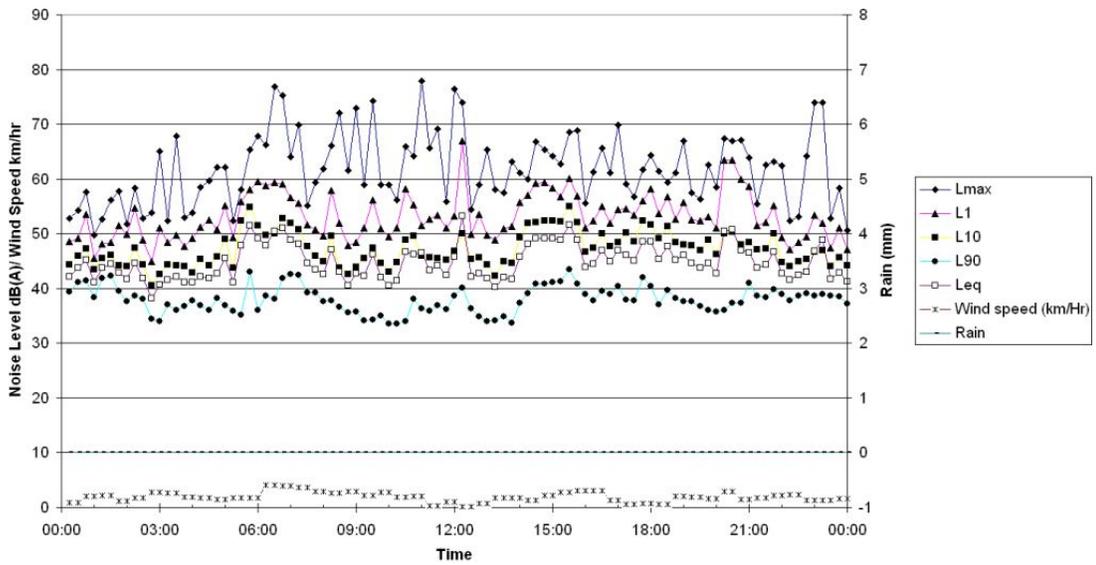
Measured Noise Levels
Location 11 - Brian and Kerry Gentle - Friday 25/11/2011



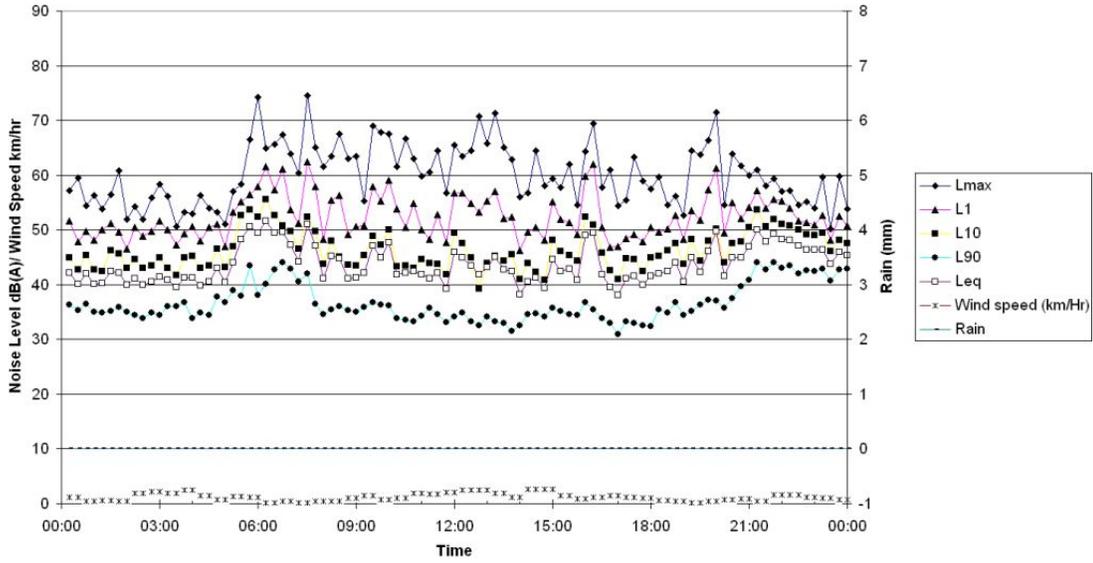
Measured Noise Levels
Location 11 - Brian and Kerry Gentle - Saturday 26/11/2011



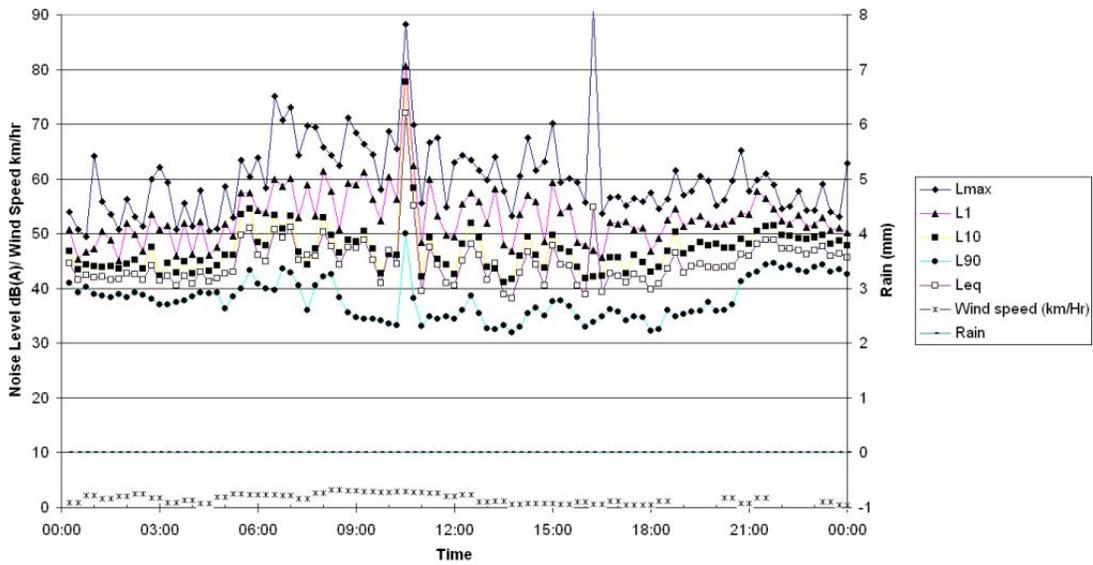
Measured Noise Levels
Location 8 - Glengarry - Wednesday 16/11/2011



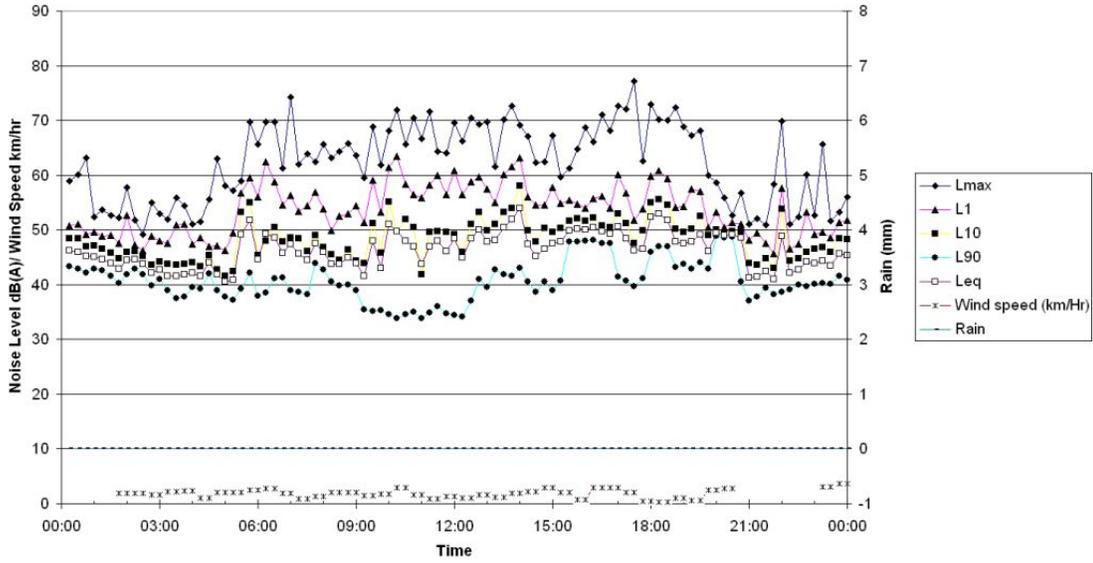
Measured Noise Levels
Location 8 - Glengarry - Thursday 17/11/2011



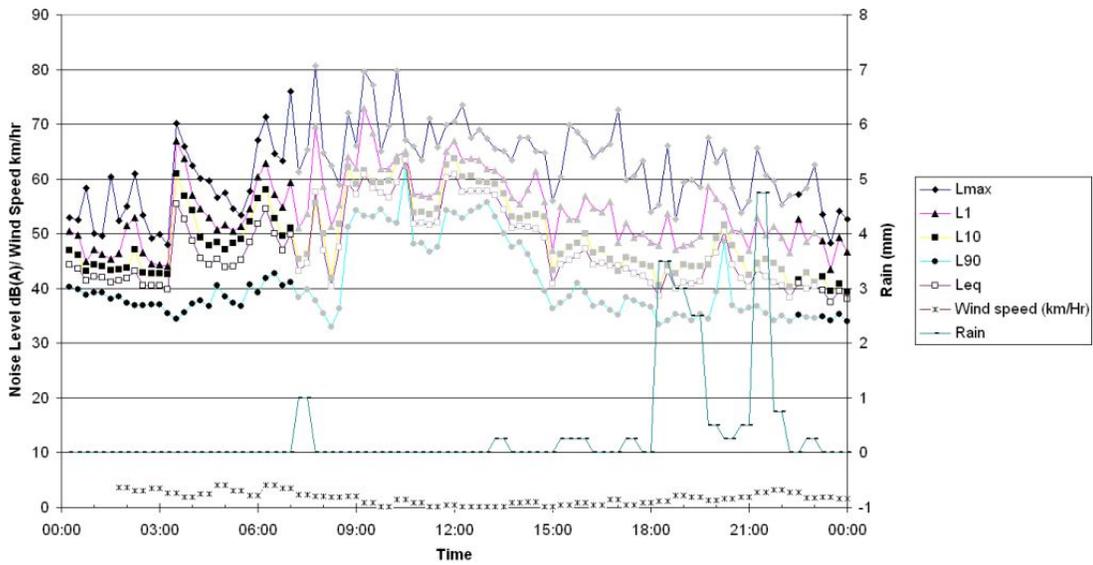
Measured Noise Levels
Location 8 - Glengarry - Friday 18/11/2011



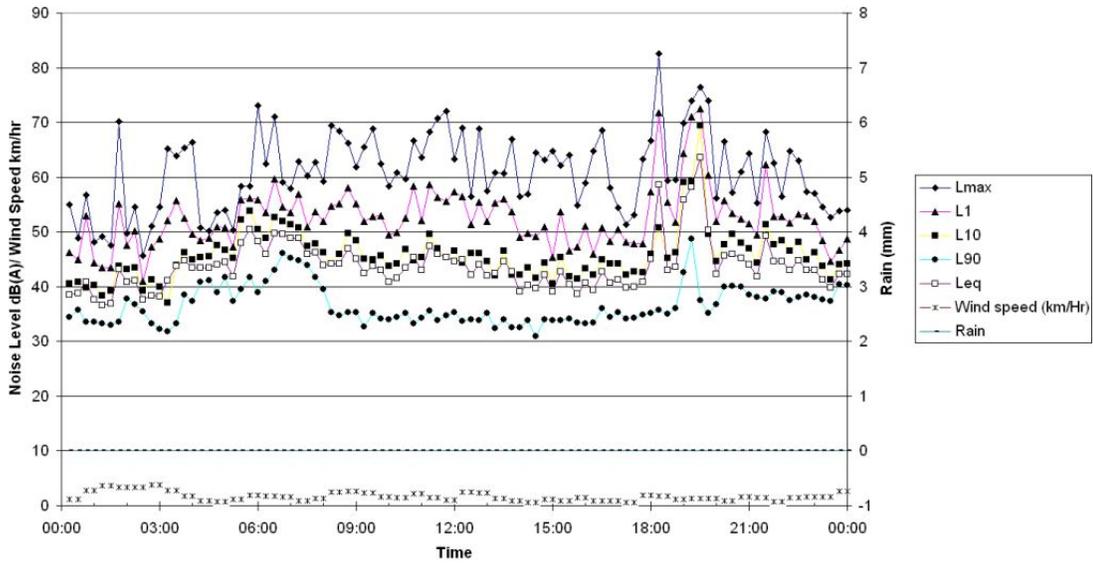
Measured Noise Levels
Location 8 - Glengarry - Saturday 19/11/2011



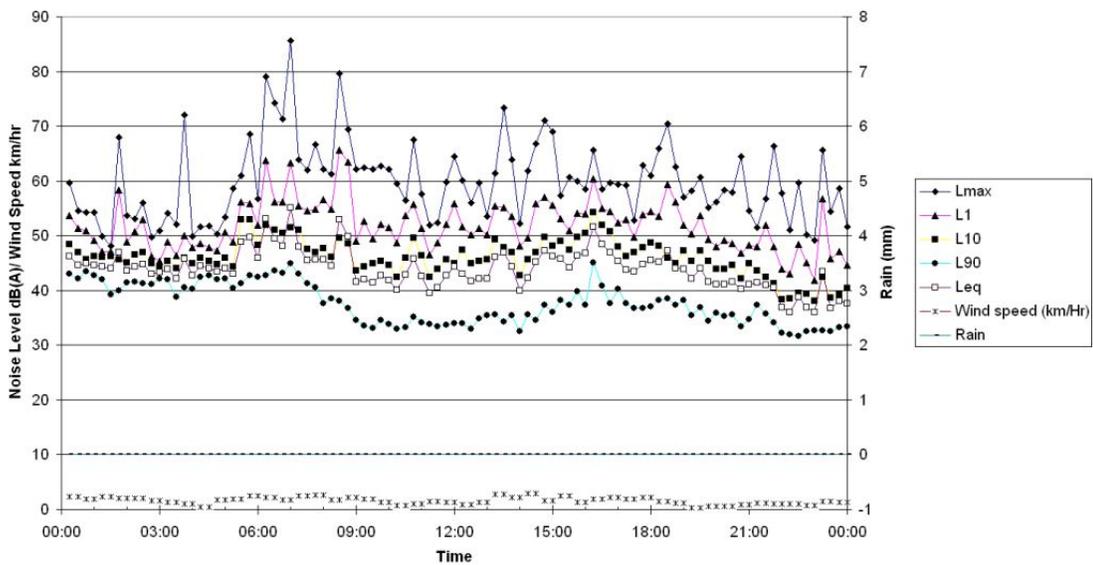
Measured Noise Levels
Location 8 - Glengarry - Sunday 20/11/2011



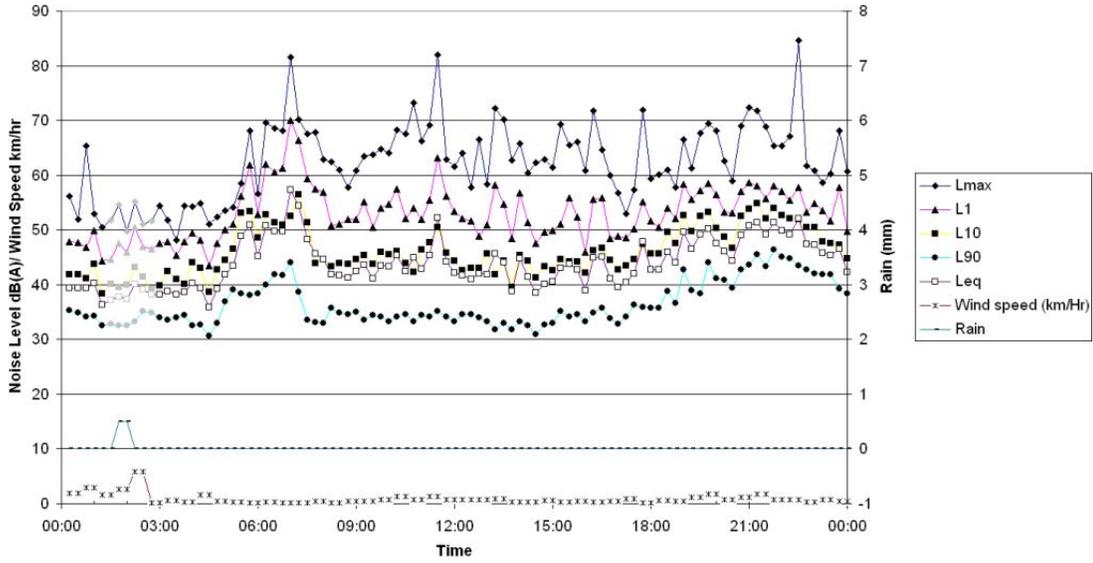
Measured Noise Levels
Location 8 - Glengarry - Monday 21/11/2011



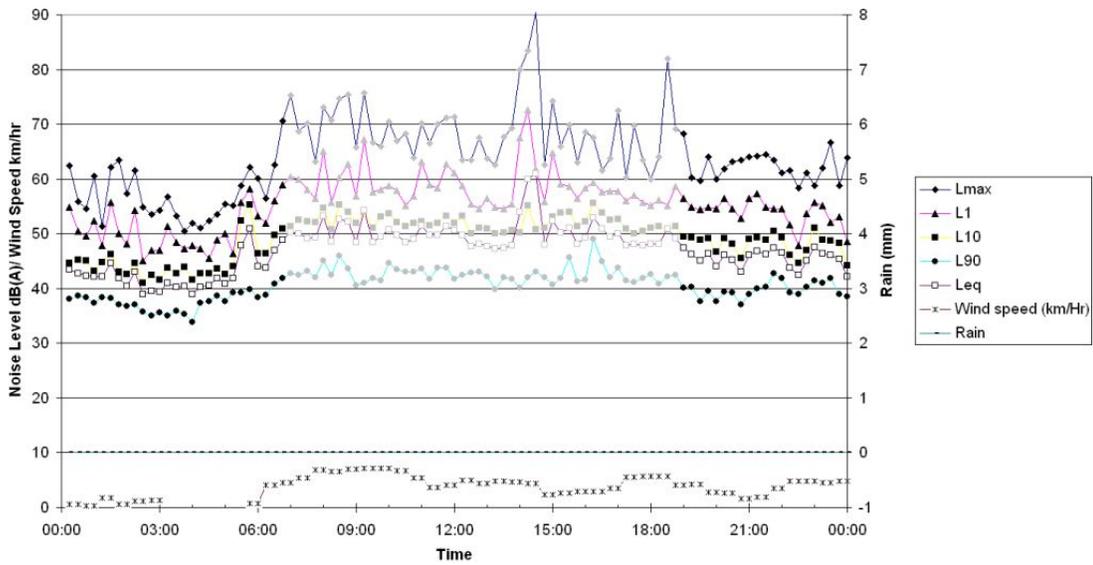
Measured Noise Levels
Location 8 - Glengarry - Tuesday 22/11/2011



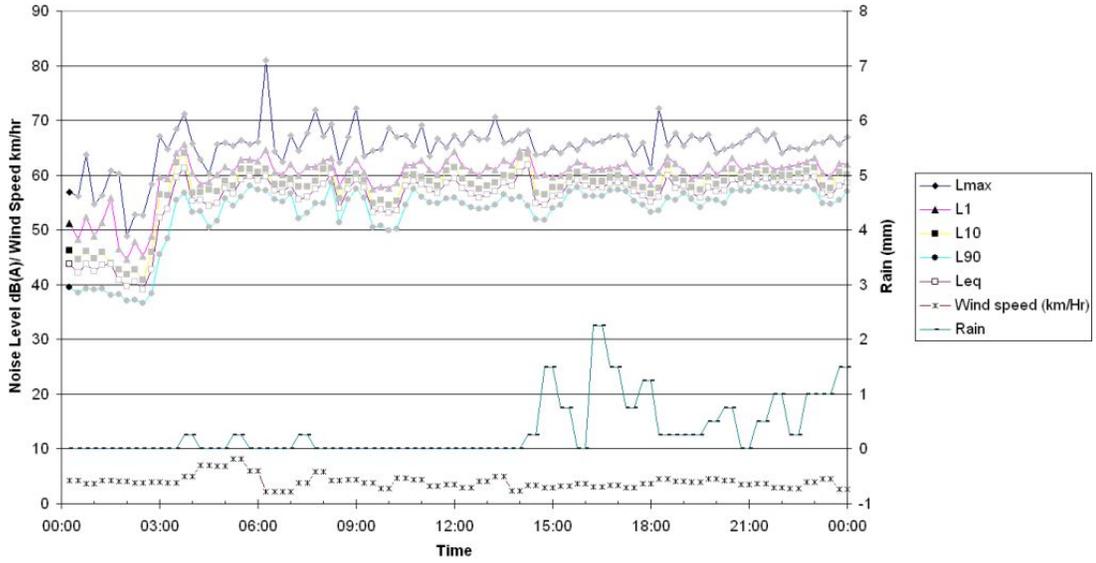
Measured Noise Levels
Location 8 - Glengarry - Wednesday 23/11/2011



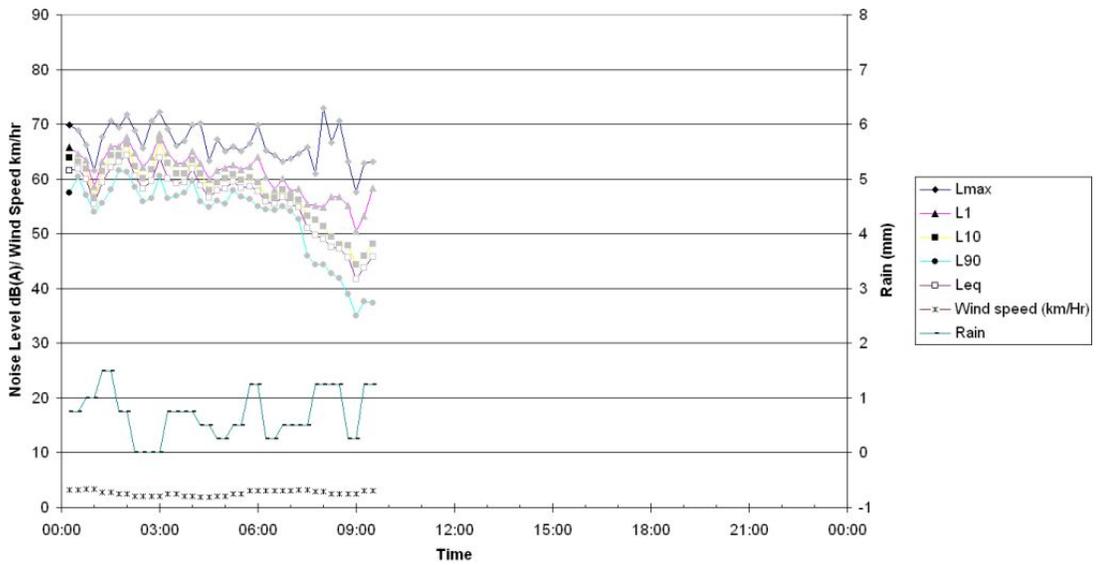
Measured Noise Levels
Location 8 - Glengarry - Thursday 24/11/2011



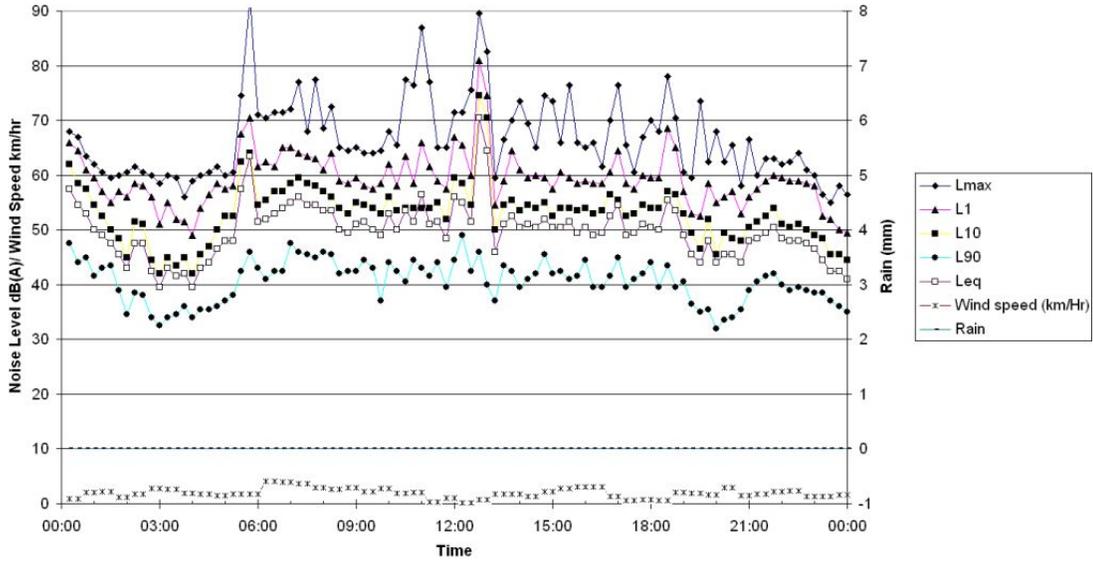
Measured Noise Levels
Location 8 - Glengarry - Friday 25/11/2011



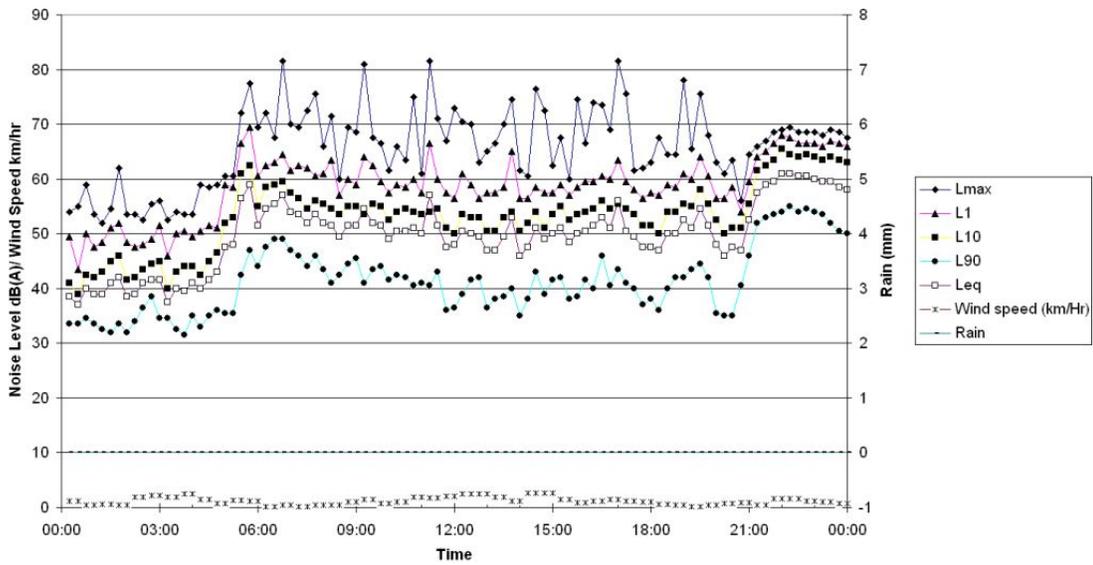
Measured Noise Levels
Location 8 - Glengarry - Saturday 26/11/2011



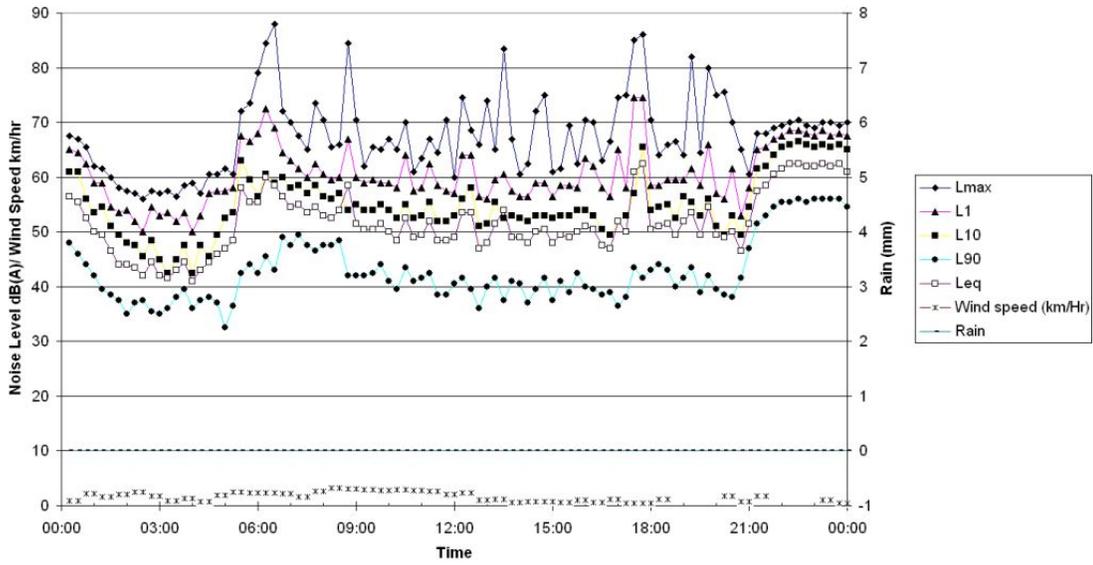
Measured Noise Levels
Location 22 - Brentwood - Wednesday 16/11/2011



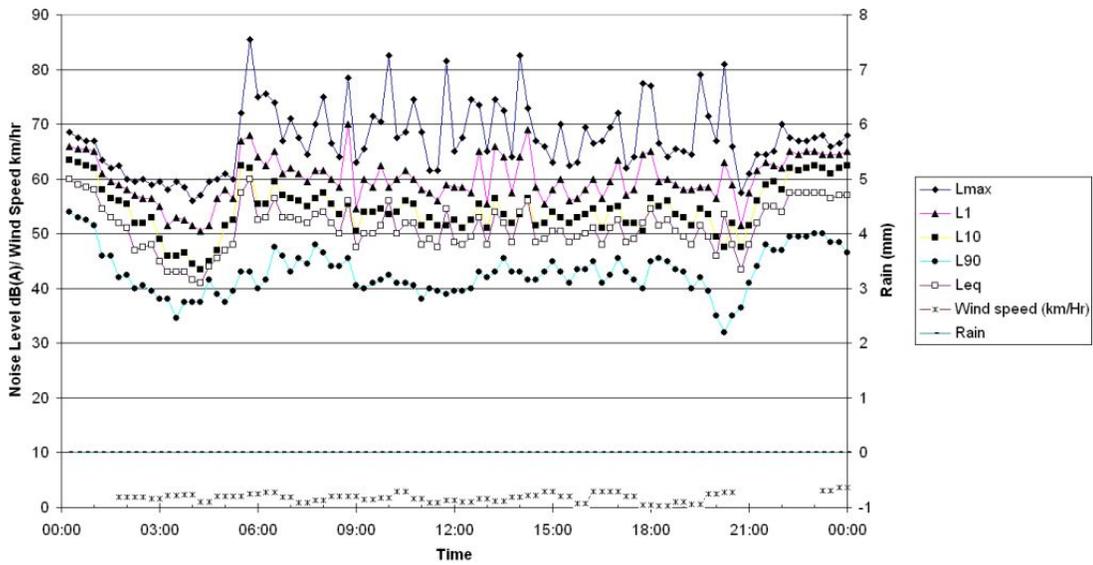
Measured Noise Levels
Location 22 - Brentwood - Thursday 17/11/2011



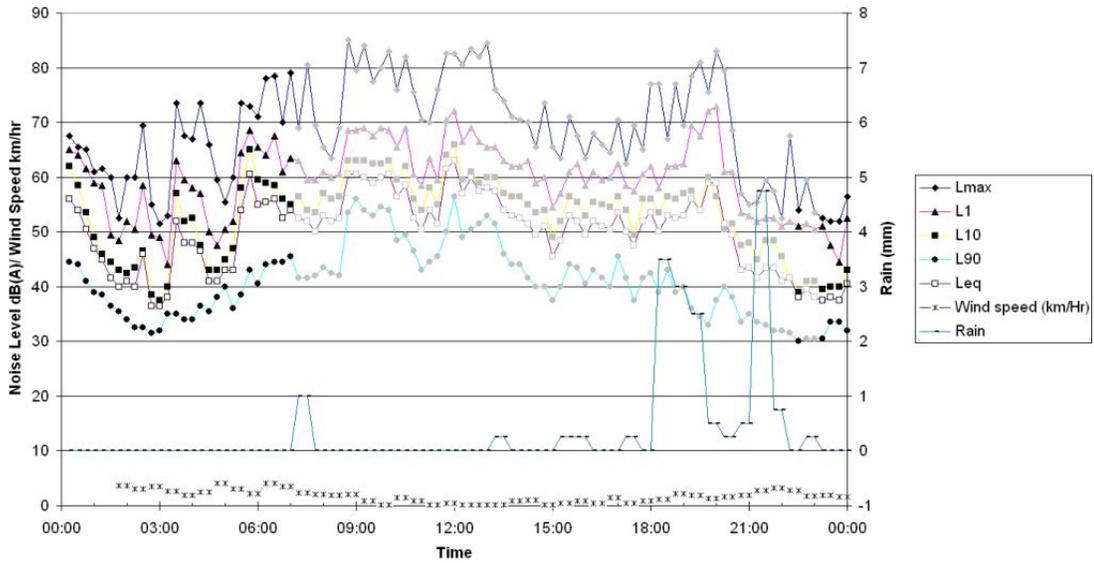
Measured Noise Levels
Location 22 - Brentwood - Friday 18/11/2011



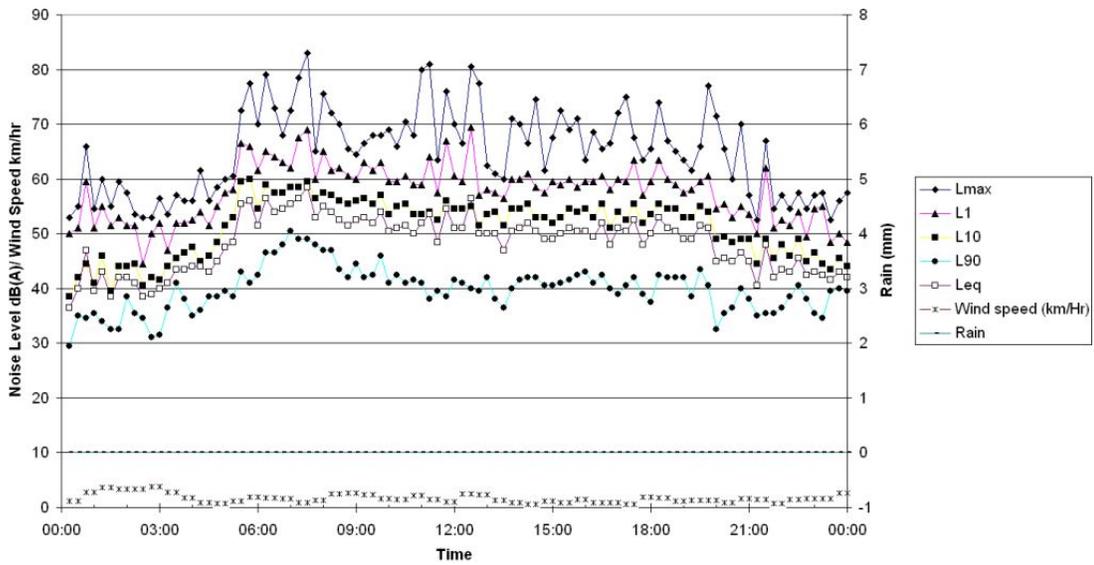
Measured Noise Levels
Location 22 - Brentwood - Saturday 19/11/2011



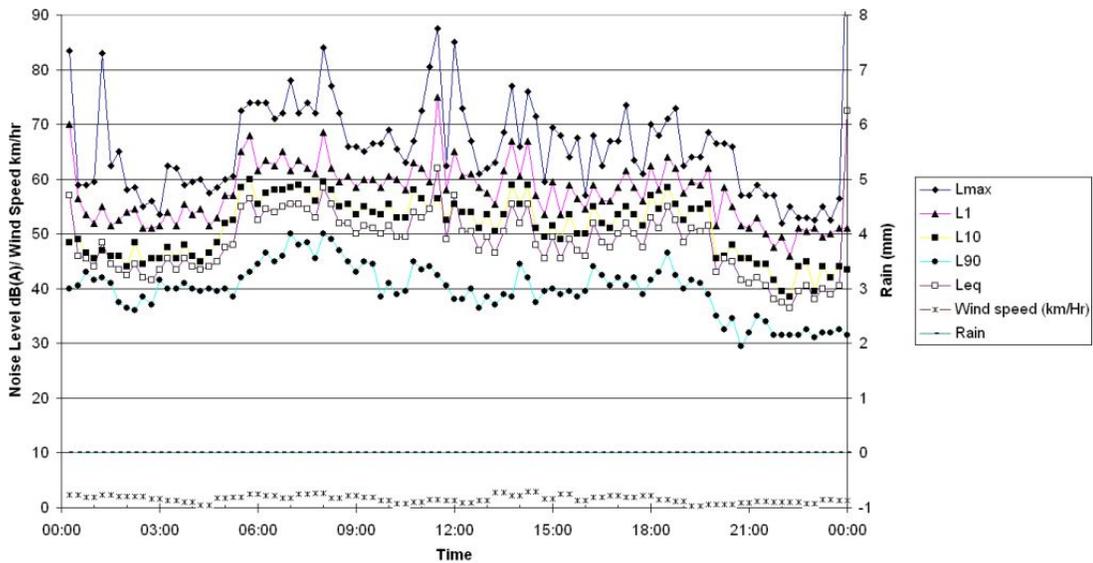
Measured Noise Levels
Location 22 - Brentwood - Sunday 20/11/2011



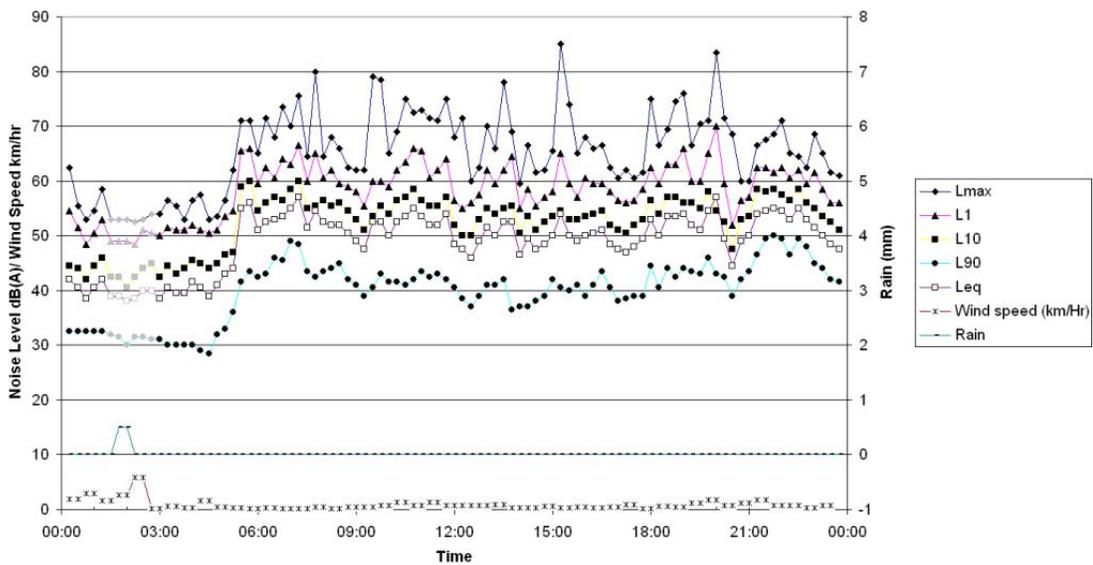
Measured Noise Levels
Location 22 - Brentwood - Monday 21/11/2011



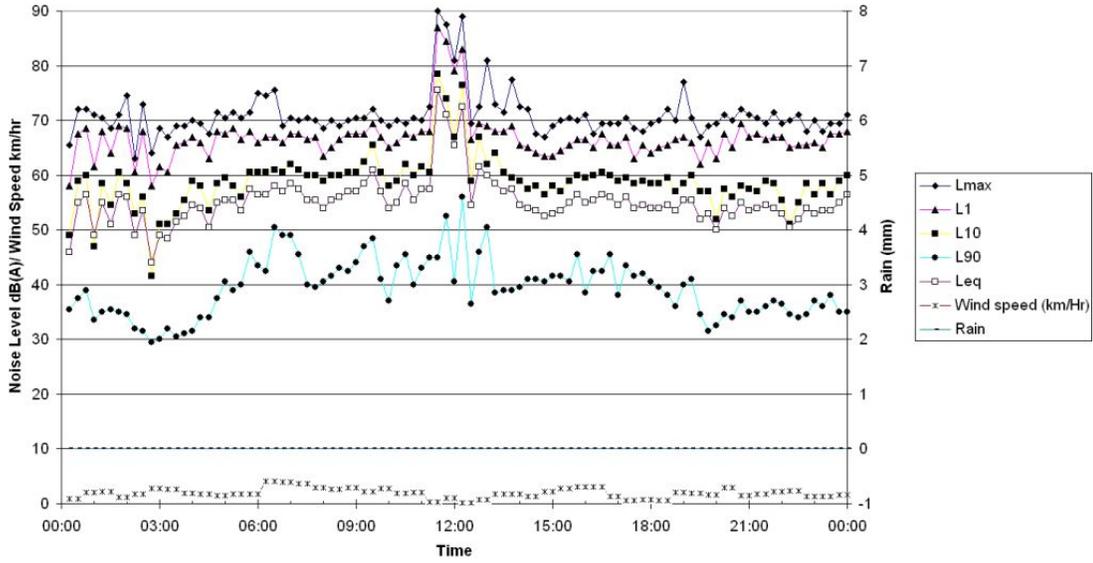
Measured Noise Levels
Location 22 - Brentwood - Tuesday 22/11/2011



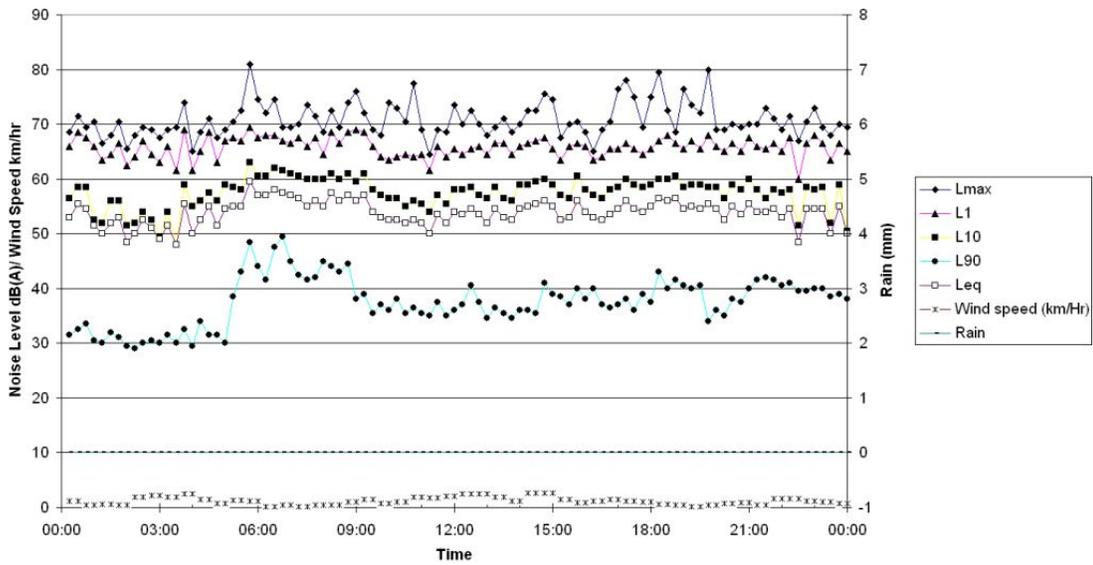
Measured Noise Levels
Location 22 - Brentwood - Wednesday 23/11/2011



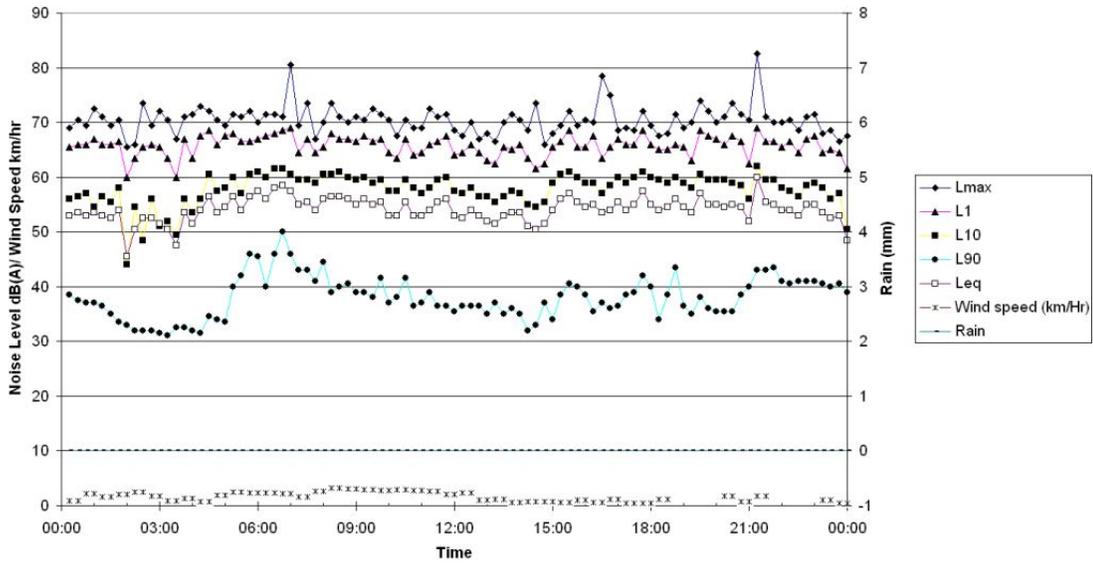
Measured Noise Levels
Location 10 - Beale - Wednesday 16/11/2011



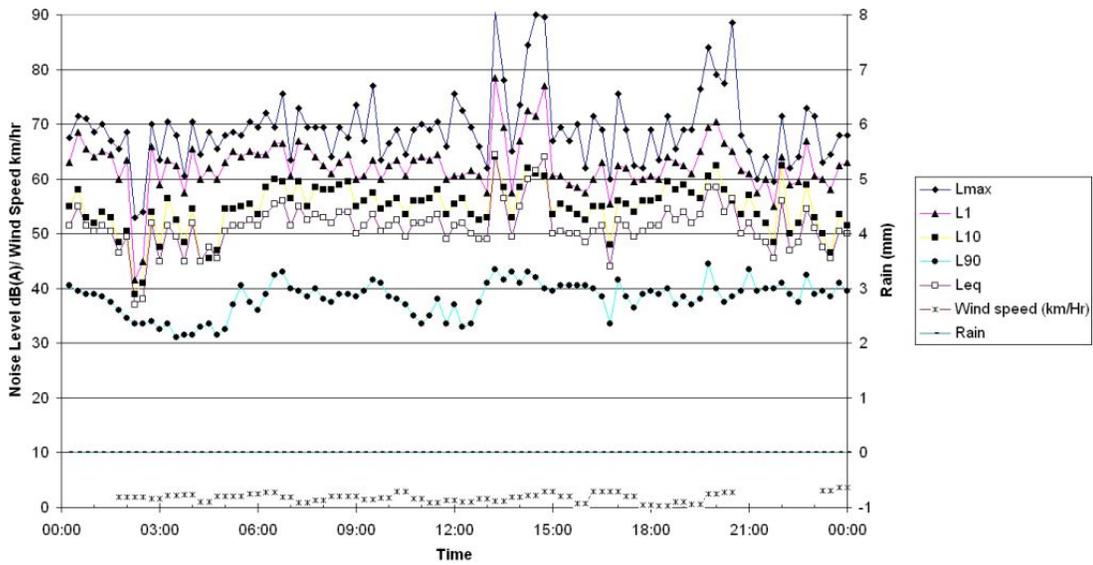
Measured Noise Levels
Location 10 - Beale - Thursday 17/11/2011



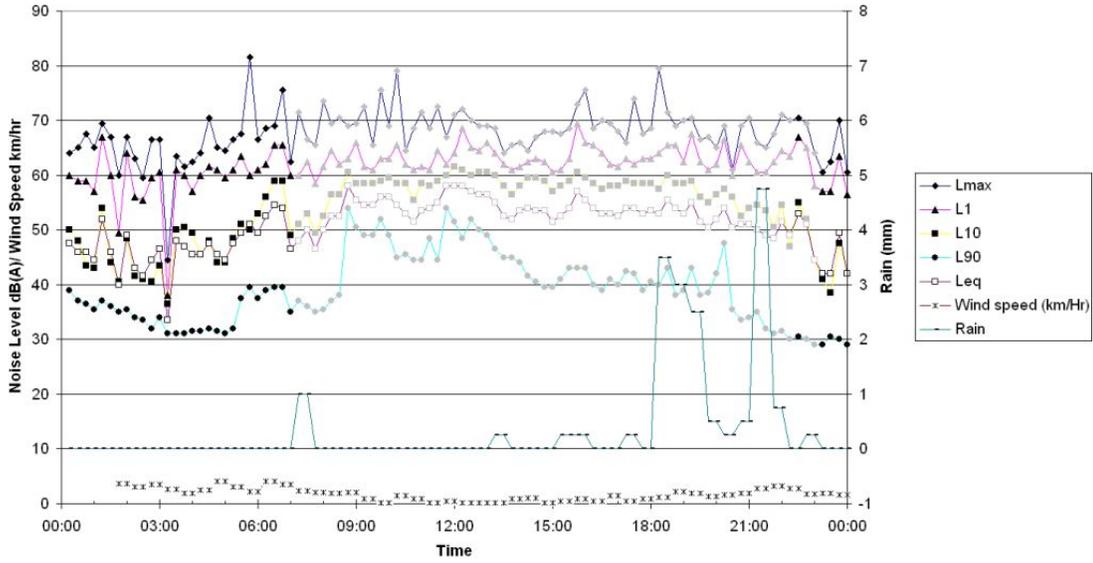
Measured Noise Levels
Location 10 - Beale - Friday 18/11/2011



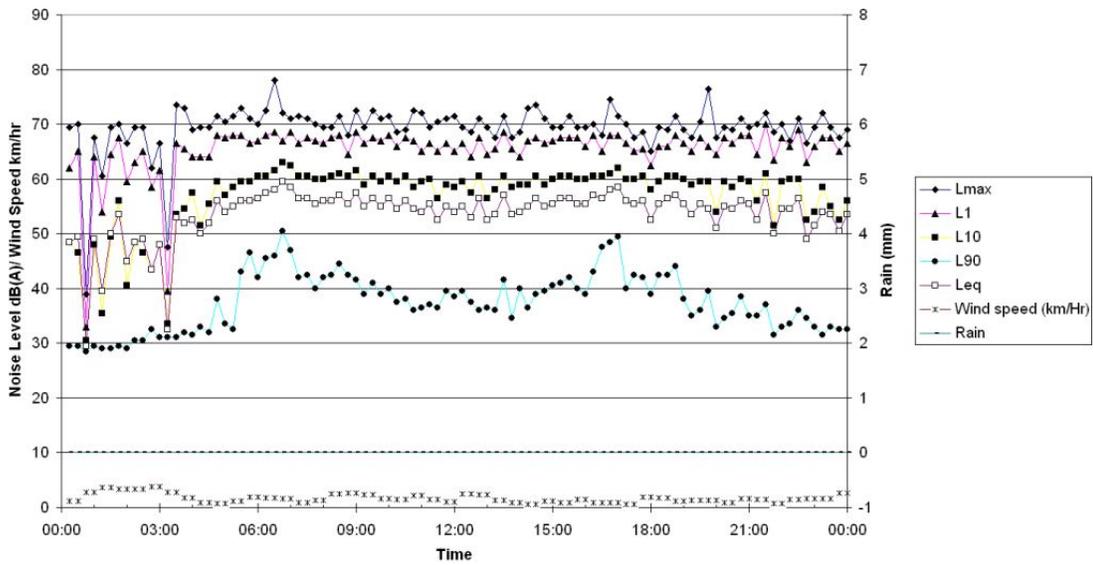
Measured Noise Levels
Location 10 - Beale - Saturday 19/11/2011



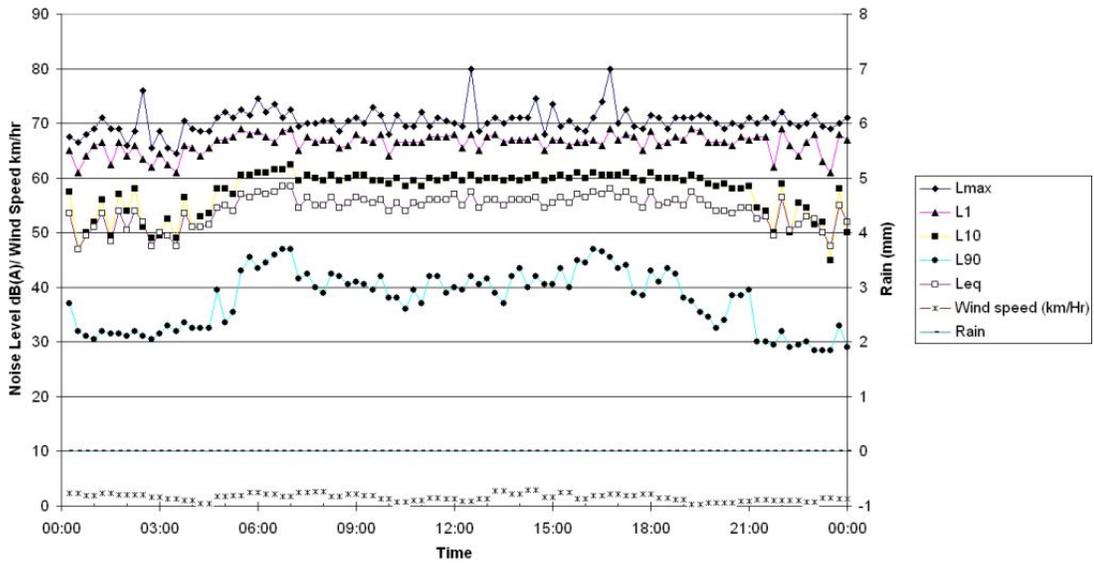
Measured Noise Levels
Location 10 - Beale - Sunday 20/11/2011



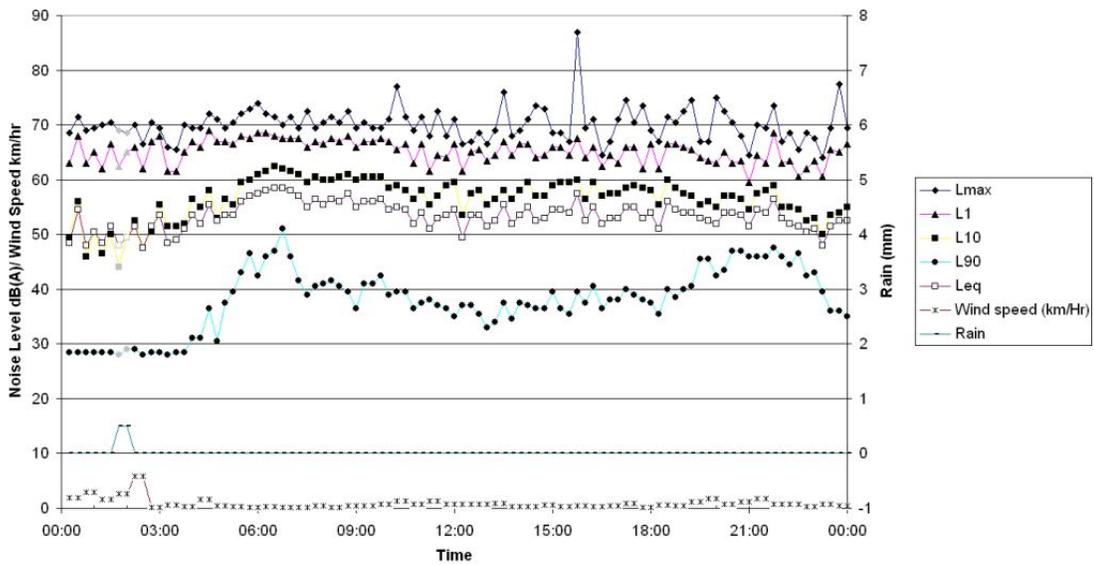
Measured Noise Levels
Location 10 - Beale - Monday 21/11/2011



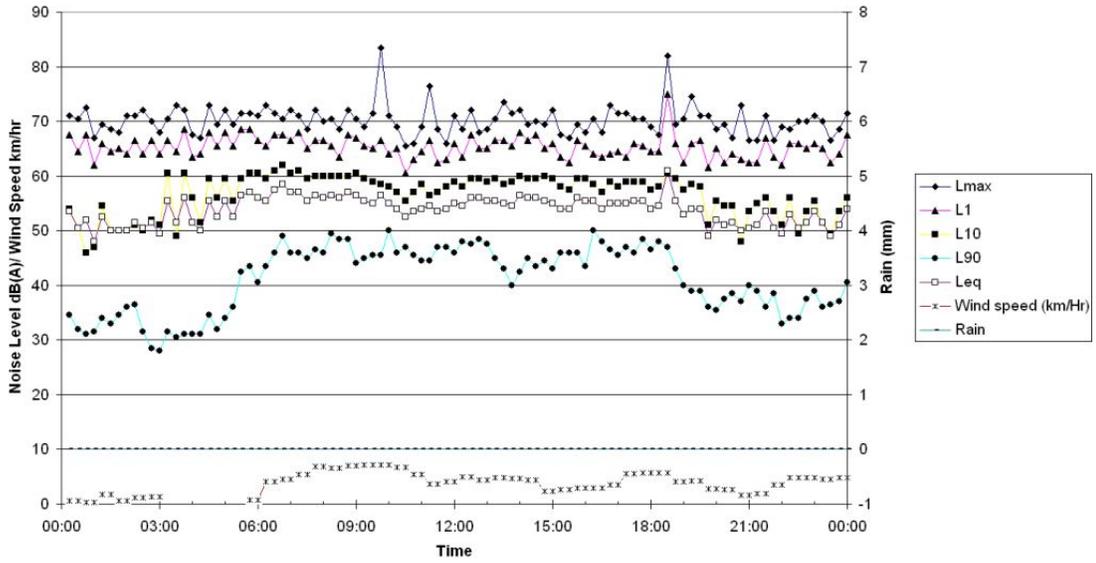
Measured Noise Levels
Location 10 - Beale - Tuesday 22/11/2011



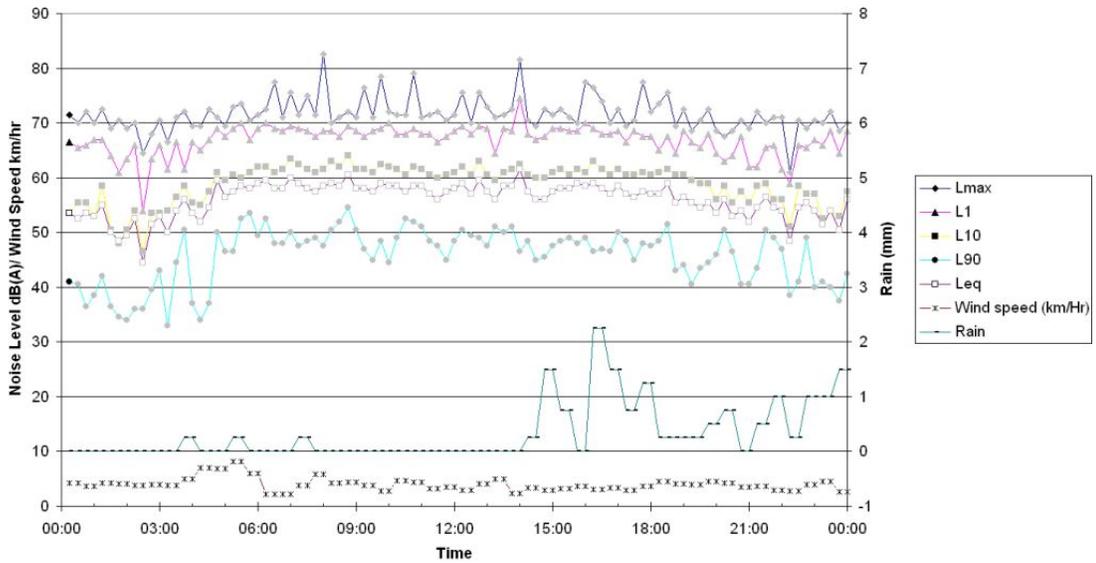
Measured Noise Levels
Location 10 - Beale - Wednesday 23/11/2011



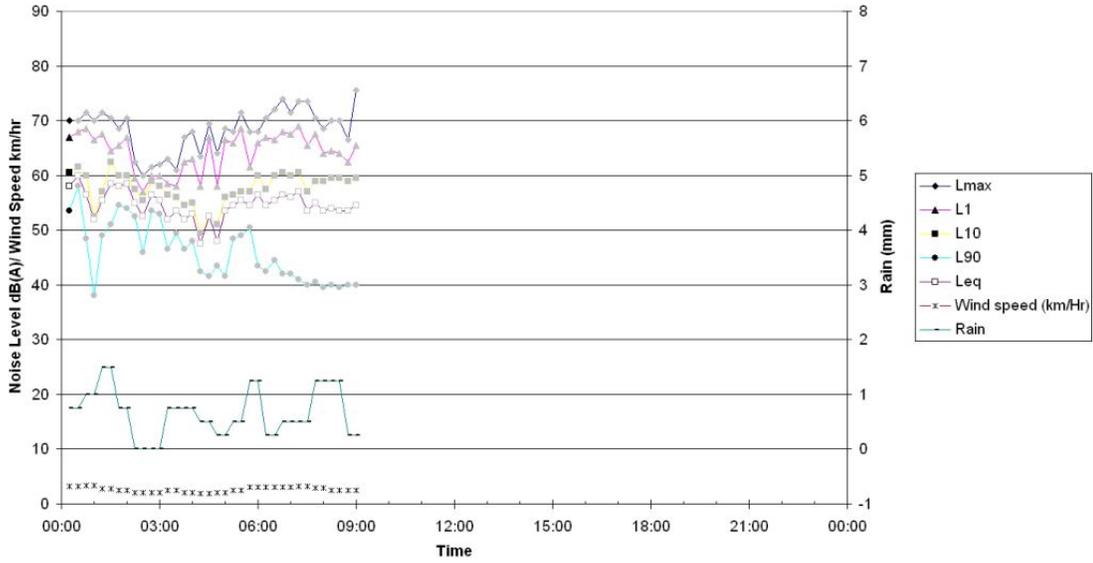
Measured Noise Levels
Location 10 - Beale - Thursday 24/11/2011



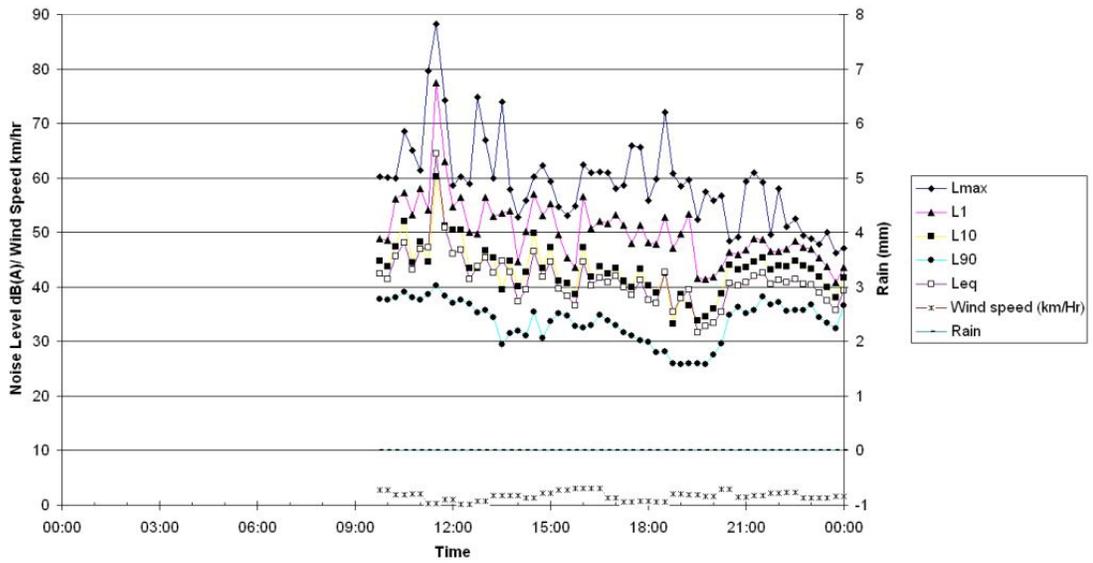
Measured Noise Levels
Location 10 - Beale - Friday 25/11/2011



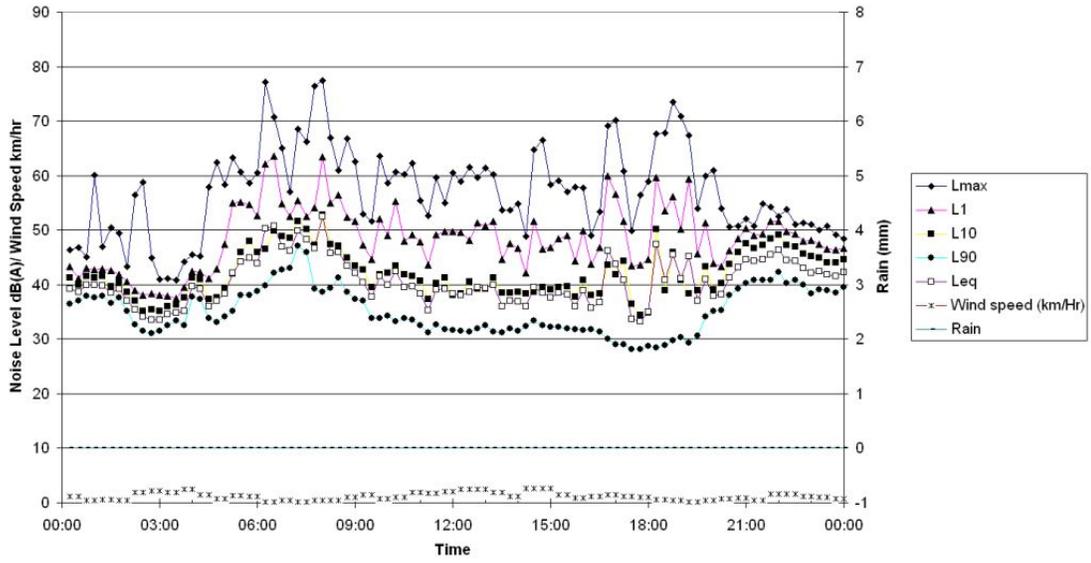
Measured Noise Levels
Location 10 - Beale - Saturday 26/11/2011



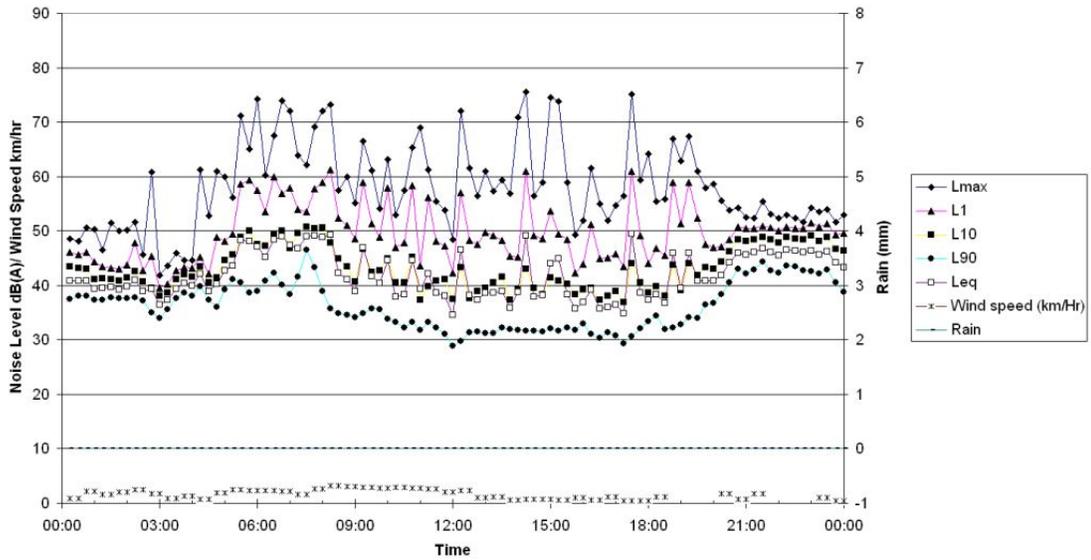
Measured Noise Levels
Location 4 - Reka - Wednesday 16/11/2011



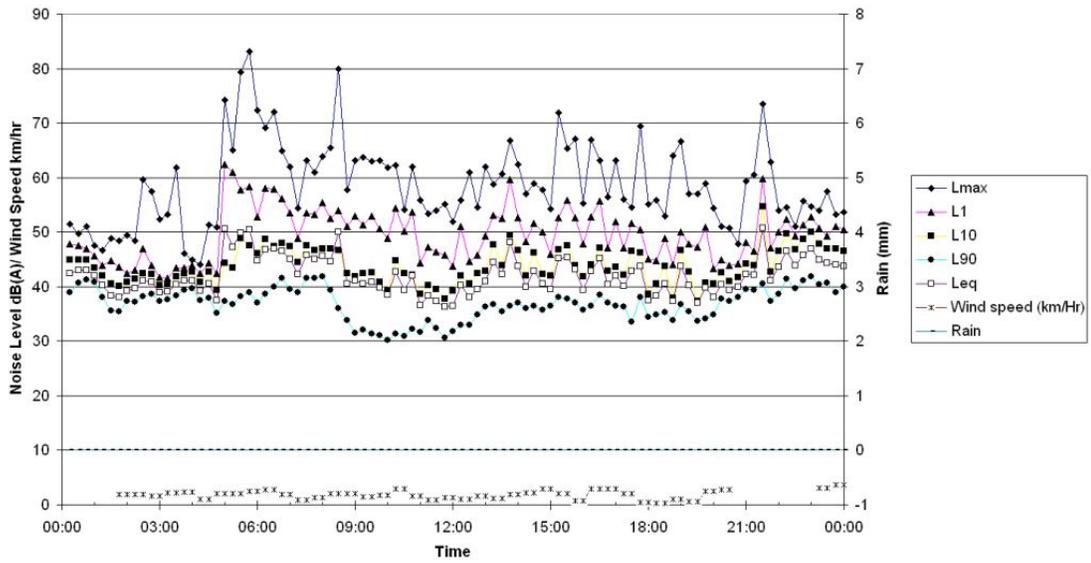
Measured Noise Levels
Location 4 - Reka - Thursday 17/11/2011



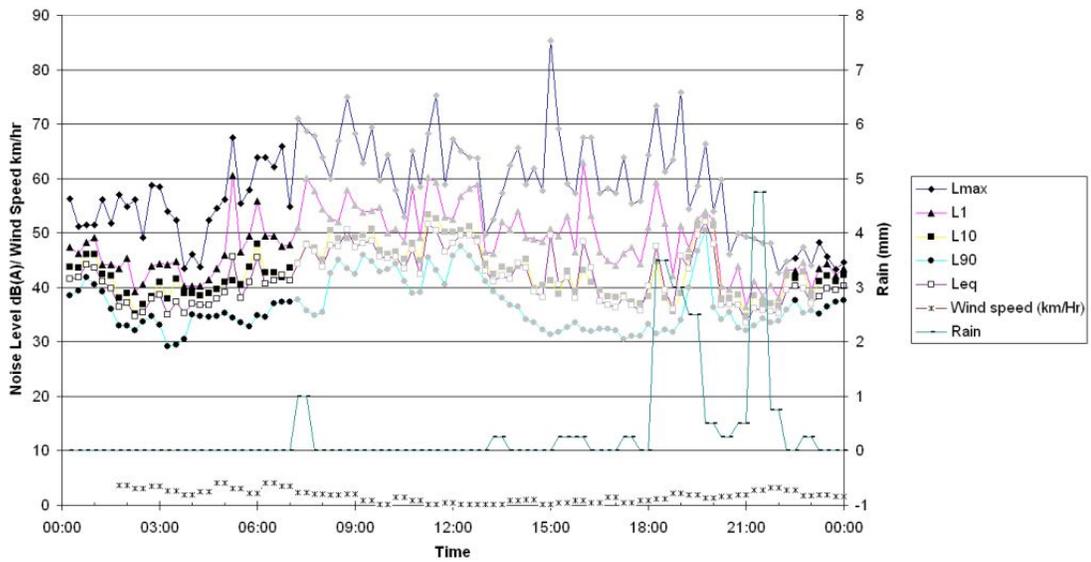
Measured Noise Levels
Location 4 - Reka - Friday 18/11/2011



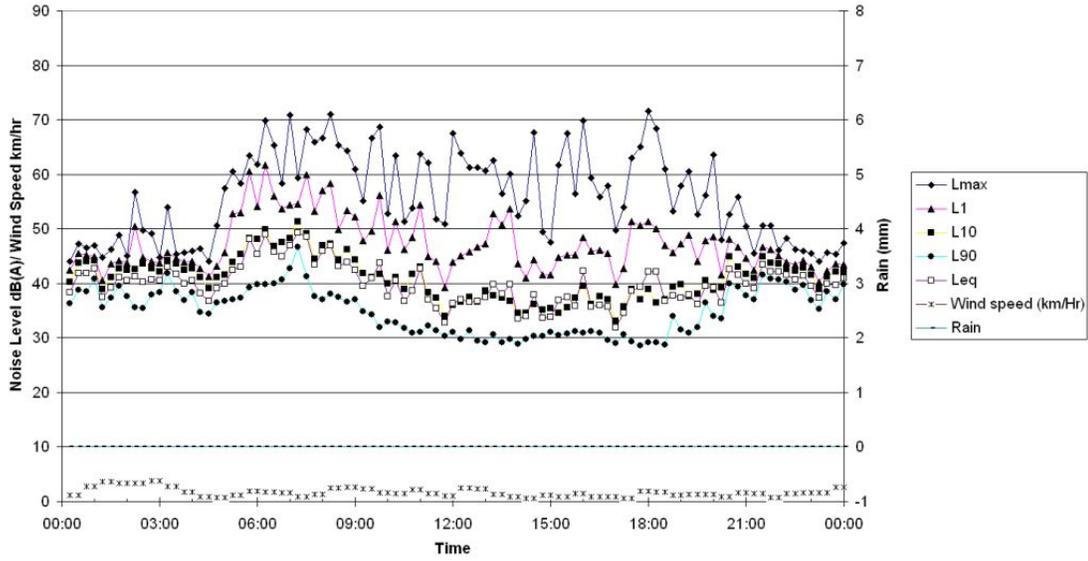
Measured Noise Levels
Location 4 - Reka - Saturday 19/11/2011



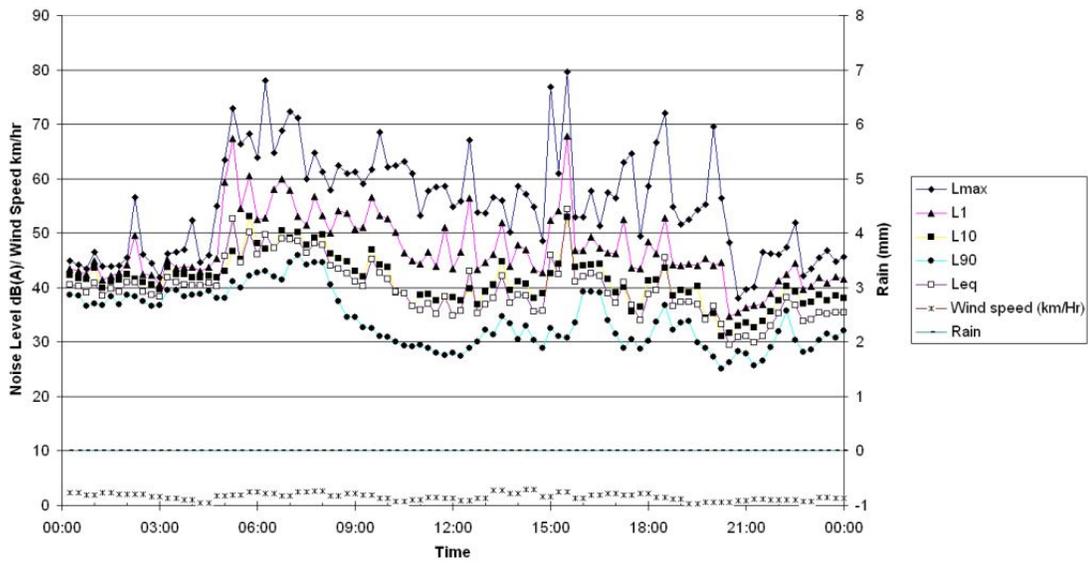
Measured Noise Levels
Location 4 - Reka - Sunday 20/11/2011



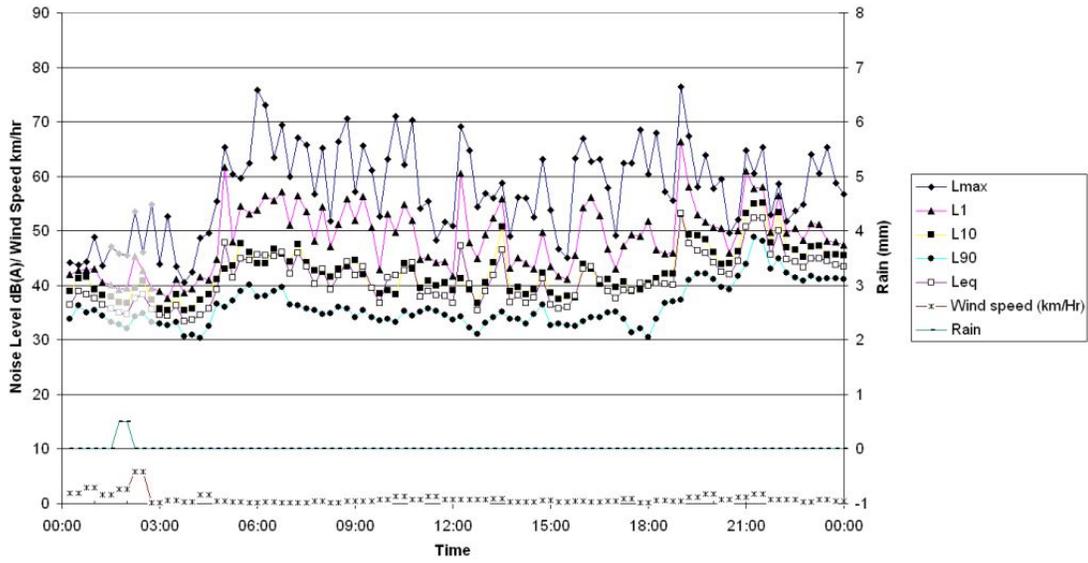
Measured Noise Levels
Location 4 - Reka - Monday 21/11/2011



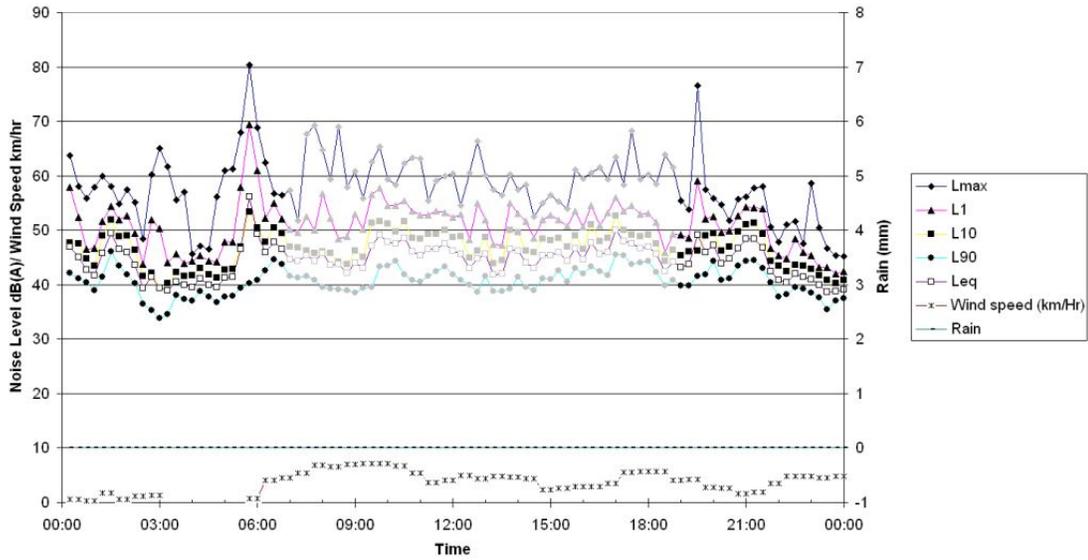
Measured Noise Levels
Location 4 - Reka - Tuesday 22/11/2011



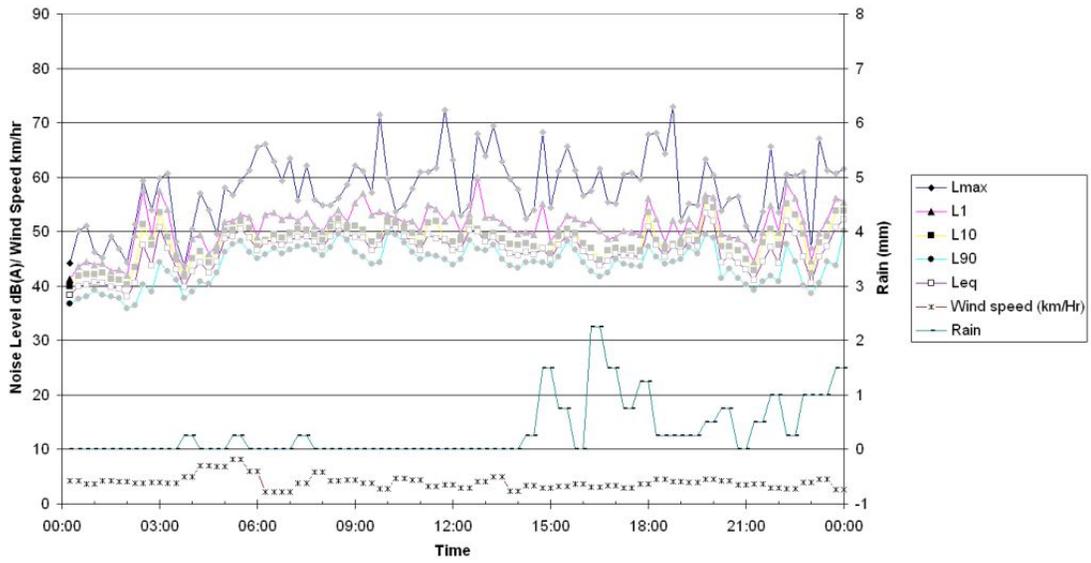
Measured Noise Levels
Location 4 - Reka - Wednesday 23/11/2011



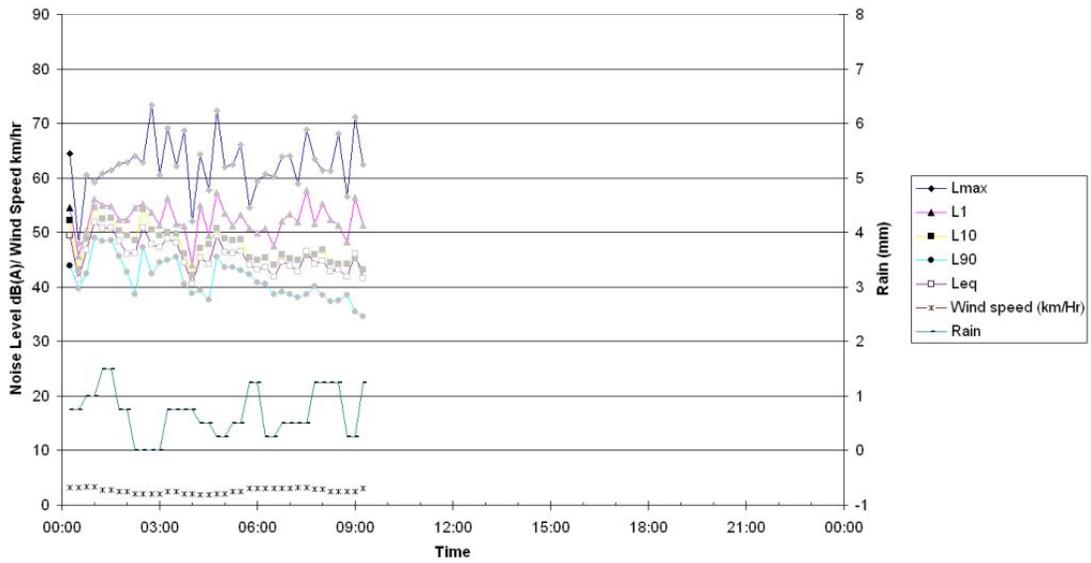
Measured Noise Levels
Location 4 - Reka - Thursday 24/11/2011



Measured Noise Levels
Location 4 - Reka - Friday 25/11/2011



Measured Noise Levels
Location 4 - Reka - Saturday 26/11/2011



Attachment 4: Instrument Calibration Certificates

CERTIFICATE OF CALIBRATION

CERTIFICATE NO.: **SLM 38290**

Equipment Description: Noise Logger

Manufacturer: ARL

Model No: EL-215 **Serial No:** 194593

Microphone Type: Electret **Serial No:** 194593

Filter Type: - **Serial No:** -

Comments: All tests passed for type 2.

Owner: Benbow Environmental
13 Daking Street
North Parramatta NSW 2151

Ambient Pressure: 1013 hPa ± 1.5 hPa

Temperature: 23 °C $\pm 2^\circ$ C **Relative Humidity:** 31 %RH $\pm 5\%$ RH

Date of Calibration: 14/07/2011 **Issue Date:** 15/07/2011

Acu-Vib Test Procedure: AVP05 (SLM) & AVP06 (Filters) if applicable

CHECKED BY: *AM*

AUTHORISED SIGNATORY:

Jack Kieft

This document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025
The results of the tests, calibration and/or measurements included in this document are traceable to Australian/national standards.



Accredited Lab. No. 9262
Acoustic and Vibration
Measurements



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Unit 14, 22 Hudson Ave. Castle Hill NSW 2154
Tel: (02) 96808133 Fax: (02) 96808233
Mobile: 0413 809806
web site: www.acu-vib.com.au

CERTIFICATE OF CALIBRATION

CERTIFICATE NO.: **SLM 38287**

Equipment Description: Noise Logger

Manufacturer: ARL
Model No: EL-215 **Serial No:** 194552
Microphone Type: Electret **Serial No:** 194552
Filter Type: - **Serial No:** -

Comments: All tests passed for type 2.

Owner: Benbow Environmental
13 Daking Street
North Parramatta NSW 2151

Ambient Pressure: 1013 hPa ± 1.5 hPa

Temperature: 23 °C $\pm 2^\circ$ C **Relative Humidity:** 31 %RH $\pm 5\%$ RH

Date of Calibration: 14/07/2011 **Issue Date:** 15/07/2011

Acu-Vib Test Procedure: AVP05 (SLM) & AVP06 (Filters) if applicable

CHECKED BY: *A.S.*

AUTHORISED SIGNATORY:

Jack Klett

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Attachment 5: Noise Complaint Register (past 12 months)

Date	Complainant	Cause of Complaint	Description given
19/05/2011	Pat Whatman	Noise from Mill in General or Woodyard	Noise associated with the site's operation was audible for the last two weeks during evening time. Not specified whether the noise was from the woodyard or from the mill in general
20/05/2011	Pat Whatman	Noise from Boiler Room	Noise coming from Visy mill. With doors and windows closed noise from the mill was louder than the fridge
14/09/2011	Pat Whatman	Noise from Woodyard	Noise from wood chipper that started at 6am
6/10/2011	Graeme Whatman	Noise from Steam System	Loud noise from the mill, described to be similar to a steam noise
9/10/2011	Pat Whatman	Noise from Woodyard	Noise coming from the wood yard
11/11/2011	Pat Whatman	Noise from Recovery Boiler B	Loud rumbling noise