TRUCK NOISE ASSESSMENT
DC CONDITION NO 3.9
FIRST QUARTER MONITORING
VISY PULP AND PAPER PTY LIMITED

Prepared for: Ben Casauria, Project Environmental Engineer, Visy Pulp and Paper Pty Limited

Prepared by: Samuel T Grieve, Acoustical Engineer
R T Benbow, Principal Consultant
BENBOW ENVIRONMENTAL

Report No: 110068_Rev1_Truck Noise
March 2011
(Released: 21 March 2011)

Benbow
ENVIRONMENTAL

Engineering a Sustainable Future for Our Environment

13 Daking Street North Parramatta NSW 2151 AUSTRALIA
Tel: 61 2 9890 5099 Fax: 61 2 9890 5399
Email: admin@benbowenviro.com.au
Visit our website at: www.benbowenviro.com.au

EXECUTIVE SUMMARY

The approval of Stage II of the expansion of Visy Pulp and Paper Mill at Tumut required quarterly monitoring of truck noise under Development Consent Condition 3.9.

The monitored results are to be compared to the predicted traffic noised levels presented in support of the development application.

The truck noise assessment applied the Environmental Criteria for Road Traffic Noise of the Department of Environment, Climate Change and Water (DECCW) and the Roads and Traffic Authority (RTA).

Six monitoring locations were chosen along the principal routes used by logging trucks and the trucks transporting finished product to market destinations.

These routes are shared with other companies processing plantation grown logs and with trucks transporting pine bark and saw dust from these other sites to the Visy Pulp and Paper Mill.

For this first quarterly report there is no separation of the destination or type of trucks contributing to the traffic noise levels. Further monitoring would include methods to enable separation of trucks where this is able to be undertaken.

Discussions with residents who participated in the truck noise study were beneficial and are provided in the body of the report.

R T Benbow
Principal Consultant

CONTENTS PAGE

TABLES PAGE

FIGURES PAGE

ATTACHMENTS

1. INTRODUCTION

The transport of materials within the regional area of Tumut is dependent on trucks for incoming materials and finished product.

This is a similar need for the timber mills in Tumut and at Tumbarumba. It is a similar situation for merchandise and produce consumed by the population centres within the region as well as agricultural product sold for consumption elsewhere.

The Tumut pulp and paper operation and the timber mill at Tumbarumba operate on a 24/7 basis and logging trucks need to deliver raw materials throughout the day and night time. The weekend periods have less logging truck activity and none on the weekend nights to the pulp and paper mill is our understanding.

The truck noise requires an effective ongoing management plan. The undertaking of quarterly monitoring was welcomed by the residential community who appreciated this initiative.

2. ROAD NETWORK

The road network uses the same haulage routes as used for the previous operations that exist in this Region. The same haulage routes currently in use are being used.

The road network is shown on Figure 2.1.

The discussion of the road network is therefore separated into raw materials and finished product.

2.1 RAW MATERIALS

Raw materials delivered to site will include the following:

- Saw mill residues;
- Boiler fuel; and
- Pulp logs.

Saw mill residues are delivered from saw mills located in Tumut, ACT, Bathurst and Bombala. These are delivered in either semi-trailers or walking floor 'B' doubles.

The woodyard is provided with the facility to elevate the semi-trailer on a tilting platform or to transfer the material from walking floor trailers.

Delivery of these materials during night time are restricted from some sites, the number of night time movements are limited as a result.

Logs are delivered from a much wider number of sites and will also be concentrated to daytime deliveries.

The roads to be used for the sourcing of raw materials are at this stage expected to be the following:

- Timber mills:
  - Snowy Mountains Highway, Gocup Road and Wondalga/Batlow Road.

- Forests:
  - ACT via Gocup Road, Bombala and Macquarie regions via Gocup Road and the Snowy Mountains Highway.

2.2 FINISHED PRODUCT

Finished product would be delivered using two routes:

- The Snowy Mountains Highway through Adelong. This is the route to Melbourne, Adelaide and Queensland.
- The Snowy Mountains Highway through Tumut. This is the route to Sydney and if deliveries are required at night time for Interstate.

For this first quarterly truck noise monitoring 6 locations were chosen. Further locations may be added and locations used in this first monitoring period may be varied.

The six locations are shown on Figure 2-1 and are described below and photographs are provided to further discuss the locations:

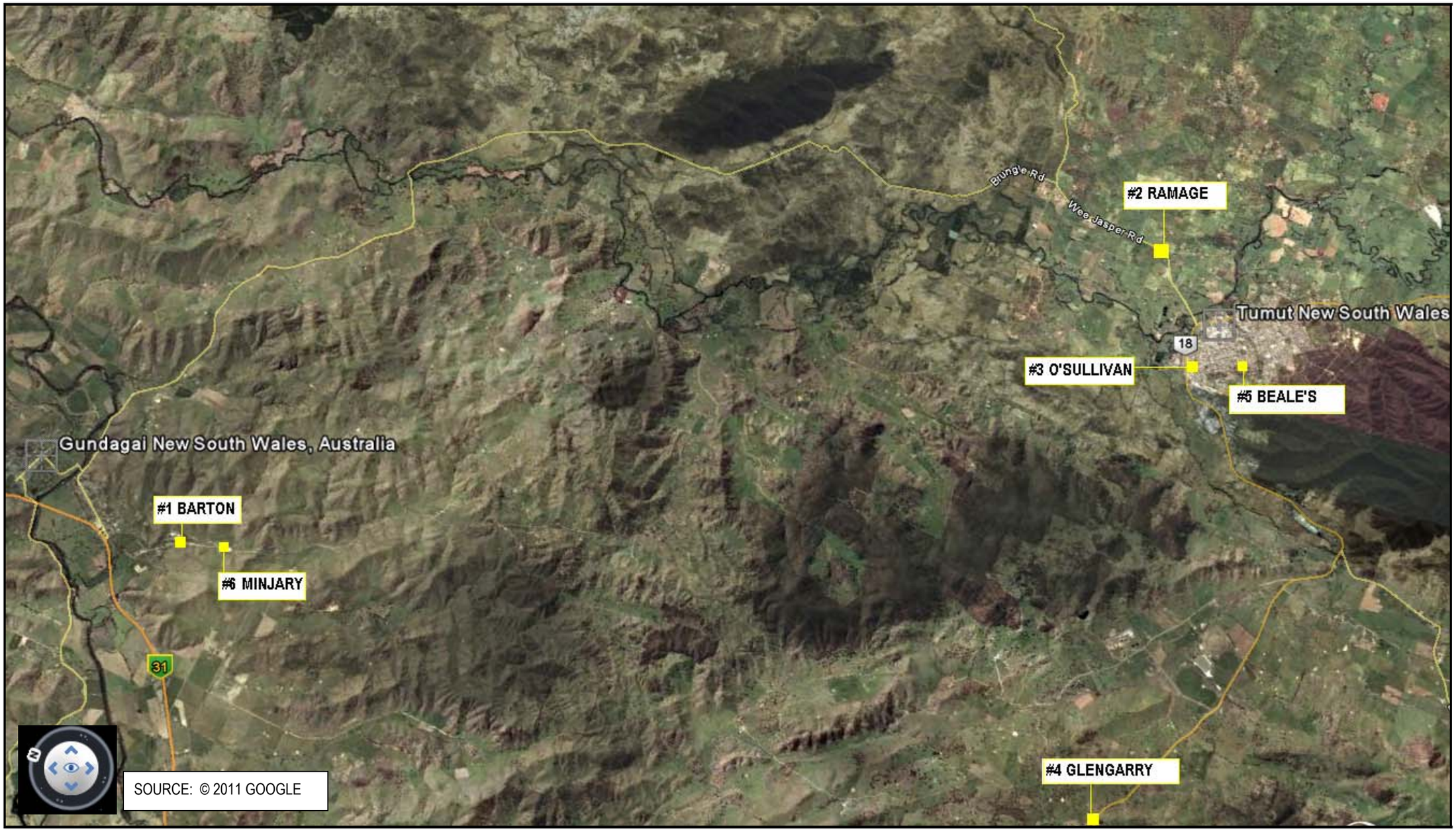
- Snowy Mountains Highway:
  - Glengarry; and
  - Beale's new residence.

- Gocup Road to Gundagai:
  - Barton; and
  - Minjary – No. 1575 Gocup Road.

- Bombala Road:
  - O'Sullivan

- Wee Jasper Road:
  - Ramage

Figure 2-1: Road Network Showing Residential Locations



3. TRAFFIC NOISE CRITERIA

Since the existing operations commenced traffic noise criteria has changed. The current criteria examine two time periods of the day and uses an L_{Aeq} noise descriptor. Previously an L_{A10} noise descriptor and a single 18 hour period was used. An explanation of the terminology is provided in Attachment 2. The traffic noise criteria are referenced from the NSW DEC document "Environmental Criteria for Road and Traffic Noise" ISBN 0 7313 0203 6 EPA 99/3.

Daytime	7:00am – 10:00pm This is the $L_{Aeq\ (15\ hour)}$	60dB(A)
Night time	10:00pm – 7:00am This is the $L_{Aeq\ (9\ hour)}$	55dB(A)

Where the existing measured noise level is within 2dB of the above criterion, a 2dB allowance may be applied for the additional traffic. Where the existing measured noise level is already at the criteria and a further increase is predicted than feasible and reasonable mitigation measures are needed.

Maximum noise levels generated at night time may result in sleep disturbance. There are guidelines provided for general reference in the above document for maximum noise levels at the external façade of the residence

The sleep disturbance assessment is more complex. The stationary industrial noise policy applied to sleep disturbance is readily exceeded by cars passing along roadways that have residences typically within 30m of the roadway and therefore cannot be effectively applied.

Trucks exceed this level further so a voluntary management plan is presented in Attachment 3 to reduce the L_{Amax} or $L_{A1\ (1\ min)}$ noise levels that may be experienced, as a part of best management practices.

4. MEASURED TRAFFIC NOISE LEVELS

4.1 RESULTS

The measured traffic noise levels are presented in this section of the report. Noise data loggers were located at 6 residential locations in line with the front facades of the residences but removed from reflecting surfaces.

Table 4-1: Measured Traffic Noise Levels

Location	$L_{Aeq\ (15\ hour)}$ Criteria 60 dB(A)	$L_{Aeq\ (1\ hour)}$ min	$L_{Aeq\ (1\ hour)}$ max	$L_{Aeq\ (9\ hour)}$ Criteria 55 dB(A)	$L_{Aeq\ (1\ hour)}$ min	$L_{Aeq\ (1\ hour)}$ max
Snowy Mountains Highway:						
- Glengarry No. 4	55.8	37.0	70.8	44.8	35.2	55.1
- Beale's new residence No. 5	55.3	47.8	62.7	53.1	40.2	58.6
Gocup Road to Gundagai:						
- Barton No.1	65.0	55.5	77.0	60.8	52.0	64.4
- Minjary – No. 1575 No. 6 Gocup Road	63.2	54.4	73.8	60.5	52.5	73.3
Bombala Road:						
- O'Sullivan No. 3	57.8	45.2	67.8	52.9	38.3	64.7
Wee Jasper Road:						
- Ramage No. 2	61.7	53.0	66.9	57.7	44.7	65.2

Comments

The measured L_{Aeq} values consider all noise sources and the $L_{Aeq\ (1hour)}$ levels listed under the column heading max are contributed from any noise source. These therefore are not expected to be due to trucks – lawn mowing, domestic activities dogs barking and natural sources would contribute. The $L_{Aeq\ (15\ hour)}$ and $L_{Aeq\ (6\ Hour)}$ are of more relevance. These show the following when compared to the predicted combined traffic noise levels from all existing traffic and the Visy traffic contribution after commissioning of the Stage II of the pulp and paper mill.

Note: The measured levels are to be weather corrected and will be released in Issue 2.

- Snowy Mountains Highway

1. Glengarry

Locations No. 4 and No. 5

Predicted Daytime $L_{Aeq\ (15\ hour)}$ 46.9
Measured Daytime $L_{Aeq\ (15\ hour)}$ 55.8
Complies ✓

Influence of other sources expected. Traffic counts will need to be used to show the contribution from traffic by using the traffic noise model.

Predicted Night time $L_{Aeq\ (9\ hour)}$ 44
Measured Night time $L_{Aeq\ (9\ hour)}$ 44.8
Complies ✓

2. Beale' new residence

Location No. 5

Predicted Daytime $L_{Aeq\ (15\ hour)}$ N/R
Measured Daytime $L_{Aeq\ (15\ hour)}$ 55.3
Complies ✓

Beale predicted based on original location of residence therefore not relevant.

Predicted Night time $L_{Aeq\ (9\ hour)}$ N/R
Measured Night time $L_{Aeq\ (9\ hour)}$ 53.1
Complies ✓

- Gocup Road to Gundagai

3. Barton

Locations No. 1 and No. 6

Predicted Day time $L_{Aeq\ (15\ hour)}$ 53.9
Measured Day time $L_{Aeq\ (15\ hour)}$ 65
Complies X

Predicted Night time $L_{Aeq\ (9\ hour)}$ 51.2
Measured Night time $L_{Aeq\ (9\ hour)}$ 60.8
Complies X

4. Minjary – No. 1575
Location No. 6 Based on "Dallas" Predicted levels

Predicted Day time $L_{Aeq\ (15\ hour)}$ 58.2
Measured Day time $L_{Aeq\ (15\ hour)}$ 63.2
Complies X

Predicted Night time $L_{Aeq\ (9\ hour)}$ 54.6
Measured Night time $L_{Aeq\ (9\ hour)}$ 60.5
Complies X

- Bombala Road

5. O'Sullivan
Location No 3 Based on "Volley" Predicted levels

Predicted Day time $L_{Aeq\ (15\ hour)}$ 55.4
Measured Day time $L_{Aeq\ (15\ hour)}$ 57.8
Complies ✓

Predicted Night time $L_{Aeq\ (9\ hour)}$ 50.2
Measured Night time $L_{Aeq\ (9\ hour)}$ 52.9
Complies ✓

- Wee Jasper Road

6. Ramage
Location No. 2 Based on "Thompson" Predicted levels

Predicted Day time $L_{Aeq\ (15\ hour)}$ 55.5
Measured Night time $L_{Aeq\ (9\ hour)}$ 61.7
Complies X

Predicted Day time $L_{Aeq\ (15\ hour)}$ 52.2
Measured Night time $L_{Aeq\ (9\ hour)}$ 57.7
Complies X

The measured non compliances are expected to be due to the influence of other sources. Obtaining traffic counts will enable the contribution from traffic to be calculated and used to more accurately determine if the traffic noise criteria are being exceeded. Weight bridge data would also be able to be used to predict the increase due to the Visy Pulp and Paper Mill site.

The exceedances of traffic noise criteria shown from the results on Gocup Road are significant and are from all sources of traffic. The Visy predicted increase was minor.

4.2 PHOTOGRAPHIC SECTION

Photograph 1: Residence along Wee Jasper Road – "Ramage" Location 2. Roadway surface is in good condition. Road is flat.

Photograph 2A: Residence along Snowy Mountains Highway Glengarry. Location 4. Roadway surface is good. Road has gentle gradient then rising steeply further to the west.

Photograph 2B: Some residence with a view to the East. The vehicle speed limit is 100km/hour.

Photograph 3A: Residences at Location 1 along Gocup Road. There are two residences adjacent and close to the roadway. Road surface is poor and roadway dips through bends. Residents commented that logger trucks using engine brakes to slow before entering the curve. One resident works evening shift and has difficulty sleeping at times. Warning signs can be erected as have been used by RTA elsewhere – Do Not Use Engine Suppression Brakes or similar.

Photograph 3B: The view to the west where the roadway has a slight gradient.

Photograph 3: Location at Minjary where there is a cluster of three residences. The roadway surface is good. The road has a steep gradient using to the west. No advice comments were made.

The following tables present the predicted noise levels due to the additional Visy trucks proposed for Phase 1 and Phase 2. These results are then compared to the measured levels.

Table 4-2: Predicted Visy Traffic Noise Levels Phase 1

Location	$L_{Aeq\ (15\ hour)}$ Criteria 60 dB(A)	Satisfies Criteria	$L_{Aeq\ (9\ hour)}$ Criteria 55 dB(A)	Satisfies Criteria
"O. Sullivan" (Wondalga Rd, Tumbarumba)	44.8	✓	42.4	✓
"Minjary"	44.7	✓	44.2	✓
"Barton" (Gocup Rd, Gundagai)	46.0	✓	45.5	✓
"Ramage" (Bombowle Rd)	40.6	✓	36.5	✓
"Steunkal"	57.0	✓	54.8	✓
"Beale"	55.0	✓	52.8	✓
"Glengarry" (Snowy Mts Hwy, west of Batlow Rd)	36.2	✓	<35	✓

✓ Satisfies criteria ✗ Exceeds criteria

Table 4-3: Predicted Visy Traffic Noise Levels Phase 2				
Location	$L_{Aeq\ (15\ hour)}$ Criteria 60 dB(A)	Satisfies Criteria	$L_{Aeq\ (9\ hour)}$ Criteria 55 dB(A)	Satisfies Criteria
"Sullivan" (Adelong)	51.3	✓	<35	✓
"Kelly" (Wondalga Rd, Tumbarumba)	44.9	✓	42.4	✓
"Dallas"	45.2	✓	44.7	✓
"Barton" (Gocup Rd, Gundagai)	46.5	✓	46.0	✓
"Thompson" (Bombowle Rd)	40.8	✓	36.6	✓
"Steunkal"	57.4	✓	55.1	✓
"Beale"	55.4	✓	53.1	✓
"Glengarry" (Snowy Mts Hwy, west of Batlow Rd)	36.2	✓	<35	✓
"Michael" (western edge of Tumut township)	54.9	✓	52.8[A]	✓

Notes

A. There has been no reduction in the truck speed, the effect of this control measure is presented after Table 4-5.

Comments

1. The $L_{Aeq\ (15\ hour)}$ and $L_{Aeq\ (9\ hour)}$ contribution solely from the mill expansion Visy truck movements does not exceed the criteria at any location.

2. When this contribution is added to the measured traffic noise criteria the outcome is shown in the following table. In this table the increase due to Visy is also shown. A target is to keep the increase to ≤ 2dB.

Table 4-4: Combined Existing Traffic (all sources and Phase 1 Visy)				
Location	$L_{Aeq\ (15\ hour)}$ Criteria 60 dB(A)	Satisfies Criteria	$L_{Aeq\ (9\ hour)}$ Criteria 55 dB(A)	Satisfies Criteria
"Sullivan" (Adelong)	60.6 Increase 0.6	X ✓	52.7 Increase 0.0	✓
"Kelly" (Wondalga Rd, Tumbarumba)	55.4 Increase 0.4	✓ ✓	50.2 Increase 0.8	✓ ✓
"Dallas" "Barton" (Gocup Rd, Gundagai)	58.2 Increase 0.2 53.8 Increase 0.8	✓ ✓ ✓ ✓	54.5 Increase 0.4 51.0 Increase 1.4	✓ ✓ ✓ ✓
"Thompson" (Bombowle Rd)	55.3 Increase 0.3	✓ ✓	52.2 Increase 0.2	✓ ✓
"Steunkal" "Beale" "Glengarry" (Snowy Mts Hwy, west of Batlow Rd)	59.9 Increase 3.1 63.5 Increase 0.7 46.9 Increase 0.4	✓ X X ✓ ✓ ✓	56.6 Increase 4.5 59.4 Increase 1.1 44.4 Increase 0.0	X X X ✓ ✓ ✓
"Micheael" (western edge of Tumut township)	63.4 Increase 0.5	X ✓	58.3[A] Increase 1.3	X ✓

Notes

A. There has been no reduction in the truck speed, the effect of this control measure is presented after Table 4-5.

Comments

1. Daytime the traffic noise criteria are exceeded at the same residences as currently occurs – "Beale" and "Michael".

2. The increase at "Steunkal" is above 2 dB(A).

3. Night time the "Steunkal", "Beale", and "Michael" residences exceed criteria.

Table 4-5: Combined Existing Traffic (all sources and Phase II Visy)				
Location	$L_{Aeq\ (15\ hour)}$ Criteria 60 dB(A)	Satisfies Criteria	$L_{Aeq\ (9\ hour)}$ Criteria 55 dB(A)	Satisfies Criteria
"Sullivan" (Adelong)	60.6 Increase 0.6[A]	X ✓	52.7 Increase 0.0	✓
"Kelly" (Wondalga Rd, Tumbarumba)	55.4 Increase 0.4	✓ ✓	50.2 Increase 0.8	✓ ✓
"Dallas" "Barton" (Gocup Rd, Gundagai)	58.2 Increase 0.2 53.9 Increase 0.9	✓ ✓ ✓ ✓	54.6 Increase 0.5 51.2 Increase 1.6	✓ ✓ ✓ ✓
"Thompson" (Bombowle Rd)	55.3 Increase 0.3	✓ ✓	52.2 Increase 0.2	✓ ✓
"Steunkal" "Beale" "Glengarry" (Snowy Mts Hwy, west of Batlow Rd)	60.1 Increase 3.3 63.6 Increase 0.8 46.9 Increase 0.4	X X X ✓ ✓ ✓	56.8 Increase 4.8 59.5 Increase 1.2 44.4 Increase 0.0	X X X ✓ ✓ ✓
"Michael" (western edge of Tumut township)	63.5 Increase 0.6	X ✓	58.4[B] Increase 1.4	X ✓

Notes

A. A slight increase has been calculated for "Sullivan" (Adelong) and the existing $L_{Aeq\ (15\ hour)}$ noise level is due to all noise sources. Exceedances are not due to traffic and the predicted increase does not exceed criteria.

B. For the western edge of Tumut township adopting a Truck Noise Management Plan is warranted. This involves a speed reduction to 50 km/hour before the residential area at the western edge of Tumut township.

Applying this speed reduction would reduce the L_{Amax} noise levels typically by 5-8 dB(A) depending on truck characteristics. It would also reduce the $L_{Aeq\ (9\ hour)}$ predicted noise level to 57.8 dB(A), providing a reduction of the increase due to all sources and Visy (Phase 2) to 0.8 dB(A) rather than 1.4 dB(A).

The adoption of the night time reduction in truck speeds at this location is recommended. Further evaluation of the reduction that would be achieved to the existing non Visy truck noise levels has not been evaluated due to the wide range of trucks characteristics from the other sources that is expected.

Comments

1. The combined noise levels exceed the traffic noise criteria at the same three locations – "Steunkal", "Beale", and "Michael".

2. Visy are not the dominant source of trucks. The timber industry combined with Visy would be the main source of truck noise as these are the dominant industries in this region and support the financial strength of these townships.

5. CONCLUDING COMMENTS

The first quarterly traffic noise monitoring has shown the need to require traffic counting.

The traffic counts would then be compared to the valves used in the development consent process. The traffic counts would also be used in the traffic noise model to predict the traffic noise levels.

Calibration of measured and predicted is usually reasonably accurate provided the road is not in a deteriorated condition.

A second issue of the report will be released with the Visy weight bridge data and any advise weather conditions noise data removed.

R T Benbow
Principal Consultant

Samuel Grieve
Acoustical Engineer

6. 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.

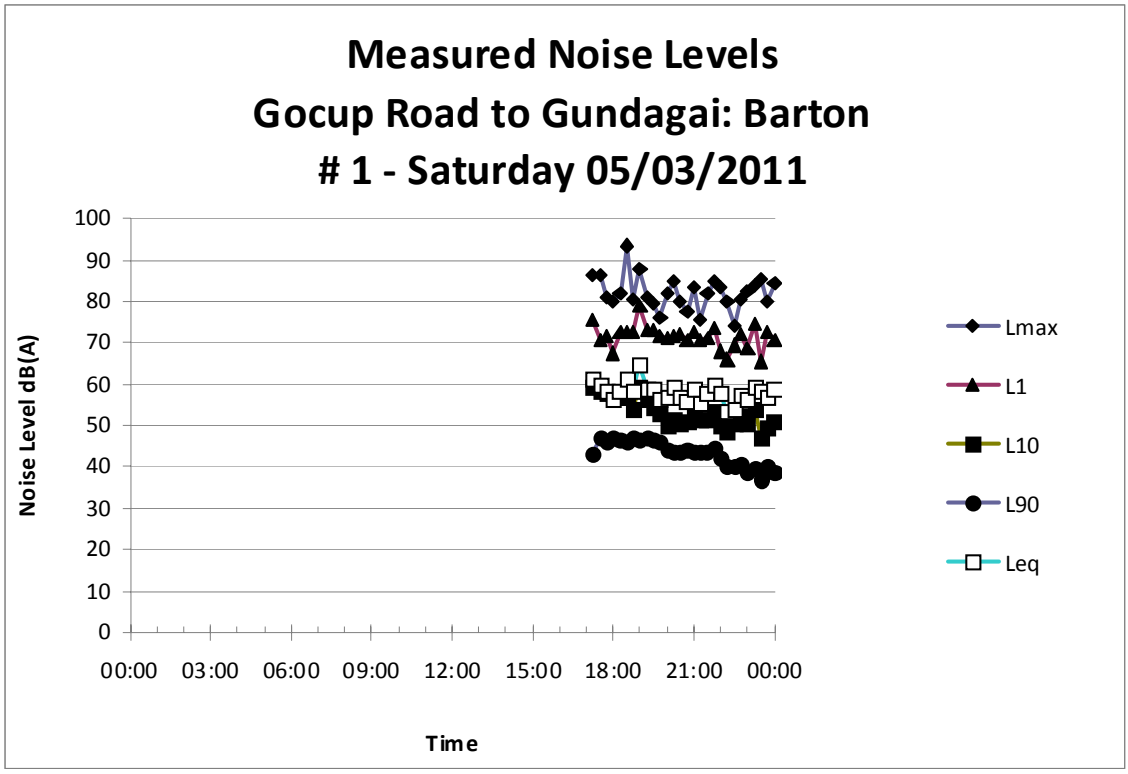
This report has been prepared solely for the use by Visy Pulp and Paper Pty Limited, as per our agreement for providing environmental assessment services. Although all due care has been taken in the preparation of this study, no warranty is given, nor liability accepted (except that required by law)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

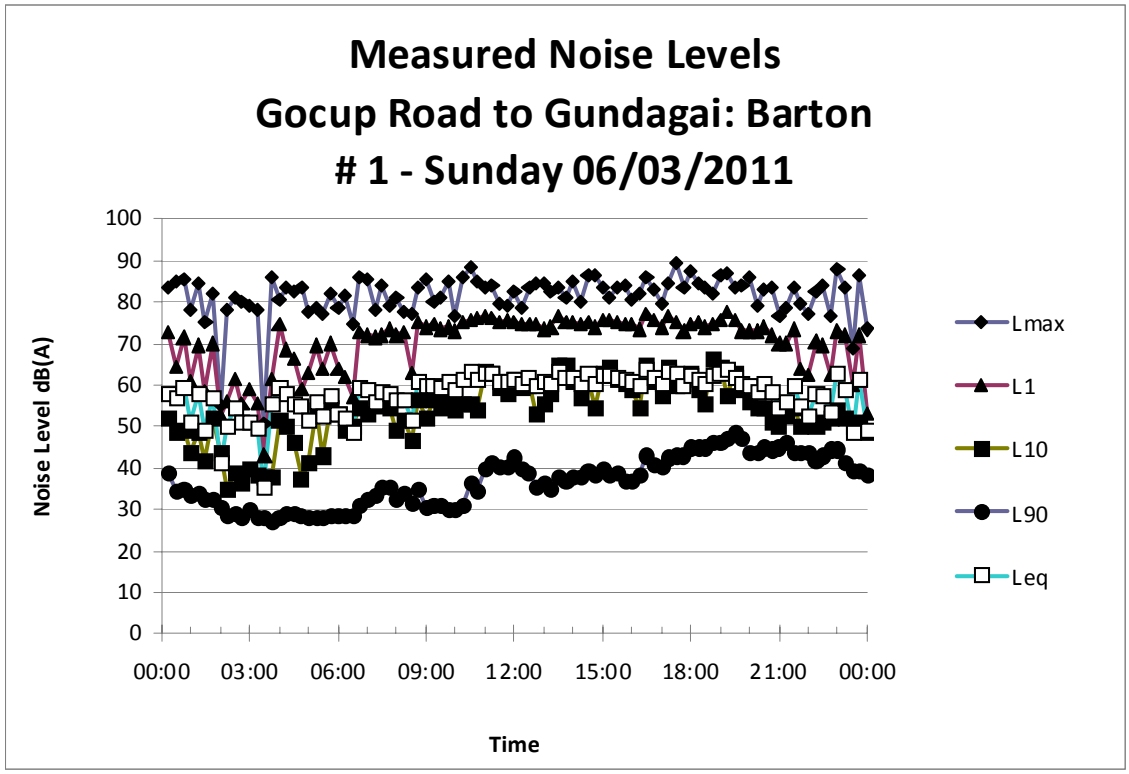
Visy Pulp and Paper Pty Limited is entitled to rely upon the findings in the report within the scope of work described in this report. No responsibility is accepted for the use of any part of the report in any other context or for any other purpose.

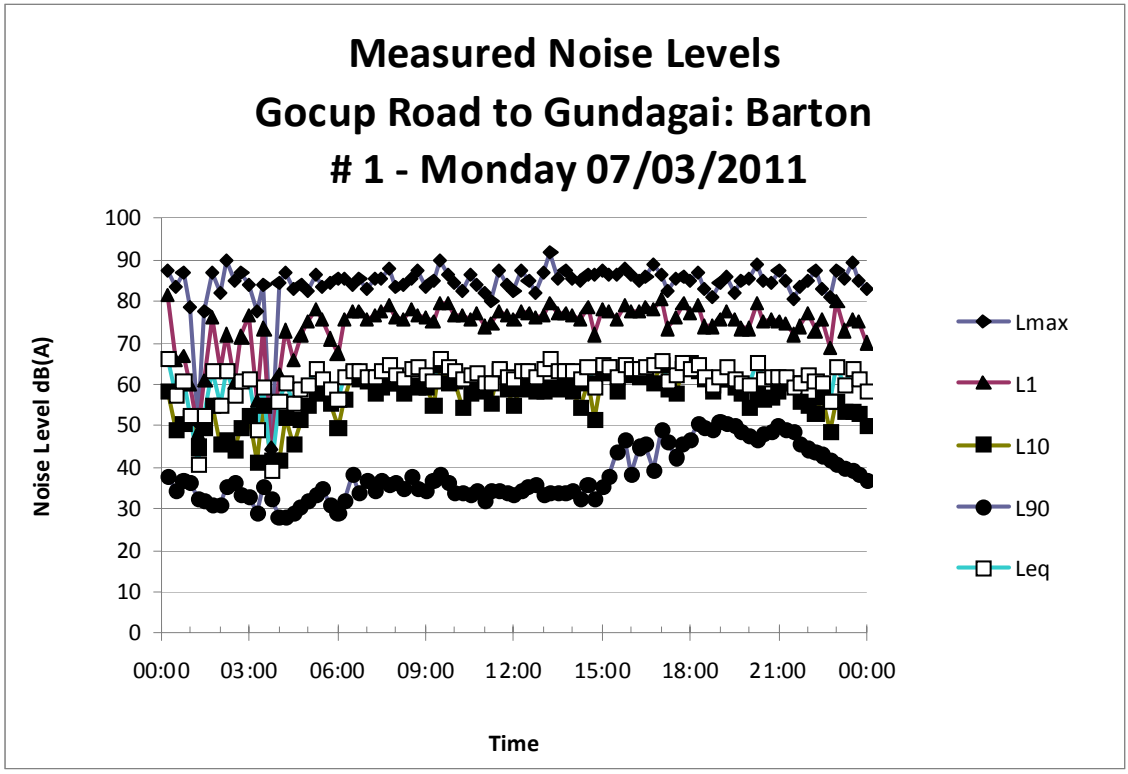
Opinions and judgements expressed herein, which are based on our understanding and interpretation of current regulatory standards, should not be construed as legal opinions.

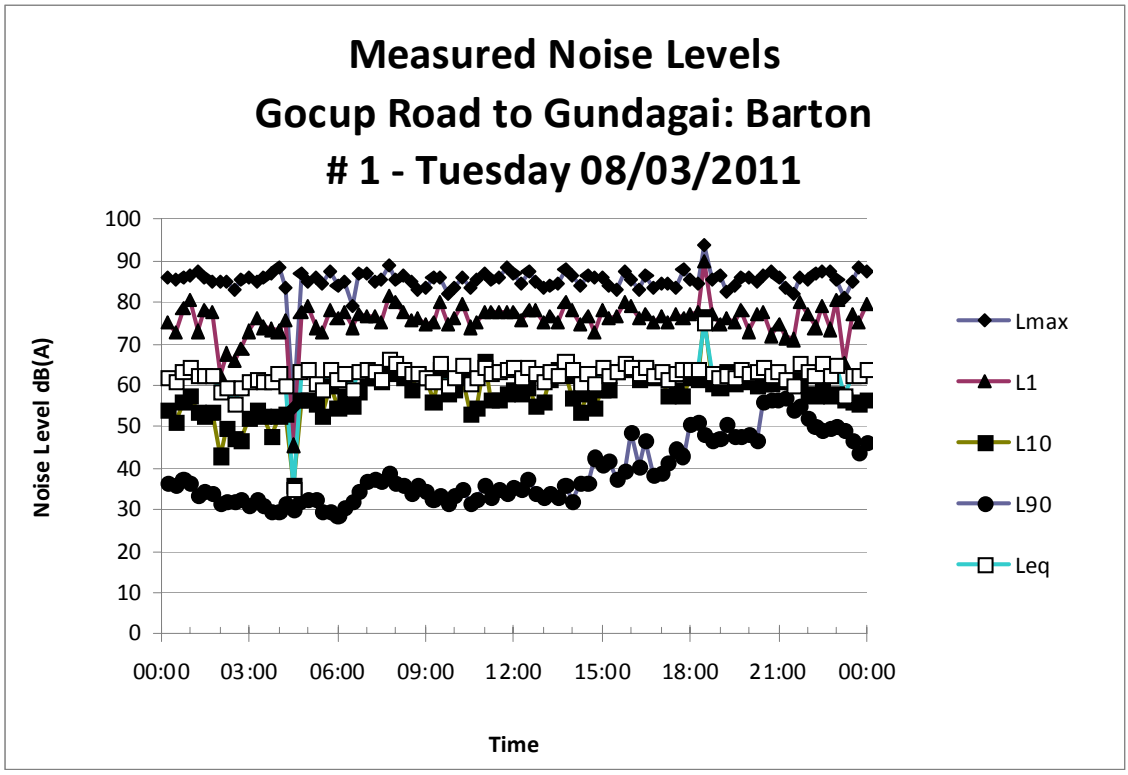
ATTACHMENTS

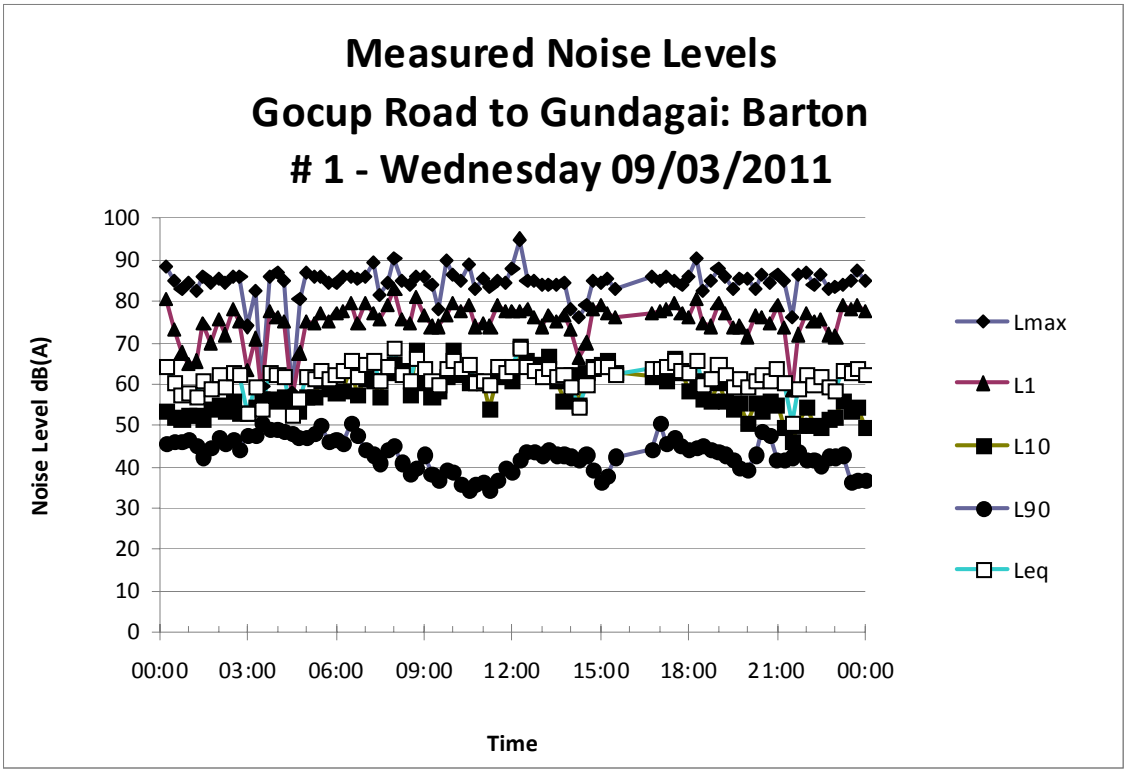
Attachment 1: Barton – Location No. 1

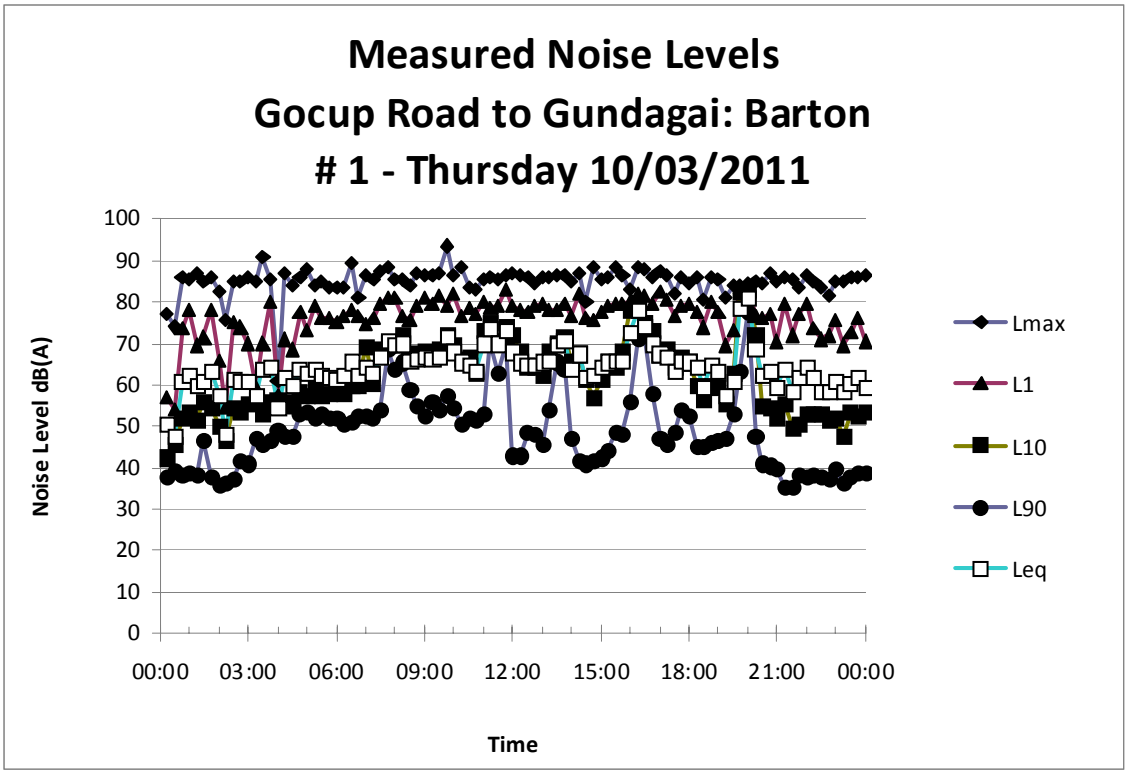

Measured Noise Levels
Gocup Road to Gundagai: Barton
1 - Saturday 05/03/2011
Noise Level dB(A)
100
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq

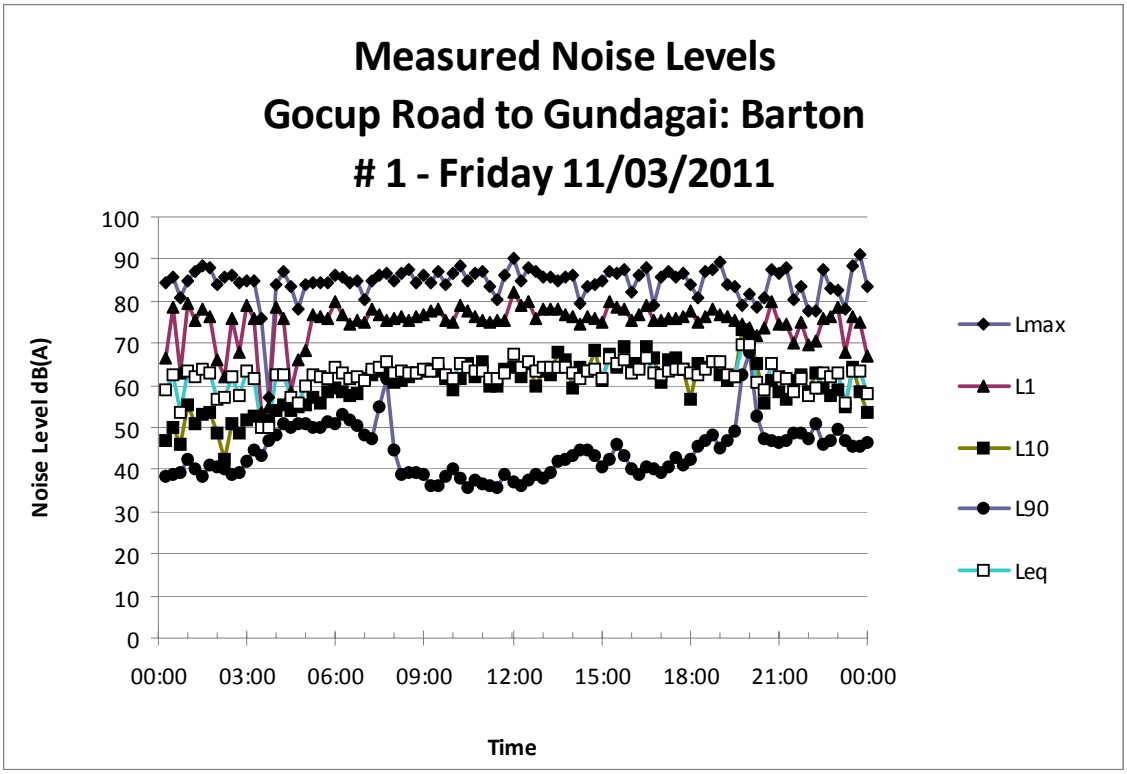

Measured Noise Levels
Gocup Road to Gundagai: Barton
1 - Sunday 06/03/2011
Noise Level dB(A)
100
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq

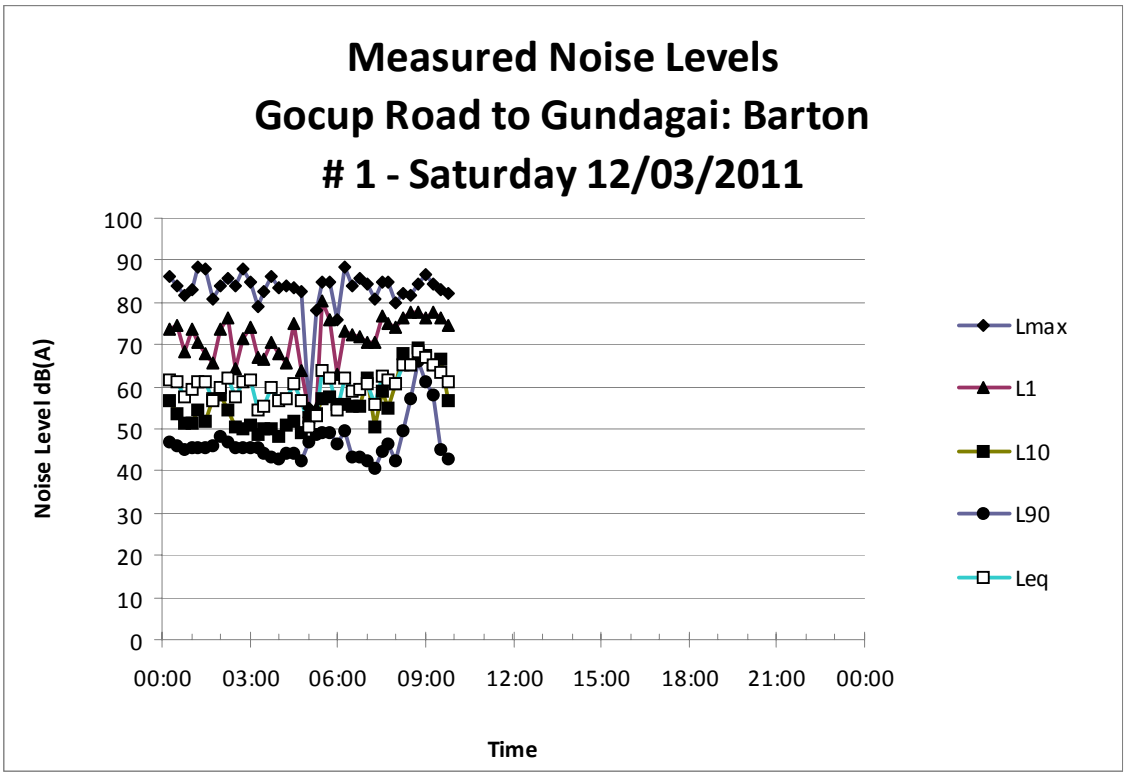

Measured Noise Levels
Gocup Road to Gundagai: Barton
1 - Monday 07/03/2011
Noise Level dB(A)
100
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
Gocup Road to Gundagai: Barton
1 - Tuesday 08/03/2011
Noise Level dB(A)
100
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq

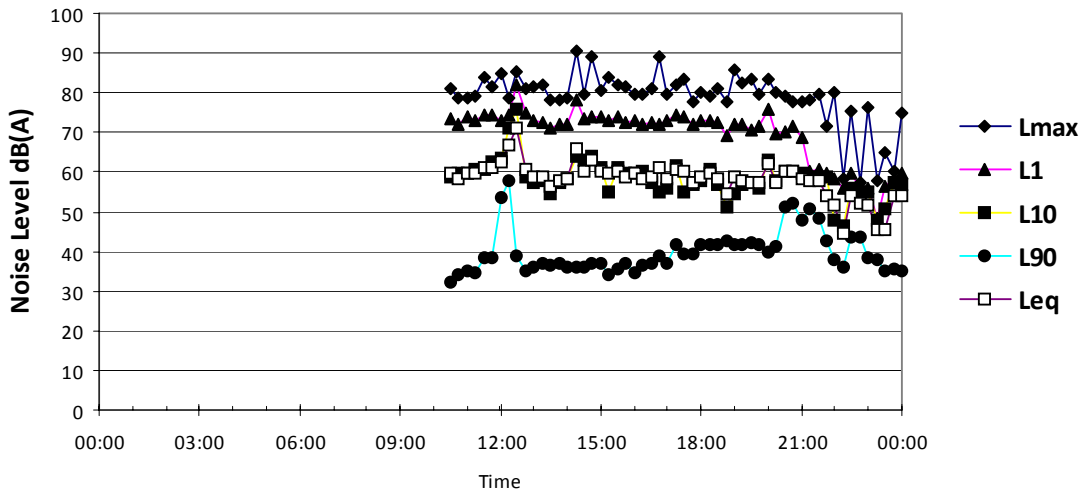

Measured Noise Levels
Gocup Road to Gundagai: Barton
1 - Wednesday 09/03/2011
Noise Level dB(A)
100
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
Gocup Road to Gundagai: Barton
1 - Thursday 10/03/2011
Noise Level dB(A)
100
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq

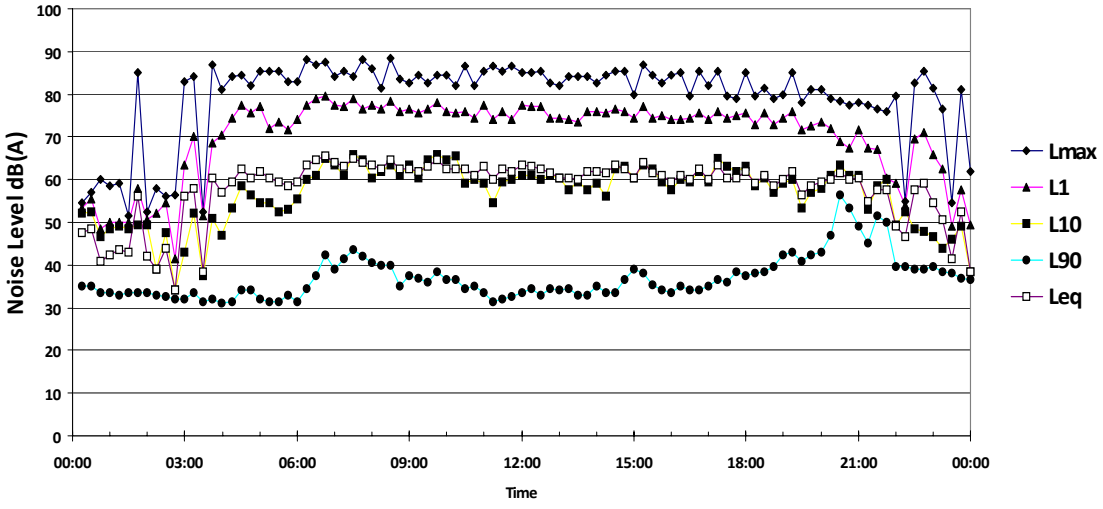

Measured Noise Levels
Gocup Road to Gundagai: Barton
1 - Friday 11/03/2011
Noise Level dB(A)
100
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
Gocup Road to Gundagai: Barton
1 - Saturday 12/03/2011
Noise Level dB(A)
100
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq

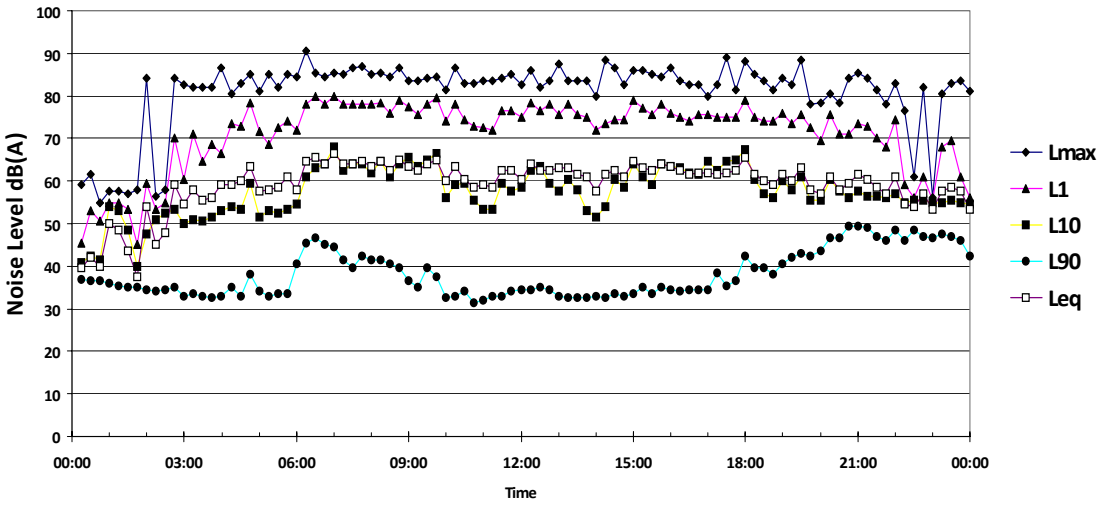
Measured Noise Levels
Wee Jasper Road: Ramage
2 - Sunday 06/03/2011



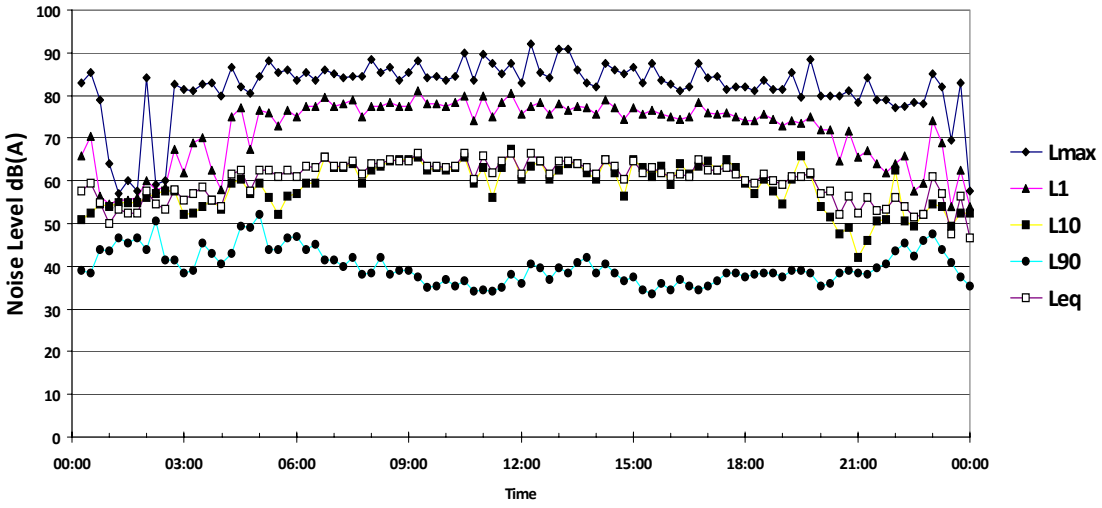
Measured Noise Levels
Wee Jasper Road: Ramage
2 - Monday 07/03/2011



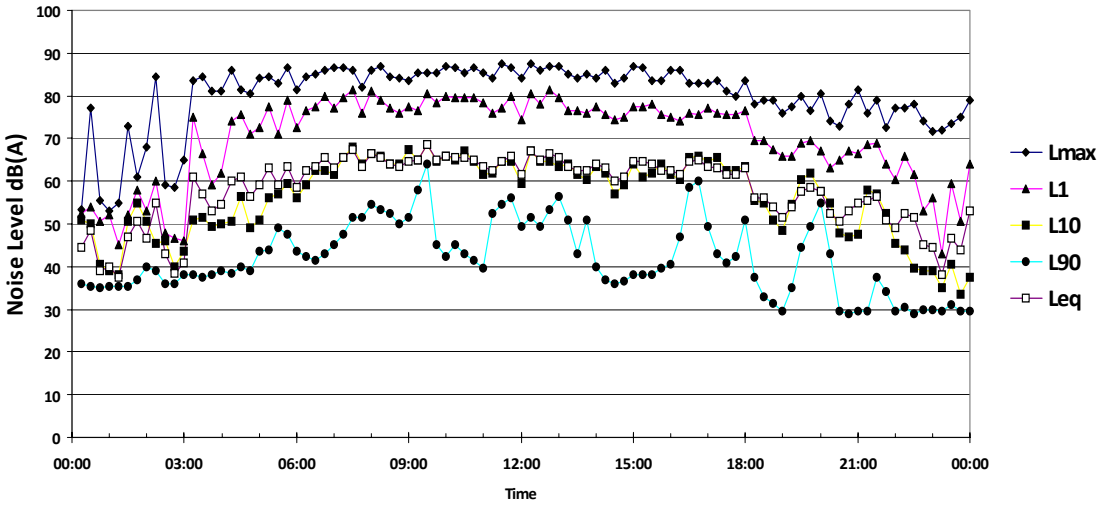
Measured Noise Levels
Wee Jasper Road: Ramage
2 - Tuesday 08/03/2011



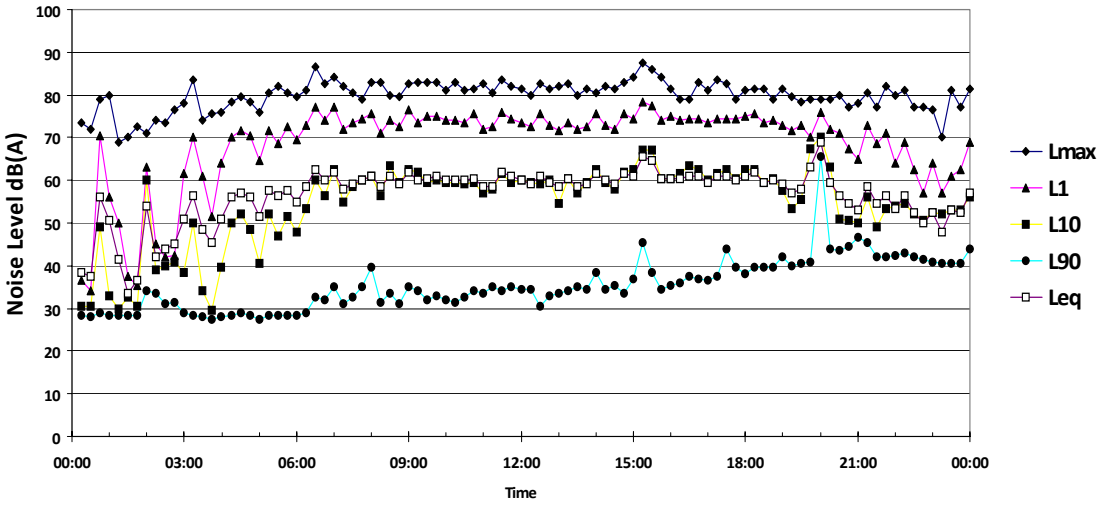
Measured Noise Levels
Wee Jasper Road: Ramage
2 - Wednesday 09/03/2011



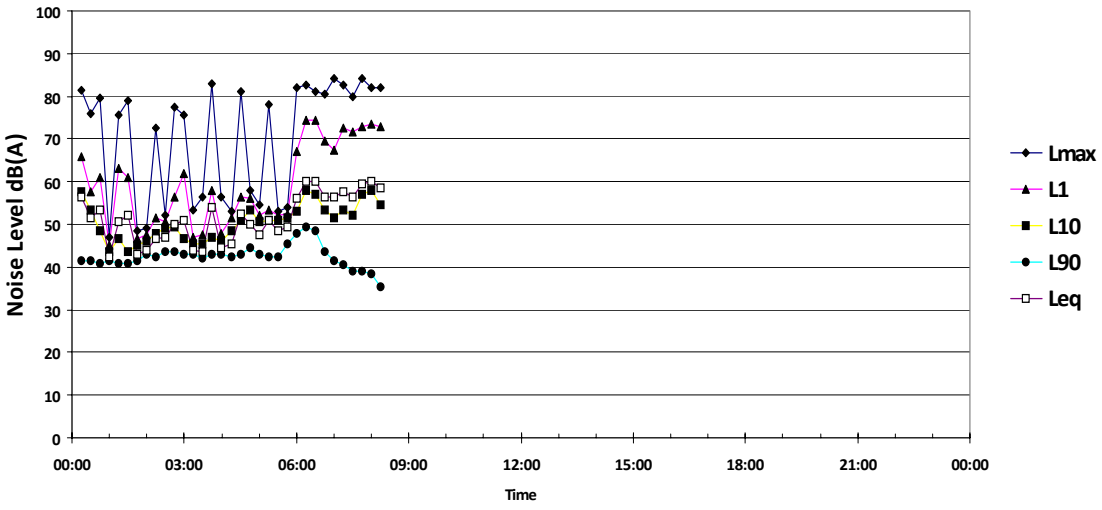
Measured Noise Levels
Wee Jasper Road: Ramage
2 - Thursday 10/03/2011



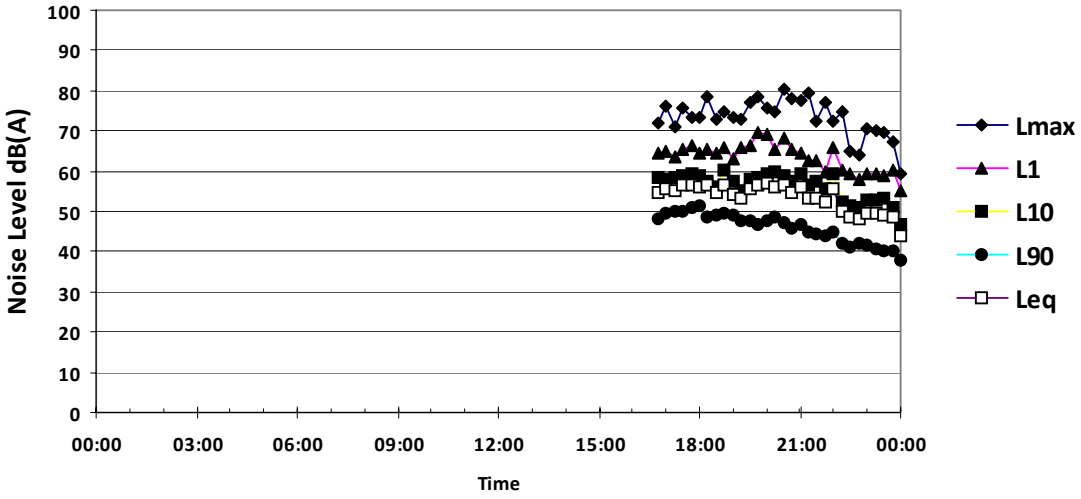
Measured Noise Levels
Wee Jasper Road: Ramage
2 - Friday 11/03/2011



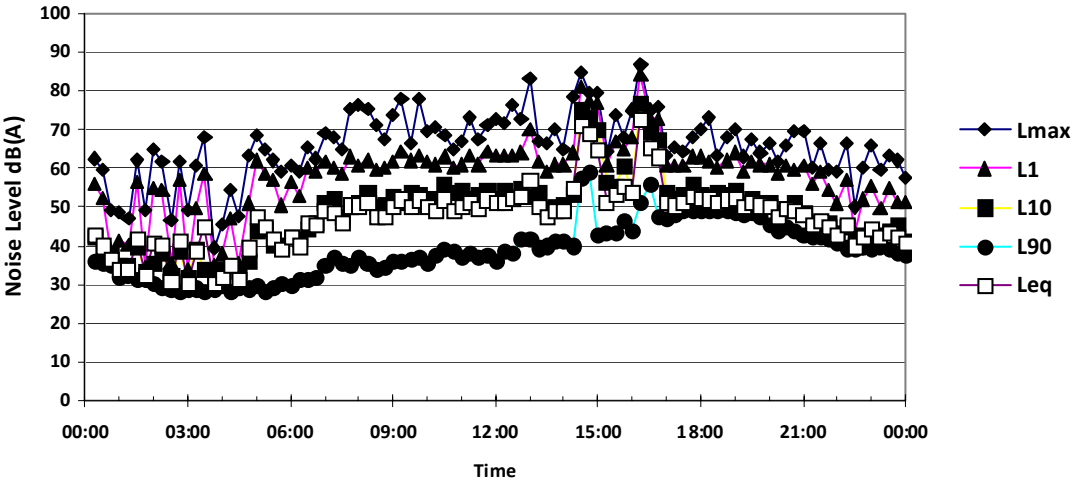
Measured Noise Levels
Wee Jasper Road: Ramage
2 - Saturday 12/03/2011



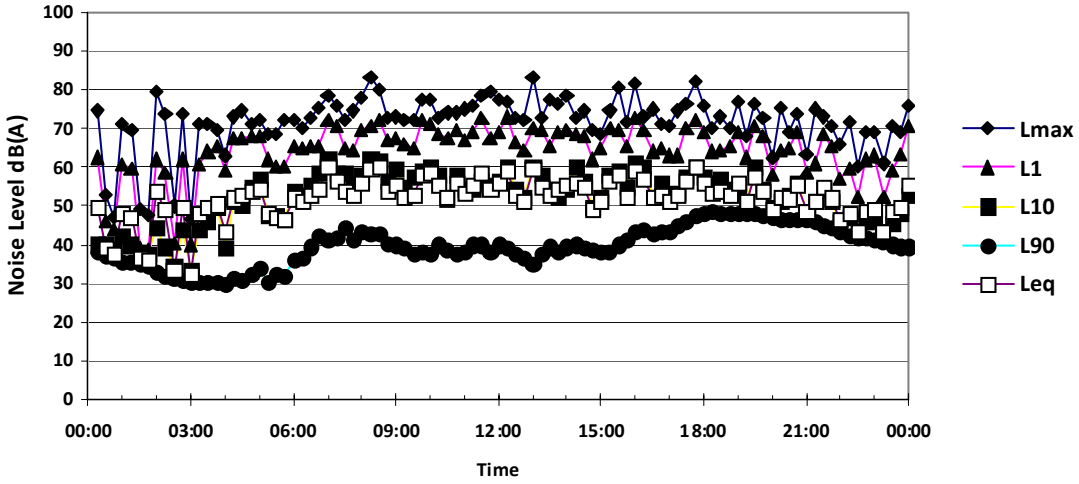
Measured Noise Levels
Bombala Road : O'Sullivan
3 - Saturday 05/03/2011



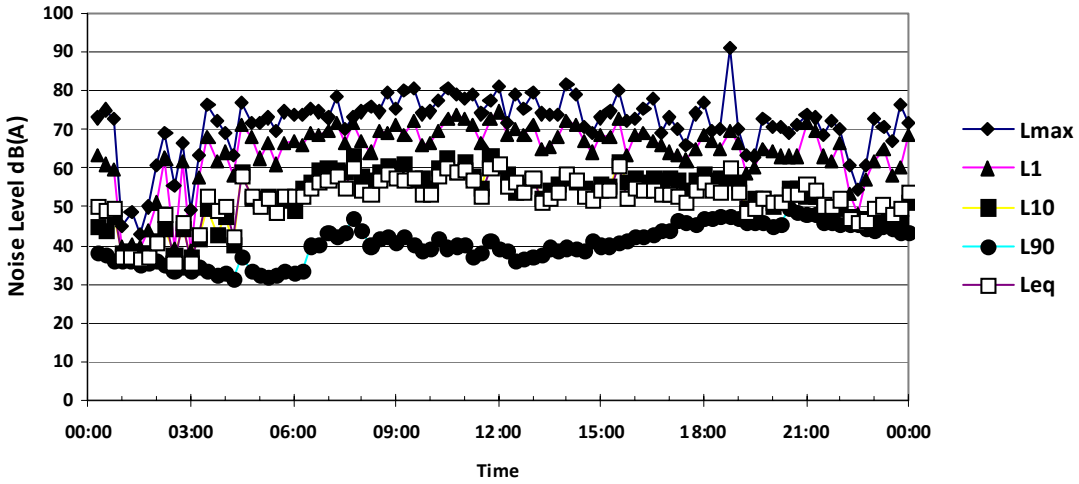
Measured Noise Levels
Bombala Road : O'Sullivan
3 - Sunday 06/03/2011



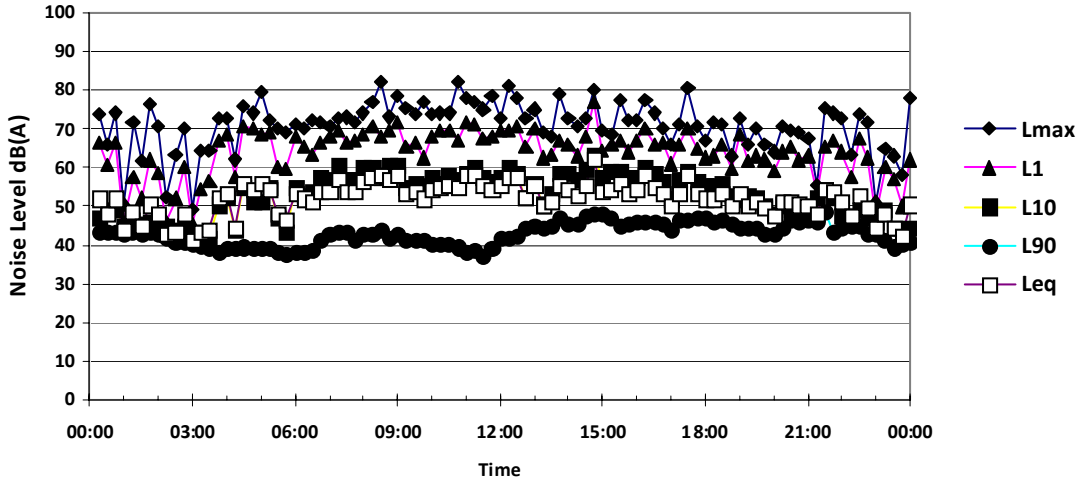
Measured Noise Levels
Bombala Road : O'Sullivan
3 - Monday 07/03/2011



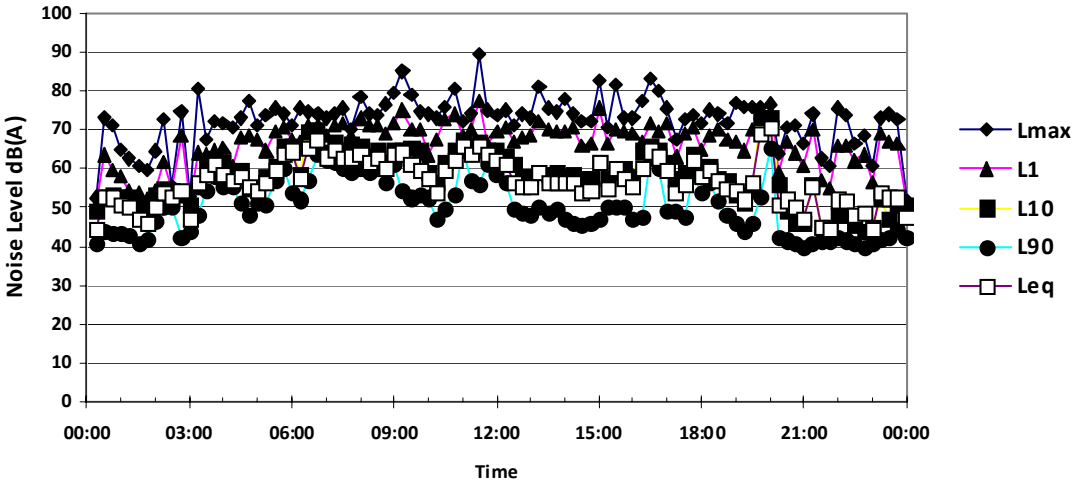
Measured Noise Levels
Bombala Road : O'Sullivan
3 - Tuesday 08/03/2011



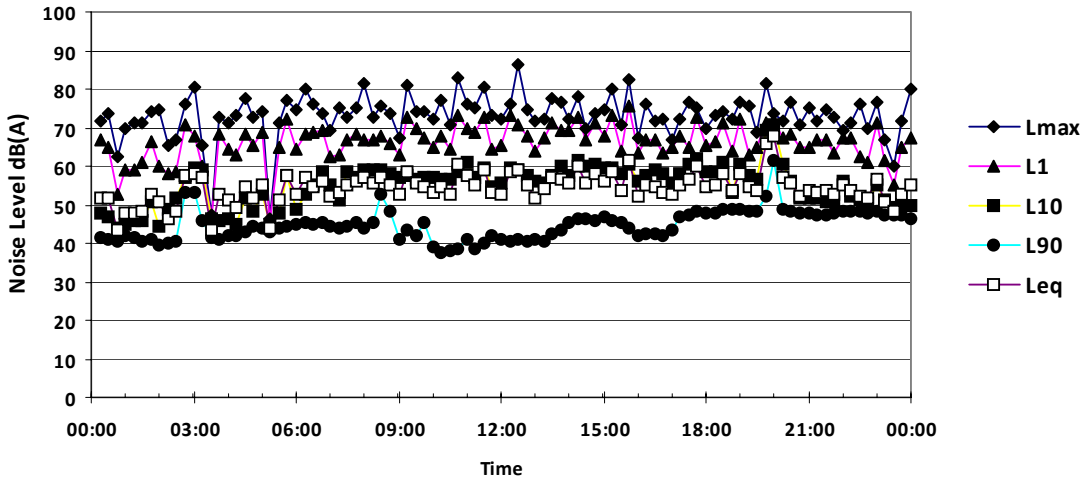
Measured Noise Levels
Bombala Road : O'Sullivan
3 - Wednesday 09/03/2011



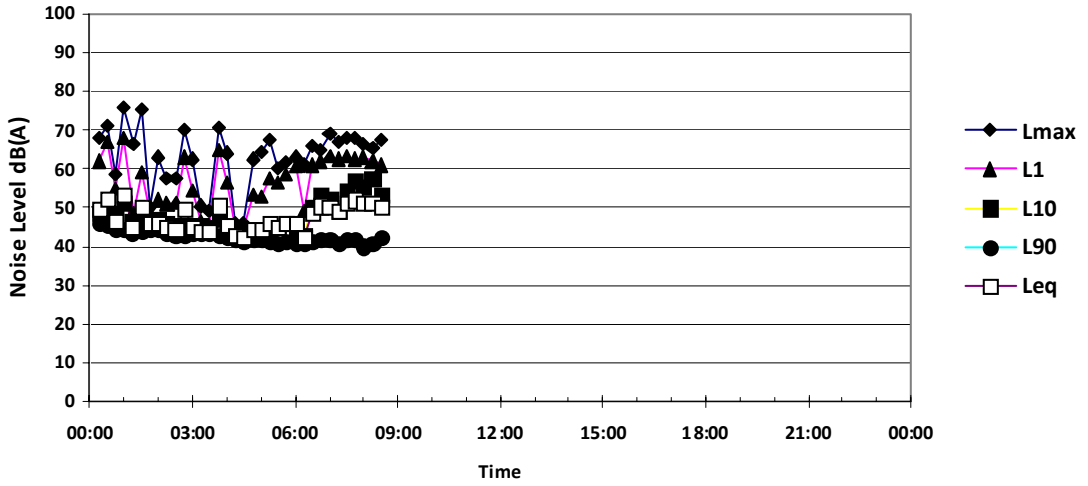
Measured Noise Levels
Bombala Road : O'Sullivan
3 - Thursday 10/03/2011



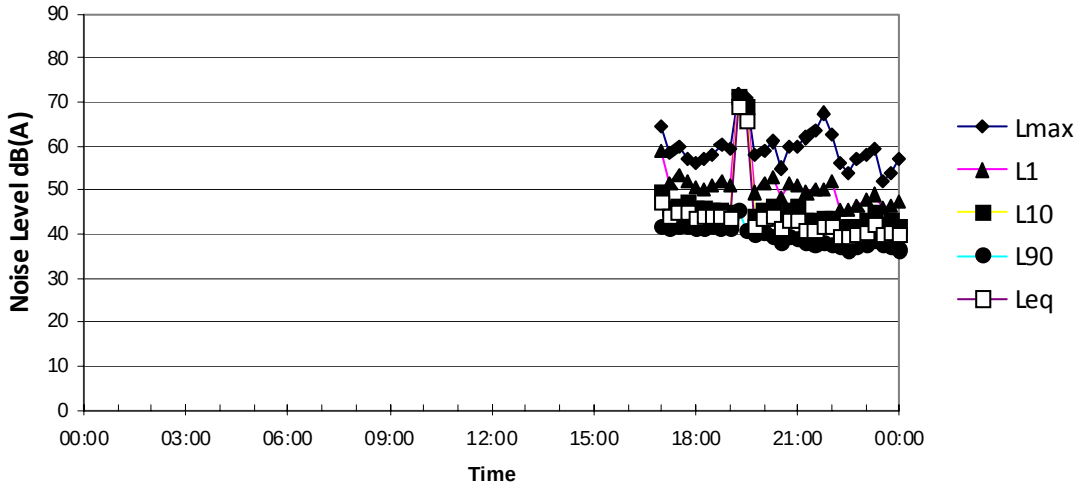
Measured Noise Levels
Bombala Road : O'Sullivan
3 - Friday 11/03/2011



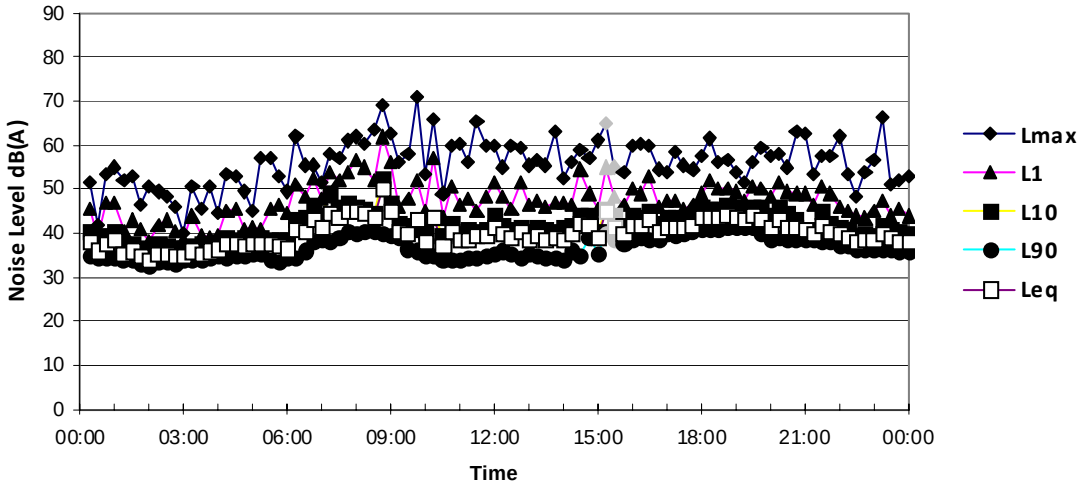
Measured Noise Levels
Bombala Road : O'Sullivan
3 - Saturday 12/03/2011



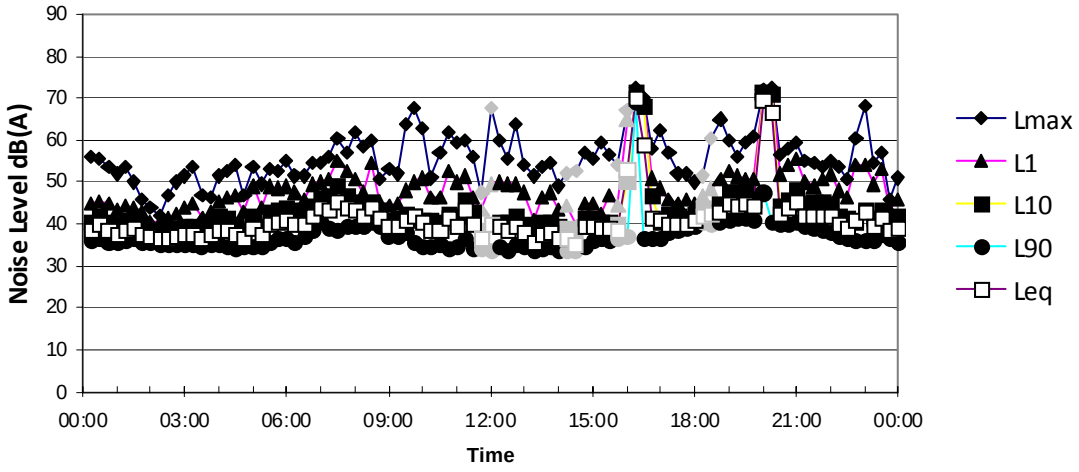
Measured Noise Levels
Snowy Mountains Highway: Glengarry
4 - Saturday 05/03/2011



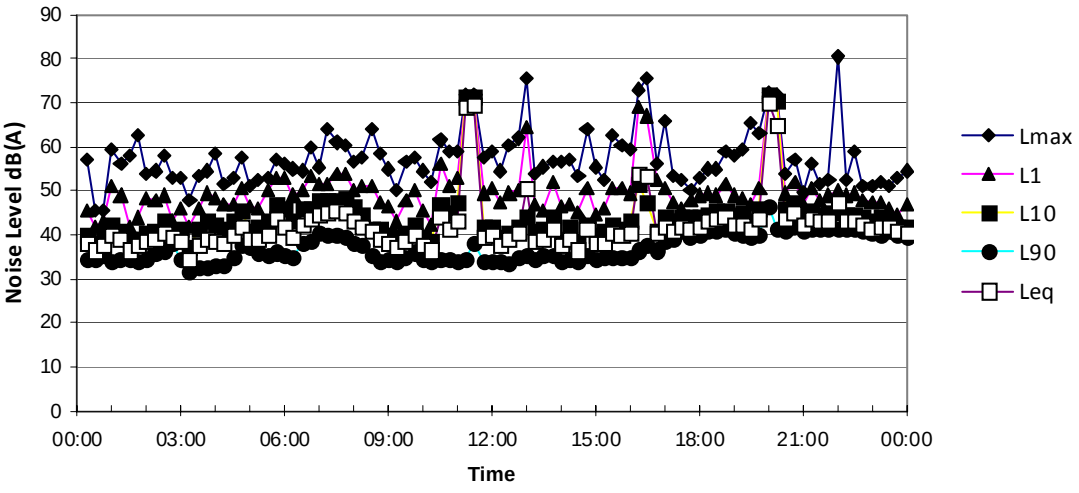
Measured Noise Levels
Snowy Mountains Highway: Glengarry
4 - Sunday 06/03/2011



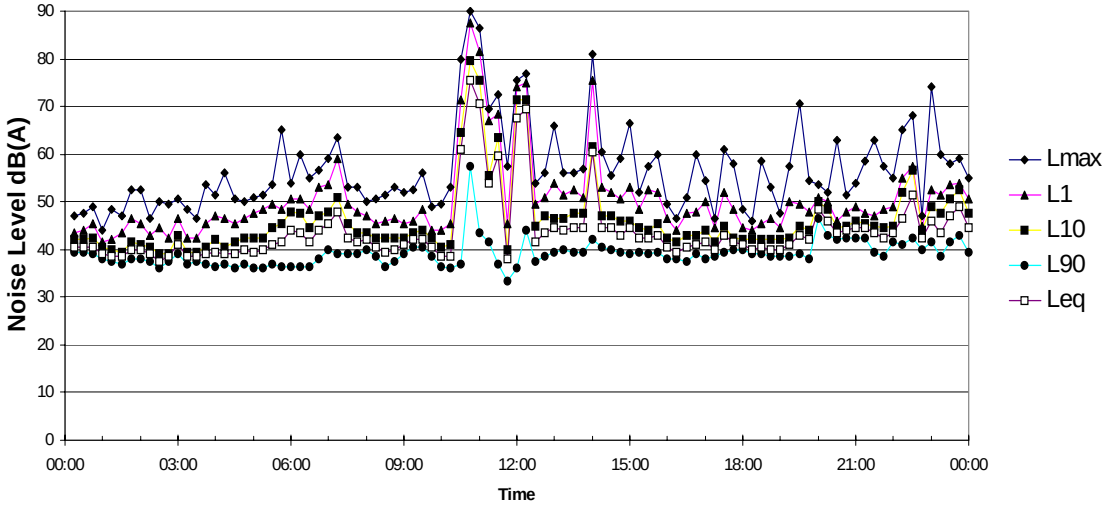
Measured Noise Levels
Snowy Mountains Highway: Glengarry
4 - Monday 07/03/2011



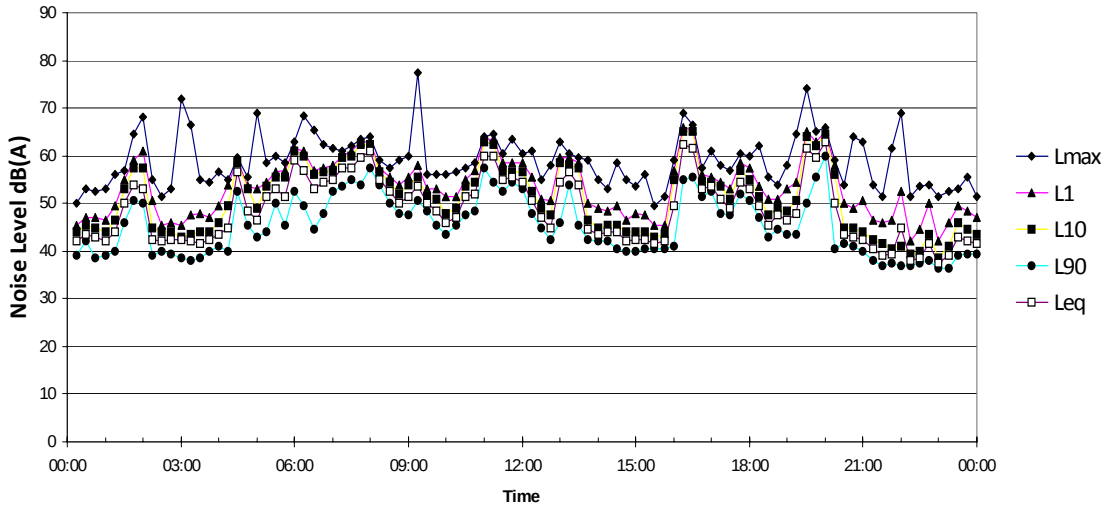
Measured Noise Levels
Snowy Mountains Highway: Glengarry
4 - Tuesday 08/03/2011



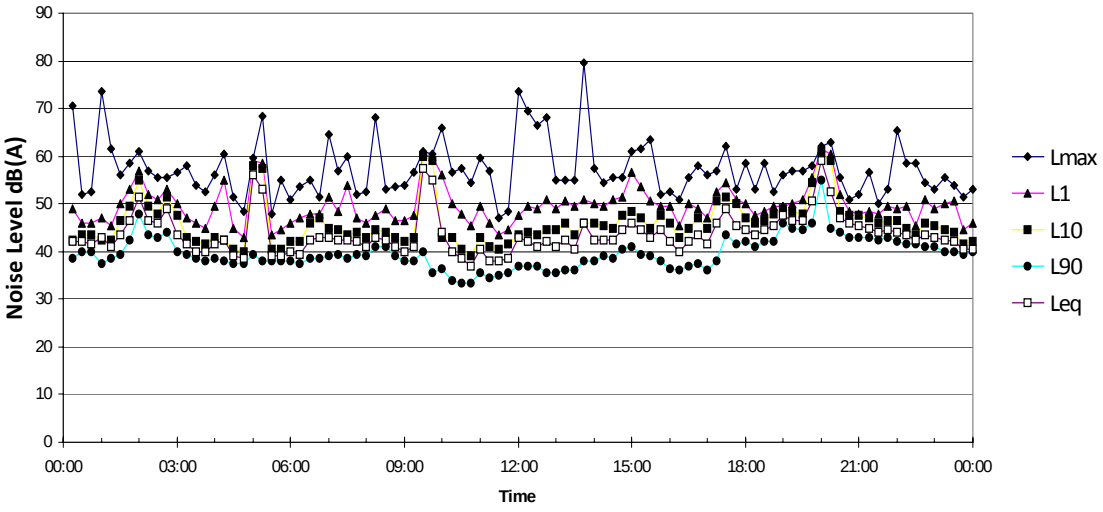
Measured Noise Levels
Snowy Mountains Highway: Glengarry
4 - Wednesday 09/03/2011



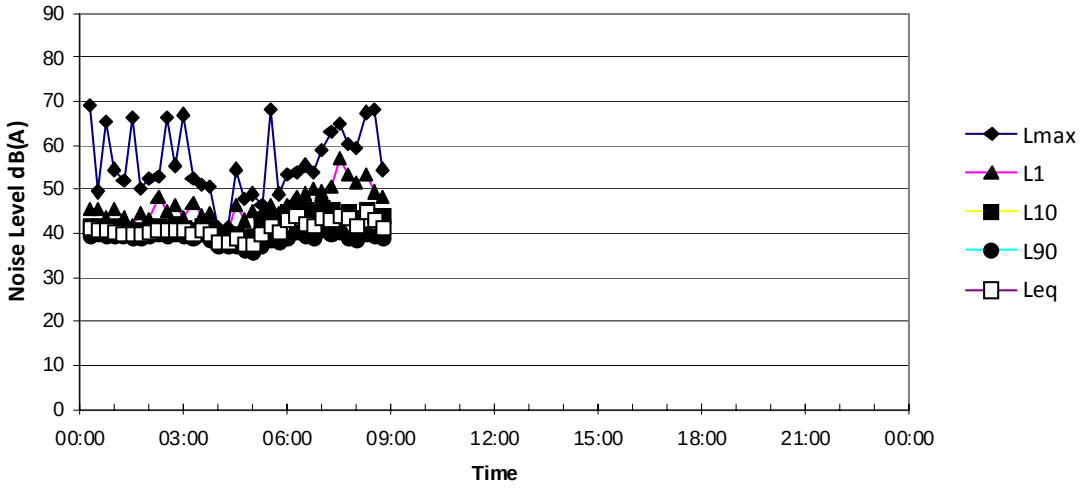
Measured Noise Levels
Snowy Mountains Highway: Glengarry # 4 -
Thursday 10/03/2011



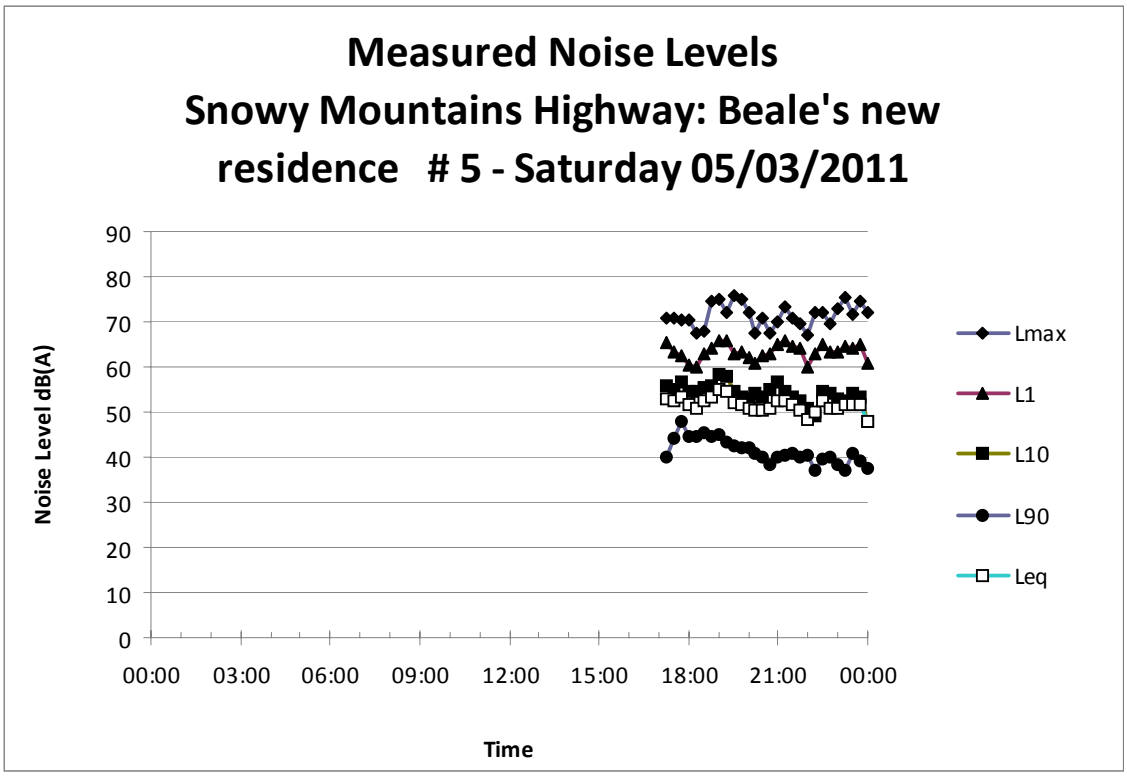
Measured Noise Levels
Snowy Mountains Highway: Glengarry
4 - Friday 11/03/2011

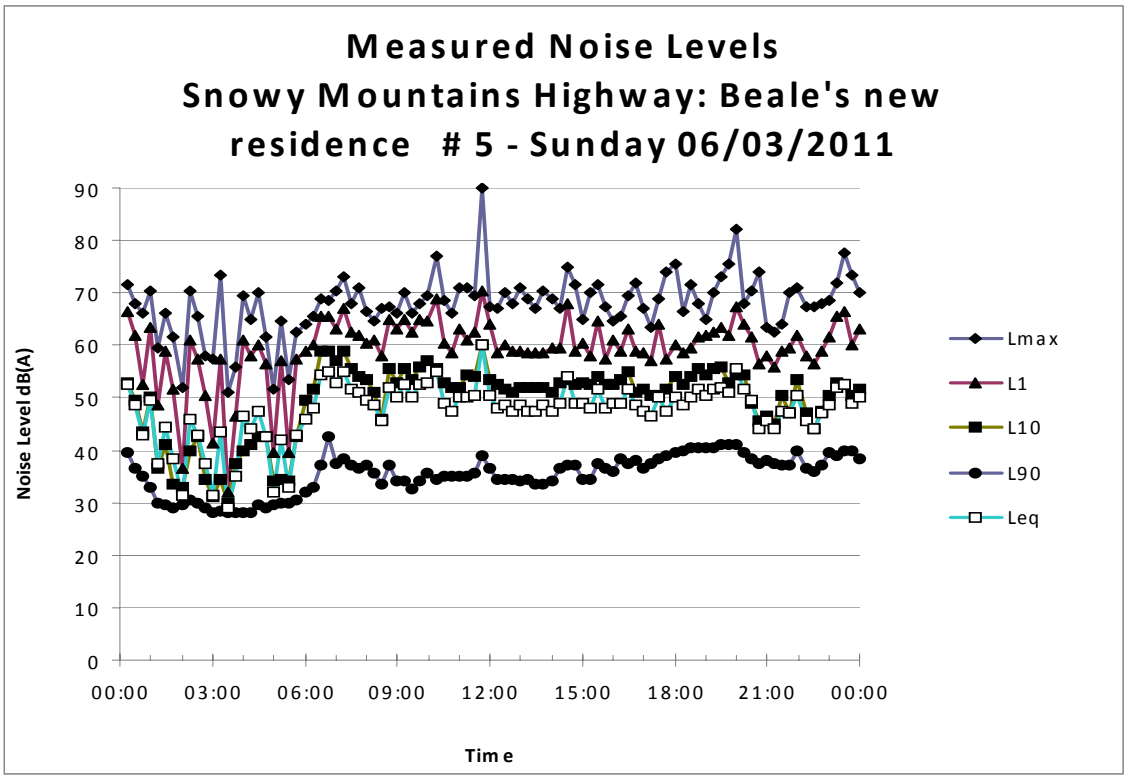


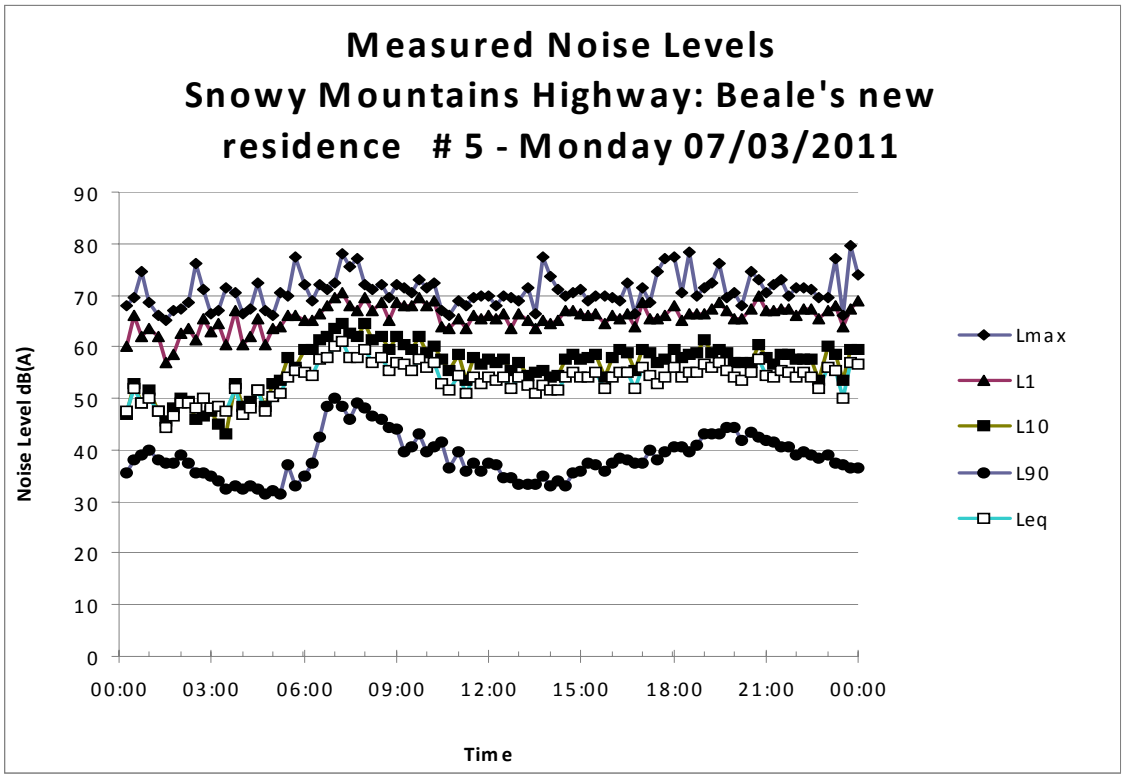
Measured Noise Levels
Snowy Mountains Highway: Glengarry
4 - Saturday 12/03/2011

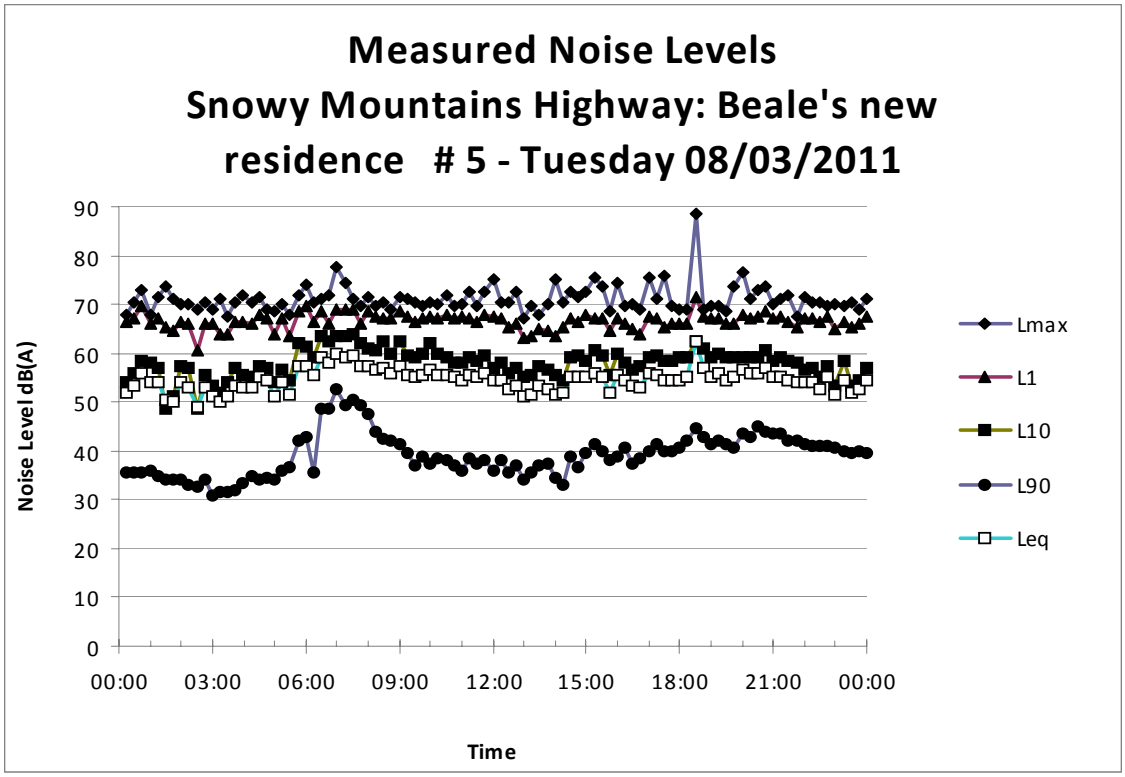


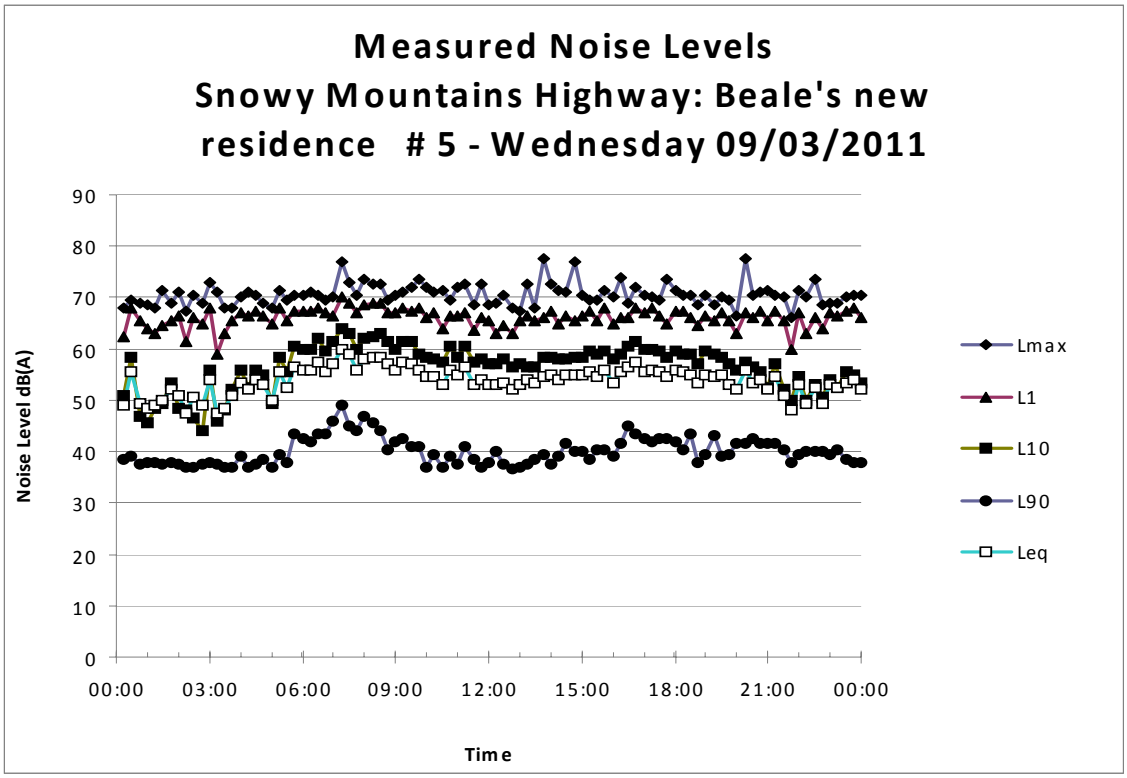
Attachment 5: Beale's new residence – Location No. 5

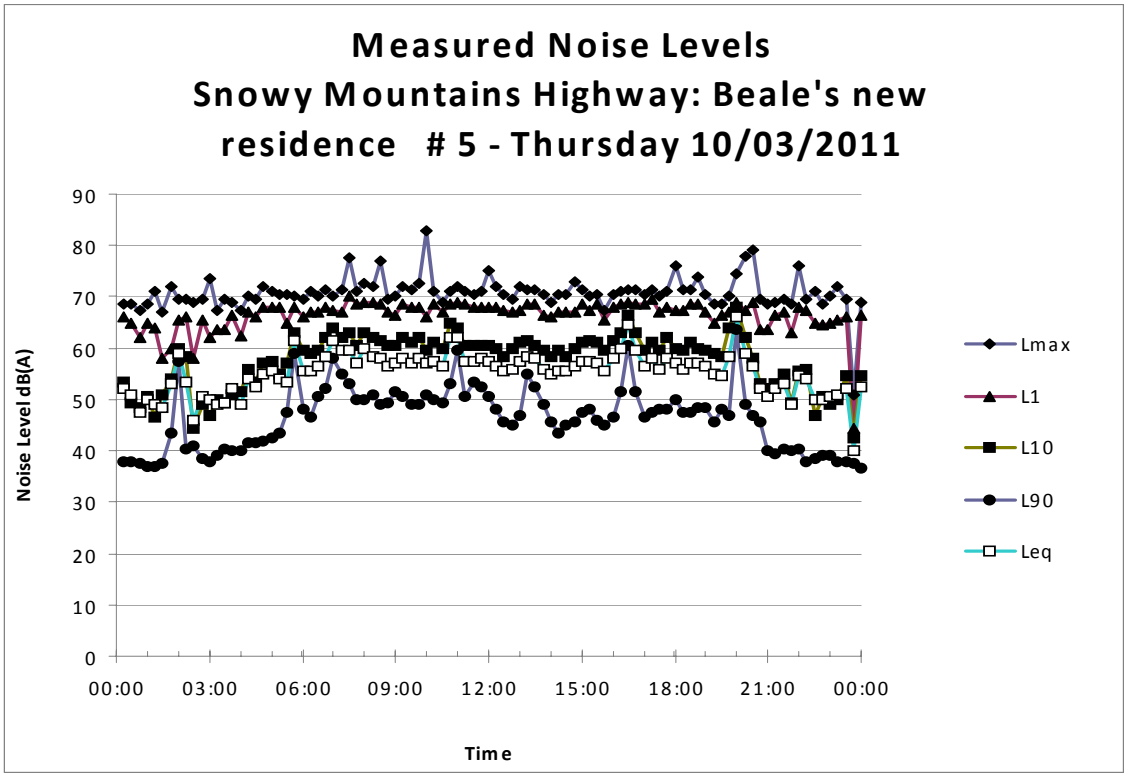

Measured Noise Levels
Snowy Mountains Highway: Beale's new residence # 5 - Saturday 05/03/2011
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq

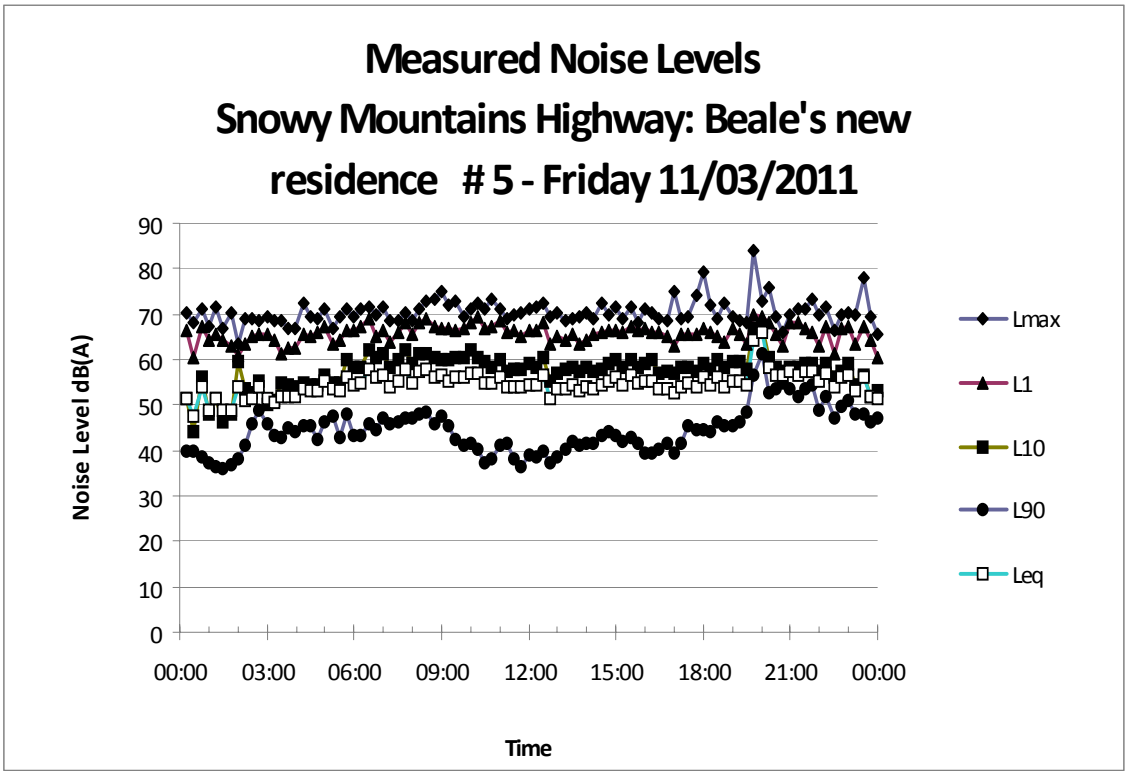

Measured Noise Levels
Snowy Mountains Highway: Beale's new residence # 5 - Sunday 06/03/2011
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq

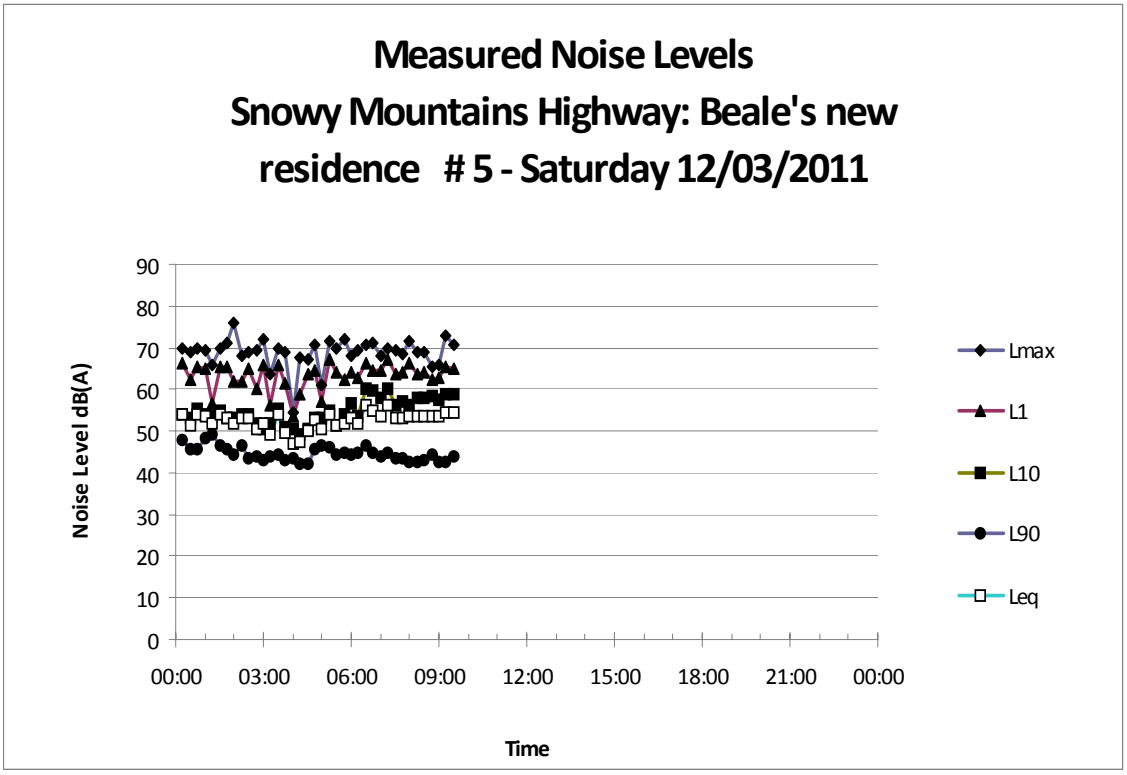

Measured Noise Levels
Snowy Mountains Highway: Beale's new residence # 5 - Monday 07/03/2011
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
Snowy Mountains Highway: Beale's new residence # 5 - Tuesday 08/03/2011
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq

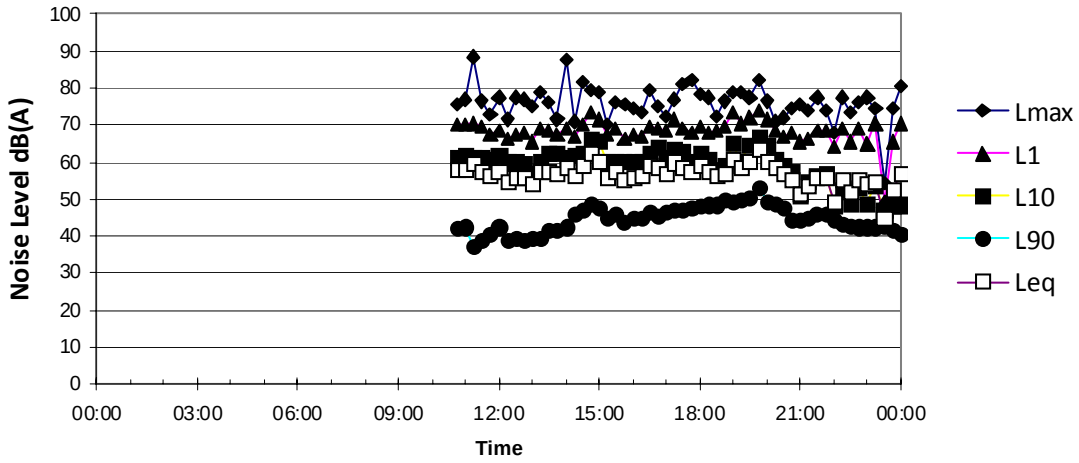

Measured Noise Levels
Snowy Mountains Highway: Beale's new residence # 5 - Wednesday 09/03/2011
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
Snowy Mountains Highway: Beale's new residence # 5 - Thursday 10/03/2011
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq

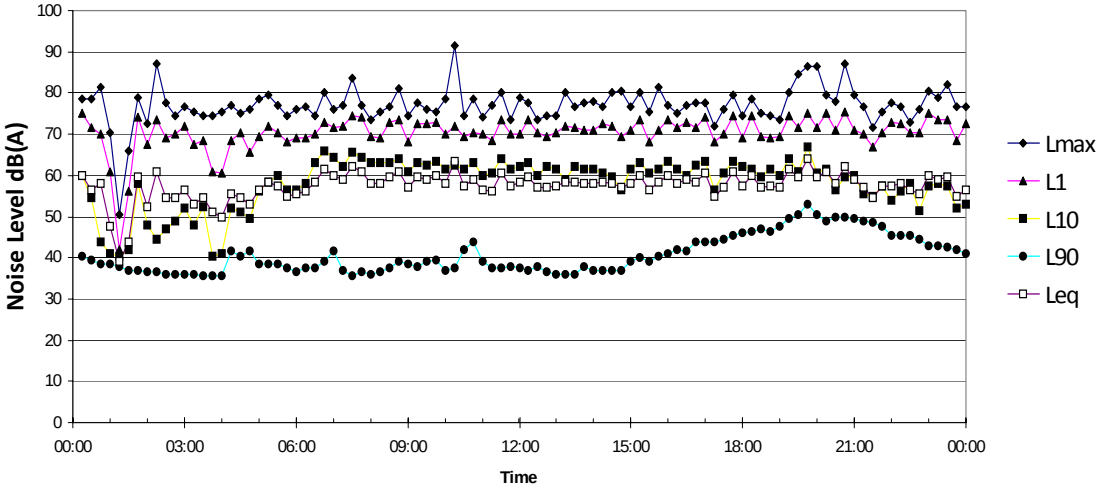

Measured Noise Levels
Snowy Mountains Highway: Beale's new residence # 5 - Friday 11/03/2011
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
Snowy Mountains Highway: Beale's new residence # 5 - Saturday 12/03/2011
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq

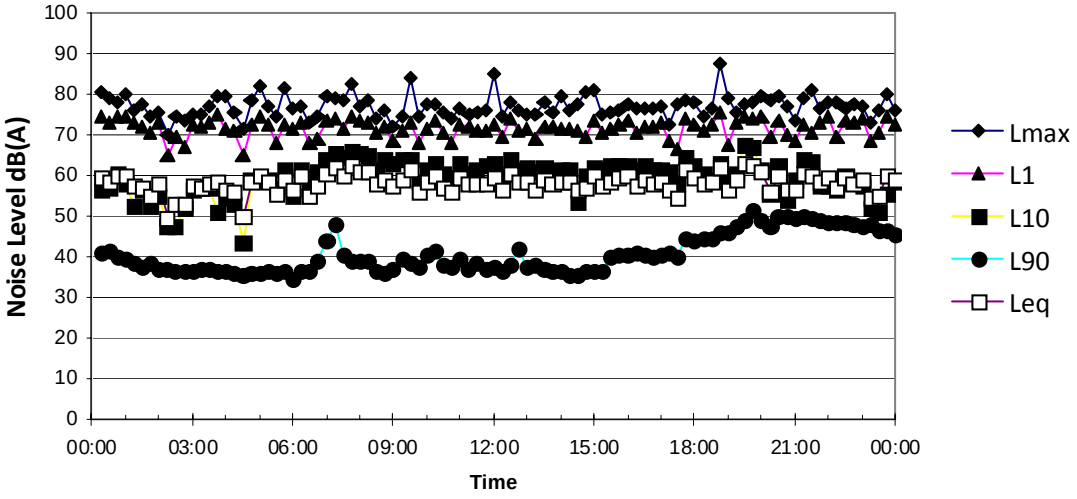
Measured Noise Levels
Gocup Road to Gundagai: Minjary No.1575
#6 - Sunday 06/03/2011



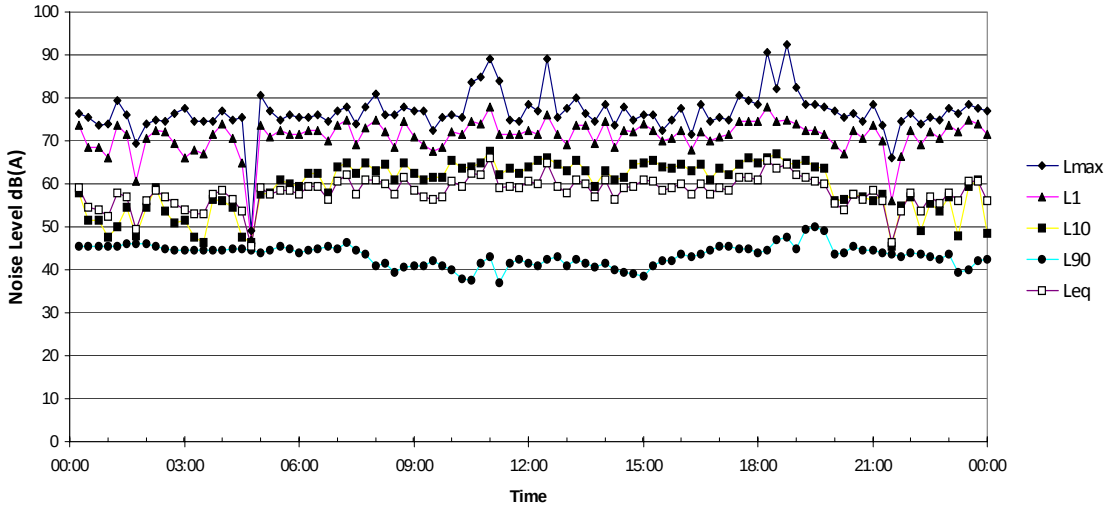
Measured Noise Levels
Gocup Road to Gundagai: Minjary No. 1575
#6 - Monday 07/03/2011



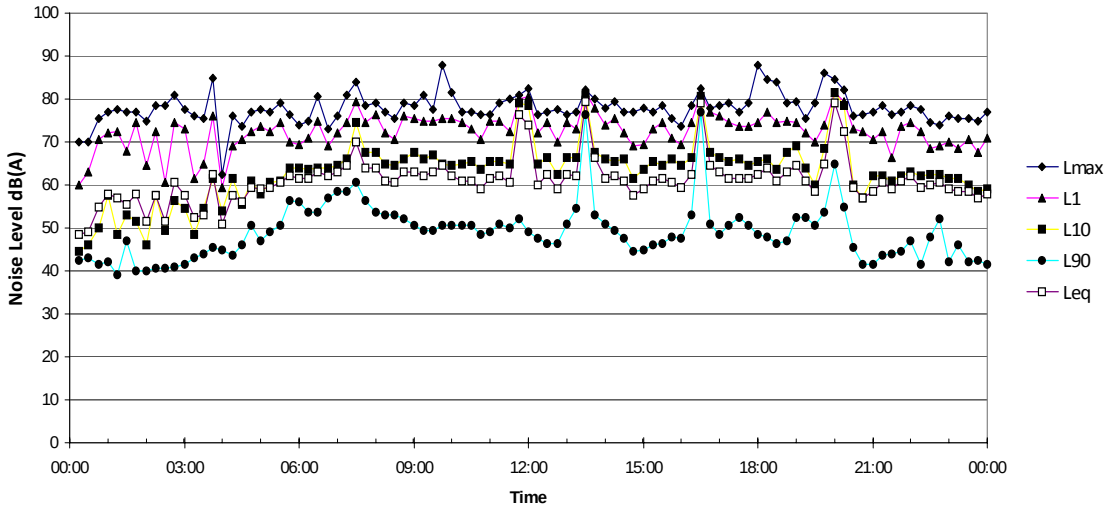
Measured Noise Levels
Gocup Road to Gundagai: Minjary No. 1575
#6 - Tuesday 08/03/2011



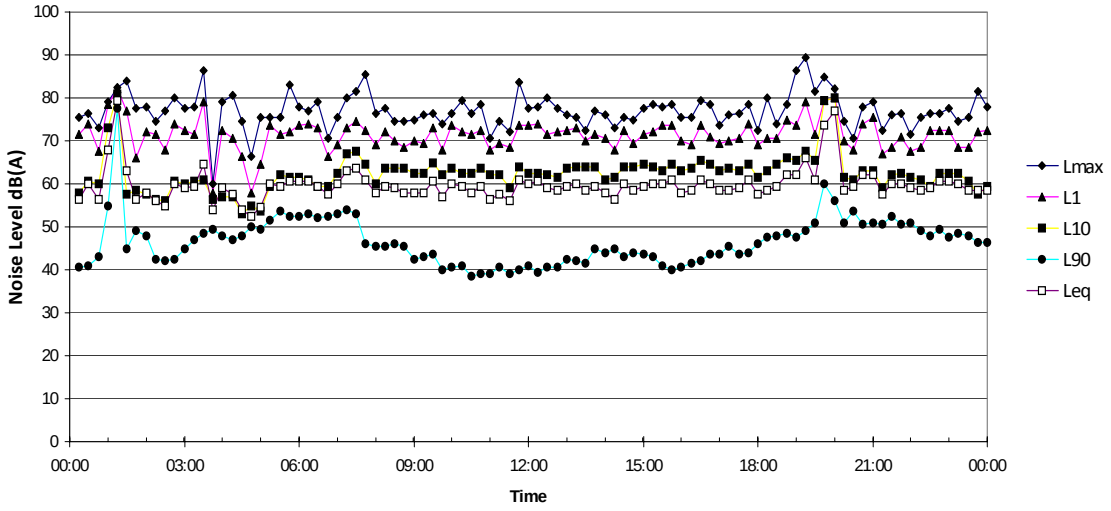
Measured Noise Levels
Gocup Road to Gundagai: Minjary No. 1575
#6 - Wednesday 09/03/2011



Measured Noise Levels
Gocup Road to Gundagai: Minjary No. 1575
#6 - Thursday 10/03/2011



Measured Noise Levels
Gocup Road to Gundagai: Minjary No. 1575
#6 - Friday 11/03/2011



Measured Noise Levels
Gocup Road to Gundagai: Minjary No. 1575
#6 - Saturday 12/03/2011