MTR Corporation Limited

ROAD WORKS at WEST KOWLOON

(No. EP-366/2009)

Baseline Monitoring Report

(Revision 01)

Verified by:	
Position:	Independent Environmental Checker
Date:	16 August 2011

MTR Corporation Limited

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(No. EP-366/2009)

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Position: Environmental Team Leader

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Road Works at West Kowloon
(Environmental Permit No. EP-366/2009)
Condition 3.3 – Baseline Monitoring Report

Responses to Comments

No.	Comments	Responses
	We refer to above letter dated 9 June 2011 enclosing the Baseline Monitoring Report submitted under Condition 3.3 of the Environmental Permit (No. 366/2009).	
	Your letter dated 16 June 2011 (ref: C806-COR-HSD-ENV-021009) explained that the reasons for adopting alternative monitoring stations for this project. For the completeness of the reporting, please incorporate the explanation into the baseline monitoring report for proper record.	Noted. The explanation of the reasons for adopting alternative monitoring stations for the project would be incorporated in the baseline monitoring report for proper record.

Table of Contents

EXECUTIVE SUMMARY

The environmental baseline monitoring for the Road Works at West Kowloon under the Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link, hereinafter referred to "the Roadworks" was conducted at 3 dust monitoring locations and 4 noise monitoring locations in the vicinity of Works Area for Road Works (Figure 1). Noise measurements were taken in terms of Leq with L10 and L90 as reference. Air quality was measured in terms of 1-hour and 24-hour average Total Suspended Particulates (TSP).

Given the access for conducting impact monitoring with the premises was declined, baseline 1-hour and 24-hour TSP monitoring was conducted at the alternative monitoring locations. They are -

- Podium between Sorrento and The Waterfront (CAM-1) instead of Tower 6, Sorrento (AM-1);
- Podium next to Tower 3, The Waterfront (CAM-2) instead of Moon Tower, The Arch (AM-2); and
- Roof of Lift Building of The Victoria Towers (CAM-3) instead of Tower 2, The Victoria Towers (AM-3).

The above-captioned alternative monitoring locations were discussed and agreed by the Independent Environmental Checker (IEC) and subsequently no objection by EPD for Express Rail Link (XRL). Monitoring was being undertaking at these monitoring locations since December 2009. Hence, the adoption of these alternative monitoring locations in the Roadworks was due to the sharing of worksites with XRL plus the similarity of implementation and considered appropriate by the IEC.

Baseline air quality monitoring of 1-hour TSP level was conducted between 3/12/2009 and 16/12/2009 at CAM-1 and CAM-2, while the monitoring of 24-hour TSP level was conducted between 5/12/2009 and 20/12/2009. The baseline 1-hour and 24-hour TSP monitoring for CAM-3 was conducted from 22/12/2009 to 4/1/2010. The average 1-hour and 24-hour TSP levels at CAM-3 (Roof of Lift Building, The Victoria Towers) were 106.8 $\mu g/m^3$ and 75.8 $\mu g/m^3$ respectively, which is the highest among the three monitoring stations.

The Action Levels at the monitoring locations were derived based on the baseline

monitoring results. The Action Level of 1-hour and 24-hour average TSP levels at CAM-1 was 298.4 μg/m^3 and 168.8 μg/m^3 respectively; at CAM-2 was 295.6 μg/m^3 and 155.9 μg/m^3 respectively and at CAM-3 was 319.4 μg/m^3 and 179.3 μg/m^3 respectively.

For conducting the baseline noise monitoring, the access permissions by the property owners was declined, hence the alternative monitoring locations have been adopted in the baseline noise monitoring. They are -

- Man Cheong Street Refuse Station instead of Man King Building (CNM-1); and
- Podium next to Tower 3, The Waterfront instead of Tower 3, The Waterfront (CNM-3).

The above-captioned alternative noise monitoring locations were also discussed and agreed by the Independent Environmental Checker (IEC) and subsequently no objection by EPD for Express Rail Link (XRL). Monitoring were being undertaking at these locations since December 2009. Due to the sharing of worksites with XRL in the Roadworks and their similarity of implementation, the adoption of these alternative monitoring locations in the Roadworks was considered appropriate by the IEC.

Baseline noise monitoring was conducted at Man Cheong Street Refuse Station (CNM-1) between between 15/1/2010 to 1/2/2010; at Tower 6, Sorrento (CNM-2) between 14/12/2009 and 21/1/2010; at podium next to Tower 3, The Waterfront (CNM-3) between 3/12/2009 and 21/12/2009; and at Tower 2, The Harbour Side (CNM-4) between 19/2/2010 and 4/3/2010. The baseline noise monitoring was conducted during daytime (0700-1900 hours), evening time (1900-2300 hours) and night-time (2300-0700 hours) on all day during the above-mentioned period.

No noise monitoring was conducted at CNM-1 on 21/1/2010 (1900 -2300hours and 2300 - 0700 hours), 22/1/2010 to 24/1/2010 and 25/2/2010 (0700 - 1900 hours) due to rainfall.
No noise monitoring was conducted at CNM-2 on 15/12 (1900 – 2400 hours), 16/12 & 17/12 (0000 – 1900 hours), 27/12 (1900 – 2400 hours), 28/12 & 8/1 (0000 – 1900 hours) due to unstable weather condition.

No noise monitoring was conducted at CNM-3 on 7/12, 8/12 & 15/12 (1900 – 2300 and 2300 – 0700), 16/12 & 17/12 (0700 – 1900) due to rainfall.

In this report, the measured noise levels on weekdays were presented separately from general holidays and Sundays for easy of reference.

It was noted from the monitoring results that ambient noise level for daytime at CNM-1 was ranged from 58 to 69 dB(A); at CNM-2 was ranged from 64 to 71 dB(A); at CNM-3 was ranged from 69 to 73 dB(A); and at CNM-4 was ranged from 63 to 70 dB(A). Hence, the average daytime baseline noise levels at CNM-1 was 63 dB(A); at CNM-2 was 67 dB(A); at CNM-3 was 71 dB(A); and at CNM-4 was 68 dB(A), which were below the Limit Level of 75 dB(A) for residental premises.

1. INTRODUCTION

1.1 Background

Further to the Government's decision made in April 2008, MTR Corporation (MTR) commenced to plan and design the Hong Kong section of Guangzhou-Shenzhen-Hong Kong Express Rail Link (hereinafter referred to "the XRL" or "the Project"), which is a committed cross boundary transport infrastructure project.

The XRL will provide high speed rail services between Hong Kong and Guangzhou, and a connection to the national high-speed passenger rail network serving major mainland cities outside of Guangdong province. The Hong Kong section of the XRL is about 26km from new terminus located in West Kowloon (i.e. West Kowloon Terminus (WKT)) to the boundary at Huanggang.

Upon the opening of the WKT of XRL and the development of the West Kowloon Cultural District (WKCD), additional road traffic capacity and network restructing would be required through and within the West Kowloon Reclamation Area (WKRA). Roads namely D1A, D1, Lin Cheung Road – Austin Road West Underpass and upgrading of Austin Road West would be used to accommodate the anticipated increase in road traffic.

1.2 Purpose of the report

In accordance with the Environmental Monitoring and Audit (EM&A) Manual, environmental baseline monitoring was carried out for dust and noise. This Baseline Monitoring Report contains baseline monitoring findings in the vicinity of Works Areas for Road Works (Figure 1). The purpose of this report is to summarize the findings of this baseline monitoring and to establish the compliance levels for the subsequent environmental impact monitoring during construction stage.

2. AIR QUALITY

2.1 Monitoring Methodology

Monitoring was undertaken to establish baseline levels for both 1-hour and 24-hour Total Suspended Particulates (TSP) at CAM-1, CAM-2 and CAM-3 located in the vicinity of the Works Areas for Road Works. This provides data against which any environmental impacts due to construction activities can be compared.

During the construction period impact monitoring will only be conducted for 24-hour TSP, although 1-hour TSP monitoring may also be conducted and used in following up on complaints or exceedances, in order to provide a more rapid indication of the source of the problem at hand.

Baseline monitoring was conducted for both 1-hour and 24-hour TSP respectively using a direct reading meter (MIE Data-RAM Portable Real Time Aerosol Monitor) and a high volume sampler (HVS) according to Part 50 Chapter 1 Appendix B, Title 40 of the Code of Federal Regulations of the USEPA.

2.2 Monitoring Frequency

Three separate 1-hour TSP measurements daily for a period of at least 14 days were made at the monitoring station to establish the ambient 1-hour TSP levels. For 24-hour TSP, monitoring was carried out continuously over a period of at least 14 days at the monitoring stations to establish the ambient 24-hour TSP levels. The monitoring frequency for baseline monitoring of 1-hour and 24-hour TSP is summarized in the table below:

Sampling Parameter	**Frequency**	**Duration**
1 hour TSP	• 3 times per day	Consecutive days of at least 2 weeks before commencement of construction works
Continuous 24-hour TSP	• Daily	

Table 2.1: Monitoring frequency for baseline monitoring of 1-hour and 24-hour TSP

2.3 Monitoring Location

According to the EM&A Manual, the original monitoring location for CAM-1 (Tower 6, Sorrento), it was found that the podium floor was not a suitable monitoring location as the monitoring result would be affected by the existing barriers and trees. Given the site constraint, the monitoring location was relocated to the podium floor between Sorrento and The Waterfront.

For CAM-2 (Moon Tower, The Arch), the request of access and installation of dust monitoring equipment within the premises was declined by the property management. The monitoring location was relocated to podium floor of The Waterfront located in proximity to the Works Area.

For CAM-3 (Tower 2, The Victoria Towers), the access for conducting impact monitoring inside Tower 2, Victoria Towers was declined, the baseline air quality monitoring was conducted at the alternative monitoring location, Roof of Lift Building of Victoria Towers. Plan showing the original and alternative locations and photos of the alternative monitoring locations are shown in Appendix D.

These alternative monitoring locartions were discussed and agreed by the Independent Environmental Checker (IEC) and subsequently no objection by EPD for Express Rail Link (XRL). Monitoring were being undertaking at these locations since December 2009. Hence, the adoption of these alternative monitoring locations in the Roadworks was due to the sharing of worksites with XRL plus the similarity of implementation and considered appropriate by the IEC.

Baseline air quality monitoring was carried out at the period shown in Table 2.2 below to determine the ambient levels of both 1-hour and 24-hour TSP levels respectively at CAM-1, CAM-2 and CAM-3 in the vicinity of Works Area. The locations of the Works Areas and the respective ASRs are shown in figures in Appendix D. The information of the ASRs where baseline air monitoring had been conducted is summarized in the table below:

Monitoring Station ID	Original Monitoring Location in EM&A Manual	Alternative Monitoring Location	Monitoring period
CAM-1	AM-1: Sorrento Tower 6	Podium between Sorrento and The Waterfront	3/12/2009 – 16/12/2009 (1-hr); 5/12/2009 – 18/12/2009 (24-hr)

Monitoring Station ID	Original Monitoring Location in EM&A Manual	Alternative Monitoring Location	Monitoring period
CAM-2	AM-2: Moon Tower, The Arch	Podium next to Tower 3, The Waterfront	3/12/2009 – 16/12/2009 (1-hr); 5/12/2009 – 20/12/2009* (24-hr)
CAM-3	AM-3: Tower 2, The Victoria Towers	Roof of Lift Building, The Victoria Towers	22/12/2009 – 4/1/2010 (1-hr and 24-hr)

Notes * Monitoring on 7/12/2009 and 8/12/2009 at CAM-2 was interrupted due to equipment breakdown.

Table 2.2 Information of Air Sensitive Receiver where dust monitoring was conducted

2.4 Calibration requirements

The flow rate of the high volume sampler with mass flow controller was calibrated using an orifice calibrator. Initial calibration (five points) was conducted upon installation and prior to commissioning. Calibration was carried out every six months throughout the construction phase. Calibration of the MIE by certified laboratory or manufacturer was carried out every two years and properly documented. Calibration certificates at CAM-1, CAM-2 and CAM-3 are attached in Appendix C as reference.

The samplers shall be properly maintained. Prior to dust monitoring commencing, appropriate checks shall be made to ensure that all equipment and necessary power supply are in good working condition.

2.5 Monitoring Procedures

1-Hour TSP Levels Monitoring

TSP is sampled by drawing air into the MIE where particulate concentrations are measured instantaneously with an in-built detector sensing light scattered by the particles in the sampled air (optical sensing stage). Continuous TSP levels are indicated on the MIE along with a 'Time Weighted Average' value.

24-Hour TSP Levels Monitoring

The sampling procedure follows to that described Part 50 Chapter 1 Appendix B, Title 40 of the Code of Federal Regulations of the USEPA. TSP is sampled by drawing air through a conditioned, pre-weighed filter paper inside the high volume sampler at a controlled rate. After 24-hour sampling the filter paper with retained particles shall be collected and returned to HOKLAS accredited laboratory (ALS Technichem (HK) Pty Ltd) for drying in a desiccators followed by accurate weighing. TSP levels are calculated from the ratio of the mass of particulate retained on the filter paper to the total volume of air sampled.

2.6 Monitoring Results

During the monitoring period, the weather was mostly fine with occasional rainy days. The major dust sources, which identified were mainly from wind erosion at the open

area in between the TST Fire Station and the Kowloon MTR Station. Monitoring results of 1-hour and 24-hour TSP at CAM-1, CAM-2 and CAM-3 were summarised in Tables 2.3 and 2.4, while the detailed monitoring data of 1-hour and 24-hour were shown in Appendix A.

Monitoring Location	Average 1-hr TSP Concentration, µg/m^3 (Range)
Podium between Sorrento and The Waterfront (CAM-1)	74.5 (8.0-246.2)
Podium next to Tower 3, The Waterfront (CAM-2)	70.2 (9.0-146.2)
Roof of Lift Building, The Victoria Towers (CAM-3)	106.8 (7.5-229.5)

Table 2.3: Summary of baseline 1-hour TSP level

Monitoring Location	Average 24-TSP Concentration, µg/m^3 (Range)
Podium between Sorrento and The Waterfront (CAM-1)	59.7 (25.6-115.1)
Podium next to Tower 3, The Waterfront (CAM-2)	39.9 (12.1-99.0)
Roof of Lift Building, The Victoria Towers (CAM-3)	75.8 (19.4-142.2)

Table 2.4: Summary of baseline 24-hour TSP level

2.7 Action and Limit Levels

In accordance with the EM&A Manual, the baseline TSP levels form the basis for derivation of the Action Levels for subsequent impact monitoring, which is summarised in the table below:

Parameter	Action Level (1)	Limit Level
TSP (24 hour average)	• BL ≤ 200µg m^{-3}, AL = (BL * 1.3 + LL)/2 • BL > 200µg m^{-3}, AL = LL	260 µg m^{-3}
TSP (1 hour average)	• BL ≤ 384µg m^{-3}, AL = (BL * 1.3 + LL)/2 • BL > 384µg m^{-3}, AL = LL	500µg m^{-3}

(1) BL = Baseline level, AL = Action level, LL = Limit Level.

Table 2.5: Basis for establishing the Action and Limit Levels for Air Quality

In accordance with Table 2.3 and 2.4 regarding results from baseline monitoring, the Action Level for air quality impact monitoring are calculated and presented below:

Location	Parameter	Action Level	Limit Level
Podium between Sorrento and The Waterfront (CAM-1)	TSP (24-hour average)	168.8 μg m^{-3}	260 μg m^{-3}
	TSP (1-hour average)	298.4 μg m^{-3}	500 μg m^{-3}
Podium next to Tower 3, The Waterfront (CAM-2)	TSP (24-hour average)	155.9 μg m^{-3}	260 μg m^{-3}
	TSP (1-hour average)	295.6 μg m^{-3}	500 μg m^{-3}
Roof of Lift Building, The Victoria Towers (CAM-3)	TSP (24-hour average)	179.3 μg m^{-3}	260 μg m^{-3}
	TSP (1-hour average)	319.4 μg m^{-3}	500 μg m^{-3}

Table 2.6: Action and Limit Levels for Air Quality Impact Monitoring

3. AIRBORNE CONSTRUCTION NOISE

3.1 Monitoring Methodology

Consecutive noise measurements were undertaken over a period of at least 14 days to establish the ambient noise levels at representative nearest sensitive receivers. Continuous 5 minute A-weighted noise levels were recorded throughout the daytime, evening and night-time on weekdays (Monday to Saturday) and also on Sundays.

As referred to the Technical Memorandum (TM) issued under the NCO, sound level meters in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications shall be used for carrying out the noise monitoring. In this baseline monitoring, either Rion NL-31, or Rion NL-18 sound level meters, which complies with the above-mentioned specifications, were used.

There should not be any construction activities in the vicinity of the monitoring stations during the baseline monitoring Any non-project related construction activities in the vicinity of the monitoring stations during the baseline monitoring should be noted and the source and location of such activities should be recorded. Façade correction of +3 dB (A) was applied to the monitoring stations, where free-field measurement was taken.

With reference to Section 3.7 of the EM&A Manual, noise measurements should not be made in the presence of fog, rain, wind with a steady speed exceeding 5ms-1 or wind with gusts exceeding 10ms-1. The wind speed was checked with a portable wind speed meter capable of measuring wind speeds in m/s.

3.2 Monitoring Frequency

The baseline monitoring was measured daily for a continuous period of at least 14 consecutive days at a minimum logging interval of 30 minutes for daytime (between 0700 and 1900 hours of normal weekdays) and 15 minutes (as three consecutive Leq, (5 minutes) readings) for evening time (between 1900 and 2300 hours of normal weekdays), general holidays including Sundays (between 0700 and 2300 hours) and night-time (between 2300 and 0700 of all days). The Leq, L10 and L90 were recorded at the specified interval.

3.3 Monitoring Location

Baseline noise monitoring was carried out during 15/1/2010 to 1/2/2010 at Man Cheong Street Refuse Collection Point (CNM-1) located in the vicinity of Works Area for Road Works. Given that no access was obtained from Man King Building (location specified in the EM&A Manual), the monitoring location was re-located to the Man Cheong Street Refuse Station.

As for Tower 3, The Waterfront (CNM-3), the request of access and installation of noise monitoring equipment within the premises was declined by the property management. The monitoring was relocated to podium next to Tower 3, The Waterfront in which located in the proximity to the Works Area. The baseline noise monitoring was carried during 3/12/2009 to 21/12/2009.

The above-captioned alternative baseline noise monitoring locations were discussed and agreed by the Independent Environmental Checker (IEC) and subsequently no objection by EPD for Express Rail Link (XRL). Monitoirng were being undertaking at these locations since December 2009. Due to the sharing of worksites with XRL in the Roadworks and their similarity of implementation, the adoption of these alternative monitoring locations in the Roadworks was considered appropriate by the IEC.

Baseline noise monitoring was carried out during 24/12/2009 to 21/1/2010 at Tower 6, Sorrento (CNM-2) and during 19/2/2010 to 4/3/2010 at Tower 2, The Harbour Side (CNM-4) located in the vicinity of Works Area for Road Works. Details are summarized in the following table.

The original and alternative monitoring locations of the above-mentioned stations are shown in Appendix D. Monitoring which carried out at these stations were in accordance with the EM&A Manual:

Monitoring Station ID	Noise Monitoring Location in EM&A Manual	Alternative Noise Monitoring Location	Monitoring period
CNM-1	Man King Building	Man Cheong Street Refuse Station	15/1/2010 to 1/2/2010 [1]
CNM-2	Tower 6, Sorrento	-	24/12/2009 to 21/1/2010 [2]
CNM-3	Tower 3, The Waterfront	Podium next to Tower 3, The Waterfront	3/12/2009 to 21/12/2009 [3]

Monitoring Station ID	Noise Monitoring Location in EM&A Manual	Alternative Noise Monitoring Location	Monitoring period
CNM-4	Tower 2, The Harbour Side	-	19/2/2010 to 4/3/2010

Note: 1. No monitoring was carried out on 21/1/2010 (1900 -2300hours and 2300 - 0700 hours), 22/1/2010 to 24/1/2010 and 25/2/2010 (0700 - 1900 hours) due to rainfall.

2. No noise monitoring was conducted on 15/12/2009 (1900 - 2400 hours), 16/12/2009, 17/12/2009 (0000 - 1900 hours), 27/12/2009 (1900 - 2400 hours), 28/12/2009 to 8/1/2010 (0000-1900 hours), 11/1/2010 (0700-2400 hours) and 12/1/2010 due to unstable weather condition.

3. No noise monitoring was carried out on 7/12/2009, 8/12/2009, 15/12/2009 (1900 - 2300 hours and 2300 - 0700 hours), 16/12/2009 and 17/12/2009 (0700 - 1900 hours) due to rainfall.

Table 3.1 Details of Noise Monitoring Locations

3.4 Calibration Requirements

Rion NL-31 or Rion NL-18 sound level meters which complied with the International Electrotechnical Commission Publication 651:1979 (Type 1) and 804:1985 (Type 1), specification as referred to in the Technical Memoranda to the NCO were used for the baseline monitoring. The sound level meters and calibrator Rion NC 73 were verified by the certified laboratory or manufacturer to ensure they perform to the same level of accuracy as stated in the manufacturer's specifications. Calibration certificates of the sound level meters and calibrator are attached in Appendix C.

Immediately prior to and following each noise measurement the accuracy of the sound level meter should be checked using an acoustic calibrator (Rion NC 73) generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the difference between calibration levels obtained before and after the noise measurement is less than 1.0 dB.

3.5 Action and Limit Levels

The Action and Limit Levels defined in the EM&A Manual for airborne construction noise is presented below for reference.

Time Period	Action	Limit
0700-1900 hours on normal weekdays	When one documented complaint is received	75 dB(A) for residential premises
		70 dB(A) for school and 65 dB(A) during examination period

Table 3.2 Action and Limit Levels for Airborne Construction Noise

3.6 Monitoring Results

Baseline noise monitoring was conducted between 5/1/2010 to 1/2/2010 at CNM-1. The weather condition was generally fine with occasional rainfall events during the monitoring period. Measurements were taken from building façade for the baseline monitoring conducted.

Measurement was conducted between 14/12/2009 and 21/1/2010 from building façade for CNM-2. The weather condition was generally fine with occasional rainfall events during the monitoring period.

Free-field noise measurements were taken at CNM-3 between 3/12/2009 and 21/12/2009. The weather condition was generally fine with occasional rainfall events during the monitoring period. A façade correction of +3 dB(A) has been added to the results.

Baseline noise monitoring was conducted between 19/2/2010 and 4/3/2010 from building façade at CNM-4. The weather condition was general fine during the monitoirng period. Measurements were taken from building façade and it is not necessary to make the façade correction.

The major noise sources at respective monitoring locations are summarized at the table below:

Monitoring location ID	Monitoring location	Major noise source
CNM-1	Roof of Man Cheong Street Refuse Station	Traffic noise
CNM-2	Tower 6, Sorrento	Traffic noise
CNM-3*	Podium next to Tower 3, The Waterfront	Traffic noise
CNM-4	Tower 2, The Harbour Side	Traffic noise

Notes: * Free-field measurements were taken at this location.

Table 3.3 Major noise source at noise monitoring locations

Baseline noise monitoring result for all noise monitoring stations were summarised in Table 3.4 over the monitoring periods. All noise monitoring detailes are attached in Appendix B as reference.

Period	$L_{eq(30min)}$ – dB(A) (Range)	$L_{10(30min)}$ – dB(A) (Range)	$L_{90(30min)}$ – dB(A) (Range)
Monitoring result at CNM-1			
0700 – 1900 (Daytime, Normal weekday)	63 (58-69)	64 (59-71)	61 (56-66)
0700 – 2300 (General Holiday including Sunday)	61 (55-69)	63 (59-70)	60 (53-64)
1900 – 2300 (Evening, Normal weekday)	59 (56-67)	61 (57-73)	57 (54-60)

Period	$L_{eq(30min)}$ – dB(A) (Range)	$L_{10(30min)}$ – dB(A) (Range)	$L_{90(30min)}$ – dB(A) (Range)
2300 – 0700 (Night-time, all days)	56 (47-68)	57 (49-69)	54 (45-62)
Monitoring result at CNM-2			
0700 – 1900 (Daytime, Normal weekday)	67 (64-71)	68 (65-73)	65 (62-67)
0700 – 2300 (General Holiday including Sunday)	65 (62-71)	66 (64-75)	63 (59-64)
1900 – 2300 (Evening, Normal weekday)	65 (63-71)	66 (64-75)	63 (61-65)
2300 – 0700 (Night-time, all days)	61 (55-71)	63 (56-73)	59 (53-64)
Monitoring result at CNM-3			
0700 – 1900 (Daytime, Normal weekday)	71 (69-73)	73 (70-76)	70 (67-72)
0700 – 2300 (General Holiday including Sunday)	70 (67-72)	71 (69-73)	68 (63-70)
1900 – 2300 (Evening, Normal weekday)	70 (68-72)	71 (69-73)	68 (66-71)
2300 – 0700 (Night-time, all days)	66 (61-71)	68 (61-72)	64 (57-69)
Monitoring result at CNM-4			
0700 – 1900 (Daytime, Normal weekday)	68 (63-70)	71 (66-72)	63 (57-66)
0700 – 2300 (General Holiday including Sunday)	67 (65-70)	70 (67-73)	62 (59-64)
1900 – 2300 (Evening, Normal weekday)	70 (69-71)	72 (72-73)	65 (64-67)

Period	$L_{eq(30min)}$ – dB(A) (Range)	$L_{10(30min)}$ – dB(A) (Range)	$L_{90(30min)}$ – dB(A) (Range)
2300 – 0700 (Night-time, all days)	67 (64-69)	70 (67-73)	62 (58-65)

Table 3.4 Baseline noise monitoring results

As revealed from the monitoring results conducted in August 2009, ambient noise levels for daytime (0700 - 1900 hours) during normal weekdays at Man Cheong Street Refuse Collection Point range from 61 to 69 dB(A). The daytime baseline noise level at CNM-1 (64 dB(A)) was below the Limit Level for of 75 dB(A) for residential premises.

As revealed from the monitoring results, baseline noise levels for daytime (0700 - 1900 hours) during normal weekdays at the CNM-1 range from 58 to 69 dB(A); at CNM-2 was ranged from 64 to 71 dB(A);. at CNM-3 was ranged from 69 to 73 dB(A); and at CNM-4 range from 63 to 70 dB(A). The average daytime baseline noise levels at CNM-1 (63dB(A)); at CNM-2 (67dB(A)); at CNM-3 (71dB(A)); and at CNM-4 (68dB(A)), which was below the daytime Limit Level of 75 dB(A) for residential premises.

4. CONCLUSION

4.1 Air

1-hour TSP

Baseline 1-hour TSP monitoring was conducted at CAM-1 and CAM-2 between the period 3/12/2009 and 16/12/2009. For CAM-3 (Roof of Lift Building, The Victoria Towers), baseline 1-hour baseline TSP monitoring was conducted between 22/12/2009 and 4/1/2010. The weather condition was mostly fine with occasional rainy days. From site observation, it was noted that the major source of TSP at all three monitoring stations was originated mainly from wind erosion at the open area in between the Tsim Sha Tsui Fire Station and the Kowloon MTR Station.

Baseline 1-hour TSP monitoring at CAM-1 was found in the range of 8.0 $\mu g/m^3$ to 246.2 $\mu g/m^3$; at CAM-2 was in the range of 9.0 $\mu g/m^3$ to 146.2 $\mu g/m^3$; and at CAM-3 was in the range of 7.5 $\mu g/m^3$ to 229.5 $\mu g/m^3$. The average 1-hour TSP level at CAM-1 was recorded to be 74.5 $\mu g/m^3$; at CAM-2 was recorded to be 70.2 $\mu g/m^3$; and at CAM-3 was recorded to be 106.8 $\mu g/m^3$.

24-hour TSP

Baseline 24-hour TSP monitoring was conducted at CAM-1 and CAM-2 between the period 5/12/2009 and 20/12/2009. 24-hour TSP baseline monitoring was conducted at CAM-3 (Roof of Lift Building, The Victoria Towers) between 22/12/2009 and 4/1/2010.

Baseline 24-hour TSP monitoring at CAM-1 was found in the range of 25.6 $\mu g/m^3$ to 115.1 $\mu g/m^3$; at CAM-2 was found in the range of 12.1 $\mu g/m^3$ to 99.0 $\mu g/m^3$; and at CAM-3 was found in the range of 19.4 $\mu g/m^3$ to 142.2 $\mu g/m^3$. The average 24-hour TSP level at CAM-1 was recorded to be 59.7 $\mu g/m^3$; at CAM-2 was recorded to be 39.9 $\mu g/m^3$; and at CAM-3 was recorded to be 75.8 $\mu g/m^3$.

1-hr and 24-hour Action Levels

The Action Levels at the monitoring locations were derived based on the baseline monitoring results. The Action Level of 1-hour and 24-hour average TSP levels at

CAM-1 was 298.4 μg/m^3 and 168.8 μg/m^3 respectively; at CAM-2 was 295.6 μg/m^3 and 155.9 μg/m^3 respectively; and at CAM-3 was 319.4 μg/m^3 and 179.3 μg/m^3 respectively.

4.2 Airborne Construction Noise

Baseline noise monitoring was carried at Man Cheong Street Refuse Collection Point (CNM-1) from 15/1/2010 to 1/2/2010. As revealed from the baseline monitoring results conducted in January 2010, ambient baseline noise levels for daytime (0700 - 1900 hours) during normal weekdays at the CNM-1 range from 58 - 69 dB(A). The daytime baseline noise level at CNM-1 (63 dB(A))was below the Limit Level for of 75 dB(A) for residential premises.

Baseline noise monitorings were carried at monitoring station CNM-2 from 14/12/2009 to 21/1/2010; and at monitoring station CMN-3 from 3/12/2009 to 21/12/2009. The weather during the baseline monitoring period was generally fine with occasional rainfall events.

As revealed from the monitoring results, baseline noise levels for daytime (0700 - 1900 hours) during normal weekdays at CNM-2 range from 64 - 71 dB(A); and at CNM-3 range from 69 - 73dB(A). The daytime baseline noise levels at CNM-2 (68 dB(A)) and at CNM-3 (71 dB(A)), which were below the Limit Level of 75 dB(A) for residential premises.

Baseline noise monitorings were carried at monitoring station CNM-4 from 19/2/2010 to 4/3/2010. The weather during the baseline monitoring period was generally fine with occasional cloudy events.

As revealed from the monitoring results, baseline noise levels for daytime (0700 - 1900 hours) during normal weekdays at CNM-4 range from 63 - 70 dB(A). The daytime baseline noise level at CNM-4 (68 dB(A)) was below the Limit Level of 75 dB(A) for residential premises.

Appendix A

Baseline air quality (1-hr and 24-hr TSP) Monitoring data

Details of 1-hour TSP Level monitoring at CAM-1 (Podium between Sorrento and The Waterfront)

Month	Date	Receptor	Set No.	Time periods		Weather	Site Condition	Temp. (^{o}C)	Pressure (mmHg)	1-hour TSP Level (µg/m3)	Remarks
				Start	Finish						
Dec-09	03-Dec-09	CAM-1	1	12:41	13:41	Fine	Normal	18.0	765.0	246.2	Apart from wind erosion, no other dust source was affected during the monitoring
Dec-09	03-Dec-09	CAM-1	2	13:41	14:41	Fine	Normal	18.0	765.0	116.3	
Dec-09	03-Dec-09	CAM-1	3	14:41	15:41	Fine	Normal	18.0	765.0	90.6	
Dec-09	04-Dec-09	CAM-1	1	13:14	14:14	Fine	Normal	18.0	765.0	66.2	
Dec-09	04-Dec-09	CAM-1	2	14:14	15:14	Fine	Normal	18.0	765.0	136.5	
Dec-09	04-Dec-09	CAM-1	3	15:14	16:14	Fine	Normal	18.0	765.0	141.8	
Dec-09	05-Dec-09	CAM-1	1	12:48	13:48	Fine	Normal	18.0	765.0	78.3	
Dec-09	05-Dec-09	CAM-1	2	13:48	14:48	Fine	Normal	18.0	765.0	96.4	
Dec-09	05-Dec-09	CAM-1	3	14:48	15:48	Fine	Normal	18.0	765.0	114.2	
Dec-09	06-Dec-09	CAM-1	1	13:01	14:01	Fine	Normal	18.0	764.0	104.8	
Dec-09	06-Dec-09	CAM-1	2	14:01	15:01	Fine	Normal	18.0	764.0	90.2	
Dec-09	06-Dec-09	CAM-1	3	15:01	16:01	Fine	Normal	18.0	764.0	93.3	
Dec-09	07-Dec-09	CAM-1	1	13:17	14:17	Rainy	Normal	19.0	763.0	109.3	
Dec-09	07-Dec-09	CAM-1	2	14:17	15:17	Rainy	Normal	19.0	763.0	110.4	
Dec-09	07-Dec-09	CAM-1	3	15:17	16:17	Rainy	Normal	19.0	763.0	116.0	
Dec-09	08-Dec-09	CAM-1	1	13:39	14:39	Rainy	Normal	18.0	762.0	16.1	
Dec-09	08-Dec-09	CAM-1	2	14:39	15:39	Rainy	Normal	18.0	762.0	11.8	
Dec-09	08-Dec-09	CAM-1	3	15:39	16:39	Rainy	Normal	18.0	762.0	11.5	
Dec-09	09-Dec-09	CAM-1	1	13:36	14:36	Cloudy	Normal	19.0	762.0	13.8	
Dec-09	09-Dec-09	CAM-1	2	14:36	15:36	Cloudy	Normal	19.0	762.0	8.0	

Month	Date	Receptor	Set No.	Time periods		Weather	Site Condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (µg/m3)	Remarks
				Start	Finish						
Dec-09	09-Dec-09	CAM-1	3	15:36	16:36	Cloudy	Normal	19.0	762.0	12.3	Apart from wind erosion, no other dust source was affected during the monitoring
Dec-09	10-Dec-09	CAM-1	1	10:06	11:06	Cloudy	Normal	20.0	761.0	53.8	
Dec-09	10-Dec-09	CAM-1	2	11:06	12:06	Cloudy	Normal	20.0	761.0	64.9	
Dec-09	10-Dec-09	CAM-1	3	12:06	13:06	Cloudy	Normal	20.0	761.0	51.6	
Dec-09	11-Dec-09	CAM-1	1	10:31	11:31	Fine	Normal	21.0	761.0	48.3	
Dec-09	11-Dec-09	CAM-1	2	11:31	12:31	Fine	Normal	21.0	761.0	57.1	
Dec-09	11-Dec-09	CAM-1	3	12:31	13:31	Fine	Normal	21.0	761.0	44.2	
Dec-09	12-Dec-09	CAM-1	1	10:02	11:02	Fine	Normal	22.0	762.0	76.3	
Dec-09	12-Dec-09	CAM-1	2	11:02	12:02	Fine	Normal	22.0	762.0	72.3	
Dec-09	12-Dec-09	CAM-1	3	12:02	13:02	Fine	Normal	22.0	762.0	86.5	
Dec-09	13-Dec-09	CAM-1	1	9:40	10:40	Fine	Normal	21.0	763.0	64.9	
Dec-09	13-Dec-09	CAM-1	2	10:40	11:40	Fine	Normal	21.0	763.0	62.9	
Dec-09	13-Dec-09	CAM-1	3	11:40	12:40	Fine	Normal	21.0	763.0	64.4	
Dec-09	14-Dec-09	CAM-1	1	10:16	11:16	Fine	Normal	21.0	763.0	85.7	
Dec-09	14-Dec-09	CAM-1	2	11:16	12:16	Fine	Normal	21.0	763.0	79.9	
Dec-09	14-Dec-09	CAM-1	3	12:16	13:16	Fine	Normal	21.0	763.0	76.3	
Dec-09	15-Dec-09	CAM-1	1	9:59	10:59	Fine	Normal	20.0	763.0	89.2	
Dec-09	15-Dec-09	CAM-1	2	10:59	11:59	Fine	Normal	20.0	763.0	88.5	
Dec-09	15-Dec-09	CAM-1	3	11:59	12:59	Fine	Normal	20.0	763.0	90.3	
Dec-09	16-Dec-09	CAM-1	1	10:06	11:06	Cloudy	Normal	20.0	763.0	28.6	
Dec-09	16-Dec-09	CAM-1	2	11:06	12:06	Cloudy	Normal	20.0	763.0	29.9	
Dec-09	16-Dec-09	CAM-1	3	12:06	13:06	Cloudy	Normal	20.0	763.0	29.3	

Details of 1-hour TSP Level monitoring at CAM-2 (Tower 3, The Waterfront)

Month	Date	Receptor	Set No.	Time periods		Weather	Site Condition	Temp. (^{o}C)	Pressure (mmHg)	1-hour TSP Level (µg/m3)	Remarks
				Start	Finish						
Dec-09	03-Dec-09	CAM-2	1	8:55	9:55	Fine	Normal	18.0	765.0	107.6	Apart from wind erosion, no other dust source was affected during the monitoring
Dec-09	03-Dec-09	CAM-2	2	9:55	10:55	Fine	Normal	18.0	765.0	100.7	
Dec-09	03-Dec-09	CAM-2	3	10:55	11:55	Fine	Normal	18.0	765.0	103.1	
Dec-09	04-Dec-09	CAM-2	1	13:22	14:22	Fine	Normal	18.0	765.0	52.1	
Dec-09	04-Dec-09	CAM-2	2	14:22	15:22	Fine	Normal	18.0	765.0	134.0	
Dec-09	04-Dec-09	CAM-2	3	15:22	16:22	Fine	Normal	18.0	765.0	146.2	
Dec-09	05-Dec-09	CAM-2	1	12:49	13:49	Fine	Normal	18.0	765.0	72.9	
Dec-09	05-Dec-09	CAM-2	2	13:49	14:49	Fine	Normal	18.0	765.0	100.7	
Dec-09	05-Dec-09	CAM-2	3	14:49	15:49	Fine	Normal	18.0	765.0	113.1	
Dec-09	06-Dec-09	CAM-2	1	13:09	14:09	Fine	Normal	18.0	764.0	100.6	
Dec-09	06-Dec-09	CAM-2	2	14:09	15:09	Fine	Normal	18.0	764.0	90.8	
Dec-09	06-Dec-09	CAM-2	3	15:09	16:09	Fine	Normal	18.0	764.0	91.2	
Dec-09	07-Dec-09	CAM-2	1	13:20	14:20	Rainy	Normal	19.0	763.0	96.6	
Dec-09	07-Dec-09	CAM-2	2	14:20	15:20	Rainy	Normal	19.0	763.0	94.8	
Dec-09	07-Dec-09	CAM-2	3	15:20	16:20	Rainy	Normal	19.0	763.0	98.7	
Dec-09	08-Dec-09	CAM-2	1	13:32	14:32	Rainy	Normal	18.0	762.0	16.4	
Dec-09	08-Dec-09	CAM-2	2	14:32	15:32	Rainy	Normal	18.0	762.0	12.1	
Dec-09	08-Dec-09	CAM-2	3	15:32	16:32	Rainy	Normal	18.0	762.0	13.3	
Dec-09	09-Dec-09	CAM-2	1	13:47	14:47	Cloudy	Normal	19.0	762.0	9.0	
Dec-09	09-Dec-09	CAM-2	2	14:47	15:47	Cloudy	Normal	19.0	762.0	10.4	

Month	Date	Receptor	Set No.	Time periods		Weather	Site Condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (µg/m3)	Remarks
				Start	Finish						
Dec-09	09-Dec-09	CAM-2	3	15:47	16:47	Cloudy	Normal	19.0	762.0	12.3	Apart from wind erosion, no other dust source was affected during the monitoring
Dec-09	10-Dec-09	CAM-2	1	10:18	11:18	Cloudy	Normal	20.0	761.0	52.0	
Dec-09	10-Dec-09	CAM-2	2	11:18	12:18	Cloudy	Normal	20.0	761.0	77.9	
Dec-09	10-Dec-09	CAM-2	3	12:18	13:18	Cloudy	Normal	20.0	761.0	63.9	
Dec-09	11-Dec-09	CAM-2	1	10:26	11:26	Fine	Normal	21.0	761.0	42.4	
Dec-09	11-Dec-09	CAM-2	2	11:26	12:26	Fine	Normal	21.0	761.0	45.1	
Dec-09	11-Dec-09	CAM-2	3	12:26	13:26	Fine	Normal	21.0	761.0	43.1	
Dec-09	12-Dec-09	CAM-2	1	10:10	11:10	Fine	Normal	22.0	762.0	81.6	
Dec-09	12-Dec-09	CAM-2	2	11:10	12:10	Fine	Normal	22.0	762.0	78.0	
Dec-09	12-Dec-09	CAM-2	3	12:10	13:10	Fine	Normal	22.0	762.0	90.1	
Dec-09	13-Dec-09	CAM-2	1	9:50	10:50	Fine	Normal	21.0	763.0	70.0	
Dec-09	13-Dec-09	CAM-2	2	10:50	11:50	Fine	Normal	21.0	763.0	87.2	
Dec-09	13-Dec-09	CAM-2	3	11:50	12:50	Fine	Normal	21.0	763.0	89.5	
Dec-09	14-Dec-09	CAM-2	1	10:23	11:23	Fine	Normal	21.0	763.0	78.2	
Dec-09	14-Dec-09	CAM-2	2	11:23	12:23	Fine	Normal	21.0	763.0	76.0	
Dec-09	14-Dec-09	CAM-2	3	12:23	13:23	Fine	Normal	21.0	763.0	73.8	
Dec-09	15-Dec-09	CAM-2	1	10:07	11:07	Fine	Normal	20.0	763.0	76.9	
Dec-09	15-Dec-09	CAM-2	2	11:07	12:07	Fine	Normal	20.0	763.0	80.3	
Dec-09	15-Dec-09	CAM-2	3	12:07	13:07	Fine	Normal	20.0	763.0	87.2	
Dec-09	16-Dec-09	CAM-2	1	10:13	11:13	Cloudy	Normal	20.0	763.0	25.4	
Dec-09	16-Dec-09	CAM-2	2	11:13	12:13	Cloudy	Normal	20.0	763.0	29.2	
Dec-09	16-Dec-09	CAM-2	3	12:13	13:13	Cloudy	Normal	20.0	763.0	24.6	

Details of supplementary 1-hour TSP Level monitoring at CAM-3 (The Victoria Towers)

Month	Date	Receptor	Set No.	Time periods		Weather	Site Condition	Temp. (^{o}C)	Pressure (mmHg)	1-hour TSP Level (µg/m3)	Remarks
				Start	Finish						
Dec-09	22-Dec-09	CAM-3	1	13:34	14:34	Fine	Normal	16.0	766.5	139.4	Apart from wind erosion, no other dust source was affected during the monitoring
Dec-09	22-Dec-09	CAM-3	2	14:34	15:34	Fine	Normal	16.0	766.5	121.8	
Dec-09	22-Dec-09	CAM-3	3	15:34	16:34	Fine	Normal	16.0	766.5	125.8	
Dec-09	23-Dec-09	CAM-3	1	13:39	14:39	Fine	Normal	18.0	764.3	82.7	
Dec-09	23-Dec-09	CAM-3	2	14:39	15:39	Fine	Normal	18.0	764.3	82.8	
Dec-09	23-Dec-09	CAM-3	3	15:39	16:39	Fine	Normal	18.0	764.3	85.4	
Dec-09	24-Dec-09	CAM-3	1	13:04	14:04	Fine	Normal	21.0	762.1	160.6	
Dec-09	24-Dec-09	CAM-3	2	14:04	15:04	Fine	Normal	21.0	762.1	176.8	
Dec-09	24-Dec-09	CAM-3	3	15:04	16:04	Fine	Normal	21.0	762.1	159.3	
Dec-09	25-Dec-09	CAM-3	1	13:14	14:14	Fine	Normal	20.0	761.4	146.8	
Dec-09	25-Dec-09	CAM-3	2	14:14	15:14	Fine	Normal	20.0	761.4	141.9	
Dec-09	25-Dec-09	CAM-3	3	15:14	16:14	Fine	Normal	20.0	761.4	171.0	
Dec-09	26-Dec-09	CAM-3	1	13:14	14:14	Cloudy	Normal	18.0	762.5	96.3	
Dec-09	26-Dec-09	CAM-3	2	14:14	15:14	Cloudy	Normal	18.0	762.5	81.8	
Dec-09	26-Dec-09	CAM-3	3	15:14	16:14	Cloudy	Normal	18.0	762.5	127.4	
Dec-09	27-Dec-09	CAM-3	1	13:35	14:35	Cloudy	Normal	16.0	762.6	40.5	
Dec-09	27-Dec-09	CAM-3	2	14:35	15:35	Cloudy	Normal	16.0	762.6	49.2	
Dec-09	27-Dec-09	CAM-3	3	15:35	16:35	Cloudy	Normal	16.0	762.6	51.9	
Dec-09	28-Dec-09	CAM-3	1	12:26	13:26	Cloudy	Normal	12.0	763.5	54.7	
Dec-09	28-Dec-09	CAM-3	2	13:26	14:26	Cloudy	Normal	12.0	763.5	62.5	

Month	Date	Receptor	Set No.	Time periods		Weather	Site Condition	Temp. (^{o}C)	Pressure (mmHg)	1-hour TSP Level (µg/m3)	Remarks
				Start	Finish						
Dec-09	28-Dec-09	CAM-3	3	14:26	15:26	Cloudy	Normal	12.0	763.5	75.0	Apart from wind erosion, no other dust source was affected during the monitoring
Dec-09	29-Dec-09	CAM-3	1	12:44	13:44	Cloudy	Normal	16.0	761.3	167.8	
Dec-09	29-Dec-09	CAM-3	2	13:44	14:44	Cloudy	Normal	16.0	761.3	167.8	
Dec-09	29-Dec-09	CAM-3	3	14:44	15:44	Cloudy	Normal	16.0	761.3	229.5	
Dec-09	30-Dec-09	CAM-3	1	8:34	9:34	Rainy	Normal	17.0	761.3	31.1	
Dec-09	30-Dec-09	CAM-3	2	9:34	10:34	Rainy	Normal	17.0	761.3	7.5	
Dec-09	30-Dec-09	CAM-3	3	10:34	11:34	Rainy	Normal	17.0	761.3	9.8	
Dec-09	31-Dec-09	CAM-3	1	9:05	10:05	Cloudy	Normal	16.0	763.5	75.5	
Dec-09	31-Dec-09	CAM-3	2	10:05	11:05	Cloudy	Normal	16.0	763.5	82.6	
Dec-09	31-Dec-09	CAM-3	3	11:05	12:05	Cloudy	Normal	16.0	763.5	70.2	
Jan-10	01-Jan-10	CAM-3	1	9:08	10:08	Fine	Normal	16.0	763.0	105.7	
Jan-10	01-Jan-10	CAM-3	2	10:08	11:08	Fine	Normal	16.0	763.0	104.8	
Jan-10	01-Jan-10	CAM-3	3	11:08	12:08	Fine	Normal	16.0	763.0	104.8	
Jan-10	02-Jan-10	CAM-3	1	9:15	10:15	Fine	Normal	17.0	762.0	148.8	
Jan-10	02-Jan-10	CAM-3	2	10:15	11:15	Fine	Normal	17.0	762.0	150.2	
Jan-10	02-Jan-10	CAM-3	3	11:15	12:15	Fine	Normal	17.0	762.0	154.5	
Jan-10	03-Jan-10	CAM-3	1	9:20	10:20	Fine	Normal	17.0	762.0	121.4	
Jan-10	03-Jan-10	CAM-3	2	10:20	11:20	Fine	Normal	17.0	762.0	119.1	
Jan-10	03-Jan-10	CAM-3	3	11:20	12:20	Fine	Normal	17.0	762.0	114.2	
Jan-10	04-Jan-10	CAM-3	1	8:49	9:49	Fine	Normal	17.0	762.0	111.2	
Jan-10	04-Jan-10	CAM-3	2	9:49	10:49	Fine	Normal	17.0	762.0	80.9	
Jan-10	04-Jan-10	CAM-3	3	10:49	11:49	Fine	Normal	17.0	762.0	94.0	

Details of 24-hour TSP Level monitoring at CAM-1 (Podium between Sorrento and The Waterfront)

Filter No.	Date	Time periods		Receptor No.	Weather condition	Site condition	Filter Weight (g)		TSP weight (g)	Flow Rate (m^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m^3)	24-hour TSP Level ($\mu g/m^3$)
		Start	Finish				Initial	Final		Initial	Final		Start	Finish			
100505	05-Dec-09	12:51	12:51	CAM-1	Fine	Normal Operation	2.8161	2.9684	0.1523	1.1232	1.1227	1.1230	11940.22	11964.22	1440.00	1617.05	94.2
100509	06-Dec-09	12:54	12:54	CAM-1	Fine	Normal Operation	2.8400	2.9652	0.1252	1.1227	1.1208	1.1218	11964.22	11988.22	1440.00	1615.32	77.5
100513	07-Dec-09	13:00	13:00	CAM-1	Rainy	Normal Operation	2.7960	2.8828	0.0868	1.1208	1.1217	1.1213	11988.22	12012.22	1440.00	1614.60	53.8
100552	08-Dec-09	13:00	13:00	CAM-1	Rainy	Normal Operation	2.8970	2.9411	0.0441	1.1217	1.1203	1.1210	12012.22	12036.22	1440.00	1614.24	27.3
100556	09-Dec-09	13:12	13:12	CAM-1	Rainy	Normal Operation	2.8791	2.9219	0.0428	1.1619	1.1600	1.1610	12036.22	12060.22	1440.00	1671.77	25.6
100560	10-Dec-09	13:25	13:25	CAM-1	Cloudy	Normal Operation	2.8374	2.9701	0.1327	1.2015	1.2015	1.2015	12060.22	12084.22	1440.00	1730.16	76.7
100564	11-Dec-09	13:25	13:25	CAM-1	Fine	Normal Operation	2.8852	2.9751	0.0899	1.1585	1.1577	1.1581	12084.22	12108.22	1440.00	1667.66	53.9
100568	12-Dec-09	13:30	13:30	CAM-1	Fine	Normal Operation	2.9246	3.0324	0.1078	1.1577	1.1596	1.1587	12108.22	12132.22	1440.00	1668.46	64.6
100572	13-Dec-09	13:40	13:40	CAM-1	Fine	Normal Operation	2.9012	3.0934	0.1922	1.1596	1.1596	1.1596	12132.22	12156.22	1440.00	1669.82	115.1
100576	14-Dec-09	13:45	13:45	CAM-1	Fine	Normal Operation	2.8941	2.9611	0.0670	1.1596	1.1611	1.1604	12156.22	12180.22	1440.00	1670.90	40.1
100580	15-Dec-09	13:45	13:45	CAM-1	Fine	Normal Operation	2.8708	2.9380	0.0672	1.2027	1.2027	1.2027	12180.22	12204.22	1440.00	1731.89	38.8
100583	16-Dec-09	13:52	13:52	CAM-1	Cloudy	Normal Operation	2.9001	2.9844	0.0843	1.1682	1.2140	1.1911	12204.22	12228.22	1440.00	1715.18	49.1

Filter No.	Date	Time periods		Receptor No.	Weather condition	Site condition	Filter Weight (g)		TSP weight (g)	Flow Rate (m^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m^3)	24-hour TSP Level ($\mu g/m^3$)
		Start	Finish				Initial	Final		Initial	Final		Start	Finish			
100588	17-Dec-09	13:55	13:55	CAM-1	Cloudy	Normal Operation	2.8852	2.9621	0.0769	1.1719	1.1719	1.1719	12228.22	12252.22	1440.00	1687.54	45.6
100592	18-Dec-09	13:57	13:57	CAM-1	Fine	Normal Operation	2.8862	3.0097	0.1235	1.1730	1.1721	1.1726	12252.22	12276.22	1440.00	1688.47	73.1

Notes: No other dust source was affected during the monitoring.

Details of 24-hour TSP Level monitoring at CAM-2 (Tower 3, The Waterfront)

Filter No.	Date	Time periods		Receptor No.	Weather condition	Site condition	Filter Weight (g)		TSP weight (g)	Flow Rate (m^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m^3)	24-hour TSP Level (μg/m^3)
		Start	Finish				Initial	Final		Initial	Final		Start	Finish			
100506	05-Dec-09	13:00	13:00	CAM-2	Fine	Normal Operation	2.8401	3.0084	0.1683	1.1811	1.1807	1.1809	12020.93	12044.93	1440.00	1700.50	99.0
100510	06-Dec-09	13:05	13:05	CAM-2	Fine	Normal Operation	2.8485	2.9942	0.1457	1.1807	1.1790	1.1799	12044.93	12068.93	1440.00	1698.98	85.8
	07-Dec-09	Monitoring interrupted due to short circuit.															
	08-Dec-09																
100514	09-Dec-09	13:20	13:20	CAM-2	Cloudy	Normal Operation	2.8330	2.9110	0.0780	1.1940	1.1770	1.1855	12083.47	12107.47	1440.00	1707.12	45.7
100561	10-Dec-09	13:36	13:36	CAM-2	Fine	Normal Operation	2.8812	2.9266	0.0454	1.2098	1.2091	1.2095	12107.47	12131.47	1440.00	1741.61	26.1
100565	11-Dec-09	13:40	13:40	CAM-2	Fine	Normal Operation	2.8740	2.9615	0.0875	1.2431	1.2790	1.2611	12131.47	12155.47	1440.00	1815.91	48.2
100553	12-Dec-09	13:55	13:55	CAM-2	Fine	Normal Operation	2.8291	2.8605	0.0314	1.1767	1.1767	1.1767	12155.47	12179.47	1440.00	1694.45	18.5
100569	13-Dec-09	13:55	13:55	CAM-2	Fine	Normal Operation	2.8900	2.9321	0.0421	1.1767	1.1779	1.1773	12179.47	12203.47	1440.00	1695.31	24.8
100557	14-Dec-09	14:00	14:00	CAM-2	Fine	Normal Operation	2.8440	2.9355	0.0915	1.1779	1.1779	1.1779	12203.47	12227.47	1440.00	1696.18	53.9
100579	15-Dec-09	14:02	14:02	CAM-2	Cloudy	Normal Operation	2.9128	2.9473	0.0345	1.1837	1.1868	1.1853	12227.47	12251.47	1440.00	1706.76	20.2

Filter No.	Date	Time periods		Receptor No.	Weather condition	Site condition	Filter Weight (g)		TSP weight (g)	Flow Rate (m^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m^3)	24-hour TSP Level (μg/m^3)
		Start	Finish				Initial	Final		Initial	Final		Start	Finish			
100584	16-Dec-09	14:04	14:04	CAM-2	Cloudy	Normal Operation	2.8396	2.8721	0.0325	1.1522	1.1522	1.1522	12251.47	12275.47	1440.00	1659.17	19.6
100589	17-Dec-09	14:08	14:08	CAM-2	Cloudy	Normal Operation	2.8780	2.8987	0.0207	1.1868	1.1868	1.1868	12275.47	12299.47	1440.00	1708.99	12.1
100593	18-Dec-09	14:12	14:12	CAM-2	Cloudy	Normal Operation	2.8688	2.9524	0.0836	1.2223	1.1894	1.2059	12299.47	12323.47	1440.00	1736.42	48.1
100577	19-Dec-09	14:26	14:26	CAM-2	Fine	Normal Operation	2.9088	2.9385	0.0297	1.1203	1.1188	1.1196	12323.47	12347.47	1440.00	1612.15	18.4
100573	20-Dec-09	14:38	14:38	CAM-2	Fine	Normal Operation	2.9241	2.9853	0.0612	1.1188	1.1177	1.1183	12347.47	12371.47	1440.00	1610.28	38.0

Notes: No other dust source was affected during the monitoring.

Details of Supplementary 24-hour TSP Level Monitoring at CAM-3 (The Victoria Towers)

Filter No.	Date	Time periods		Receptor No.	Weather condition	Site condition	Filter Weight (g)		TSP weight (g)	Flow Rate (m^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m^3)	24-hour TSP Level ($\mu g/m^3$)
		Start	Finish				Initial	Final		Initial	Final		Start	Finish			
100595	22-Dec-09	14:56	14:56	CAM-3	Fine	Normal Operation	2.8622	3.0278	0.1656	1.3421	1.3104	1.3263	3803.10	3827.10	1440.00	1909.80	86.7
100596	23-Dec-09	14:58	14:58	CAM-3	Fine	Normal Operation	2.8841	3.0172	0.1331	1.2577	1.2527	1.2552	3827.10	3851.10	1440.00	1807.49	73.6
100782	24-Dec-09	15:02	15:02	CAM-3	Fine	Normal Operation	2.8128	3.0281	0.2153	1.2527	1.2537	1.2532	3851.10	3875.10	1440.00	1804.61	119.3
100783	25-Dec-09	15:05	15:05	CAM-3	Fine	Normal Operation	2.8401	3.0969	0.2568	1.2537	1.2544	1.2541	3875.10	3899.10	1440.00	1805.83	142.2
100784	26-Dec-09	15:10	15:10	CAM-3	Cloudy	Normal Operation	2.8427	2.8927	0.0500	1.2544	1.2366	1.2455	3899.10	3923.10	1440.00	1793.52	27.9
100785	27-Dec-09	15:11	15:11	CAM-3	Cloudy	Normal Operation	2.8582	2.8940	0.0358	1.2631	1.2938	1.2785	3923.10	3947.10	1440.00	1840.97	19.4
100786	28-Dec-09	15:13	15:13	CAM-3	Cloudy	Normal Operation	2.8152	2.9550	0.1398	1.2938	1.2874	1.2906	3947.10	3971.10	1440.00	1858.46	75.2
100787	29-Dec-09	15:16	15:16	CAM-3	Cloudy	Normal Operation	2.8395	3.0237	0.1842	1.3139	1.2574	1.2857	3971.10	3995.10	1440.00	1851.34	99.5
100788	30-Dec-09	15:18	15:18	CAM-3	Rainy	Normal Operation	2.8501	2.9166	0.0665	1.2574	1.2605	1.2590	3995.10	4019.10	1440.00	1812.89	36.7
100543	31-Dec-09	15:21	15:21	CAM-3	Cloudy	Normal Operation	2.8648	2.9769	0.1121	1.2613	1.2613	1.2613	4019.10	4043.10	1440.00	1816.27	61.7

Filter No.	Date	Time periods		Receptor No.	Weather condition	Site condition	Filter Weight (g)		TSP weight (g)	Flow Rate (m^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m^3)	24-hour TSP Level ($\mu g/m^3$)
		Start	Finish				Initial	Final		Initial	Final		Start	Finish			
100625	01-Jan-10	15:25	15:25	CAM-3	Fine	Normal Operation	2.8712	3.1039	0.2327	1.2877	1.2844	1.2861	4043.10	4067.10	1440.00	1851.91	125.7
100628	02-Jan-10	15:28	15:28	CAM-3	Fine	Normal Operation	2.8613	2.9600	0.0987	1.2317	1.2587	1.2452	4067.10	4091.10	1440.00	1793.09	55.0
100633	03-Jan-10	15:32	15:32	CAM-3	Fine	Normal Operation	2.8543	2.9520	0.0977	1.2060	1.2043	1.2052	4091.10	4115.10	1440.00	1735.42	56.3
100634	04-Jan-10	15:35	15:35	CAM-3	Fine	Normal Operation	2.8601	3.0072	0.1471	1.2306	1.2574	1.2440	4115.10	4139.10	1440.00	1791.36	82.1

Notes: No other dust source was affected during the monitoring.

Appendix B

Baseline noise monitoring data

Baseline Noise Monitoring Result

Location: CNM-1 Man Cheong Street Refuse Collection Point
Baseline monitoring period: 15/1/2010 to 1/2/2010

Sound Level Meter (S/N) Rion NL-31 (S/N: 00983400)
Parameter: Leq

Time Slot Averaged Baselines

1)Weekdays Daytime Noise Level, dB(A)

Time slot	Leq, 30 min	L10	L90
07:00-07:30	62.4	63.4	61.2
07:30-08:00	62.6	63.5	61.5
08:00-08:30	63.4	64.6	62.0
08:30-09:00	63.5	64.4	62.0
09:00-09:30	63.0	64.0	61.9
09:30-10:00	63.3	64.6	61.8
10:00-10:30	63.4	65.0	61.8
10:30-11:00	63.4	64.6	61.9
11:00-11:30	66.1	67.5	63.6
11:30-12:00	63.1	64.2	61.6
12:00-12:30	62.7	63.9	61.2
12:30-13:00	63.9	65.5	61.9
13:00-13:30	63.9	64.8	62.0
13:30-14:00	63.7	64.9	61.9
14:00-14:30	63.0	64.1	61.8
14:30-15:00	62.9	63.9	61.3
15:00-15:30	61.6	63.3	59.0
15:30-16:00	60.8	62.4	58.7
16:00-16:30	62.3	63.6	59.0
16:30-17:00	62.0	63.5	59.3
17:00-17:30	61.6	63.2	59.2
17:30-18:00	61.1	62.6	58.9
18:00-18:30	60.2	61.4	58.4
18:30-19:00	59.7	61.0	58.1
Average	62.9	64.1	61.1
Max	69.4	70.9	65.6
Min	58.3	58.7	55.8

Noise Control Period Averaged Baselines

2) Weekdays Evening Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
19:00-19:15	60.2	62.2	58.0
	61.3	64.5	57.7
	59.5	61.0	57.7
19:15-19:30	59.4	60.7	57.6
	60.0	61.5	57.4
	59.7	61.4	57.6
19:30-19:45	60.1	62.2	57.7
	60.0	61.4	57.8
	60.5	62.3	57.5
19:45-20:00	60.7	62.9	57.5
	59.8	61.7	57.4
	59.6	60.8	57.2
20:00-20:15	59.4	61.1	57.2
	59.7	61.0	57.1
	59.6	61.1	57.2
20:15-20:30	59.2	60.8	57.0
	59.5	61.8	57.1
	58.9	60.3	56.9
20:30-20:45	58.6	60.0	56.7
	58.9	60.7	56.6
	58.3	59.7	56.4
20:45-21:00	58.8	60.5	56.5
	58.5	59.7	56.4
	59.7	62.4	56.9
21:00-21:15	58.4	59.7	56.8
	60.0	62.6	57.1
	59.6	61.7	57.2
21:15-21:30	59.3	60.8	57.2
	59.2	60.9	57.1
	59.8	61.5	56.9
21:30-21:45	60.3	62.8	56.5
	60.2	61.8	57.1
	60.5	62.4	57.0

Time Slot	Leq, 5min	L10	L90
21:45-22:00	59.5	61.5	56.8
	58.3	59.8	56.3
	58.8	60.2	56.3
22:00-22:15	59.2	60.9	56.7
	58.8	60.2	56.5
	58.9	60.5	56.3
22:15-22:30	58.8	60.7	56.1
	58.2	59.6	56.4
	58.3	59.8	56.4
22:30-22:45	58.8	60.5	56.4
	58.2	59.9	56.2
	58.5	60.5	56.0
22:45-23:00	58.1	59.4	56.3
	58.0	59.4	56.3
	58.4	59.6	56.2
Average	59.4	61.2	56.9
Max	66.8	72.8	60.4
Min	56.2	57.3	53.7

3) General Holidays (including Sundays) (0700-2300) Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
0700-07:15	61.4	62.6	60.3
	62.4	65.0	60.3
	61.2	62.0	60.3
07:15-07:30	61.9	62.4	60.7
	61.4	62.2	60.7
	61.2	62.0	60.4
07:30-07:45	61.3	62.2	60.6
	61.6	62.3	60.8
	62.4	62.8	60.7
07:45-08:00	61.6	62.5	60.6
	61.5	62.3	60.5
	62.4	62.4	60.8
08:00-08:15	62.9	63.3	61.0
	64.1	64.5	61.2
	62.4	63.6	61.0

Time Slot	Leq, 5min	L10	L90
08:15-08:30	63.3	65.0	61.1
	63.2	65.5	61.1
	62.4	64.0	60.8
08:30-08:45	62.2	62.8	60.8
	62.9	64.8	60.9
	62.3	63.6	61.1
08:45-09:00	62.1	63.4	60.7
	61.7	62.5	60.8
	61.7	62.5	60.7
09:00-09:15	61.4	62.1	60.7
	62.1	63.1	60.9
	61.6	62.5	60.8
09:15-09:30	61.6	62.3	60.6
	62.1	63.6	60.7
	61.9	62.8	60.8
09:30-09:45	62.2	63.4	61.1
	63.2	65.4	60.7
	62.5	64.6	60.6
09:45-10:00	63.0	65.9	60.6
	62.5	63.4	60.5
	62.9	64.8	60.7
10:00-10:15	62.7	64.0	60.5
	61.6	62.4	60.5
	62.1	62.9	60.6
10:15-10:30	62.0	62.9	60.4
	61.4	62.1	60.3
	61.9	62.7	60.6
10:30-10:45	61.4	62.0	60.6
	61.3	62.0	60.6
	62.2	63.7	60.8
10:45-11:00	61.6	62.4	60.8
	61.8	63.1	60.7
	63.3	64.0	61.2
11:00-11:15	63.5	63.8	61.2
	62.6	63.8	61.0
	65.5	67.3	63.1
11:15-11:30	67.0	67.2	62.2
	65.3	66.1	62.3

Time Slot	Leq, 5min	L10	L90
	63.8	66.5	61.1
11:30-11:45	62.0	62.7	60.9
	62.9	64.6	60.9
	62.2	63.2	61.2
11:45-12:00	62.2	63.3	61.0
	62.5	63.7	61.1
	63.1	64.0	61.1
12:00-12:15	61.9	62.7	60.9
	61.8	62.4	60.9
	61.6	62.4	60.9
12:15-12:30	61.5	62.3	60.7
	61.8	62.9	60.7
	61.4	62.2	60.5
12:30-12:45	65.6	69.4	62.7
	63.3	67.0	60.7
	62.7	64.0	61.2
12:45-13:00	62.0	62.7	61.0
	62.5	63.3	61.0
	63.3	64.3	61.6
13:00-13:15	62.9	64.0	61.3
	63.3	64.9	61.4
	63.2	64.3	61.4
13:15-13:30	62.6	63.8	61.3
	62.9	64.0	61.3
	62.4	63.4	61.2
13:30-13:45	63.0	63.7	61.6
	63.8	65.1	61.8
	62.7	63.7	61.5
13:45-14:00	62.4	63.2	61.1
	62.2	63.2	61.2
	62.7	63.5	61.3
14:00-14:15	63.0	64.2	61.1
	62.5	63.9	60.9
	62.4	63.4	60.9
14:15-14:30	62.3	63.4	60.9
	61.8	62.5	61.0
	62.8	63.8	61.3
14:30-14:45	62.4	63.2	61.3

Time Slot	Leq, 5min	L10	L90
	62.5	63.6	61.3
	62.2	63.0	61.3
14:45-15:00	62.3	63.2	61.2
	63.4	65.8	59.9
	59.2	61.4	57.0
15:00-15:15	58.7	60.0	57.1
	60.3	63.1	57.1
	59.0	60.2	57.3
15:15-15:30	59.6	60.9	57.8
	59.1	59.6	56.8
	58.9	60.3	57.5
15:30-15:45	59.1	60.6	57.3
	59.2	60.4	57.0
	59.1	60.7	57.1
15:45-16:00	60.3	61.9	57.3
	59.6	61.5	57.4
	59.8	61.5	57.7
16:00-16:15	59.3	61.1	57.6
	59.8	61.3	57.7
	58.7	59.9	57.2
16:15-16:30	59.7	60.9	57.8
	60.7	61.1	57.6
	64.8	65.0	58.2
16:30-16:45	59.4	60.7	57.9
	59.5	60.6	58.1
	59.9	60.9	57.7
16:45-17:00	60.4	61.6	58.3
	59.9	61.4	58.2
	60.0	61.5	58.2
17:00-17:15	60.1	61.4	58.5
	59.7	61.2	57.9
	59.8	61.4	58.1
17:15-17:30	59.2	60.6	57.8
	59.7	61.0	57.8
	59.2	60.6	57.7
17:30-17:45	62.0	64.0	57.8
	59.2	60.5	57.2
	60.3	62.0	57.7

Time Slot	Leq, 5min	L10	L90
17:45-18:00	59.6	60.0	57.7
	59.6	60.1	57.3
	59.0	60.1	57.5
18:00-18:15	58.9	60.1	57.3
	58.8	60.0	56.8
	59.1	60.2	57.0
18:15-18:30	58.6	60.0	57.0
	58.8	59.9	57.2
	58.8	60.1	57.0
18:30-18:45	60.0	61.8	57.5
	59.9	61.8	57.5
	59.3	61.0	57.2
18:45-19:00	62.3	60.8	57.3
	58.9	60.3	57.5
	59.7	61.0	58.0
19:00-19:15	59.3	60.3	58.0
	59.4	60.6	58.0
	59.5	60.9	57.3
19:15-19:30	59.9	62.1	57.4
	59.1	60.4	57.2
	60.2	62.4	57.6
19:30-19:45	62.0	63.3	57.4
	59.7	61.7	56.7
	60.1	63.0	57.5
19:45-20:00	60.7	64.1	57.2
	58.6	60.1	56.7
	58.1	59.5	56.3
20:00-20:15	58.3	59.6	56.6
	60.0	63.3	56.6
	59.2	60.9	57.3
20:15-20:30	58.5	60.3	56.7
	59.3	60.6	57.0
	59.7	62.0	57.0
20:30-20:45	59.1	61.3	56.5
	58.6	59.9	57.0
	59.4	60.7	56.6
20:45-21:00	57.9	59.1	56.0
	58.0	59.7	55.7

Time Slot	Leq, 5min	L10	L90
	60.2	62.7	56.6
21:00-21:15	58.4	59.9	56.6
	57.6	58.7	56.3
	62.2	65.3	56.2
21:15-21:30	59.6	61.0	57.6
	60.9	62.4	57.6
	59.2	60.4	57.9
21:30-21:45	60.0	62.2	56.9
	59.4	60.6	56.3
	59.1	61.3	56.4
21:45-22:00	62.3	65.5	56.6
	59.4	60.4	56.7
	59.2	61.3	56.9
22:00-22:15	59.2	61.0	57.2
	59.8	62.2	57.1
	59.4	61.5	57.2
22:15-22:30	58.6	60.0	56.8
	58.9	60.4	56.9
	60.3	61.7	56.8
22:30-22:45	58.6	59.8	56.9
	58.9	60.3	56.1
	57.6	58.9	55.9
22:45-23:00	57.8	59.0	56.3
	58.1	59.6	56.1
	60.6	61.0	56.0
Average	61.4	62.7	59.5
Max	68.8	70.4	64.3
Min	55.4	58.8	52.9

4) Night-time (for all days) Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
23:00-23:15	57.8	59.1	56.0
	57.8	59.1	56.0
	58.2	59.6	56.0
23:15-23:30	57.6	58.9	55.7
	57.5	58.8	55.8
	57.6	59.1	55.7

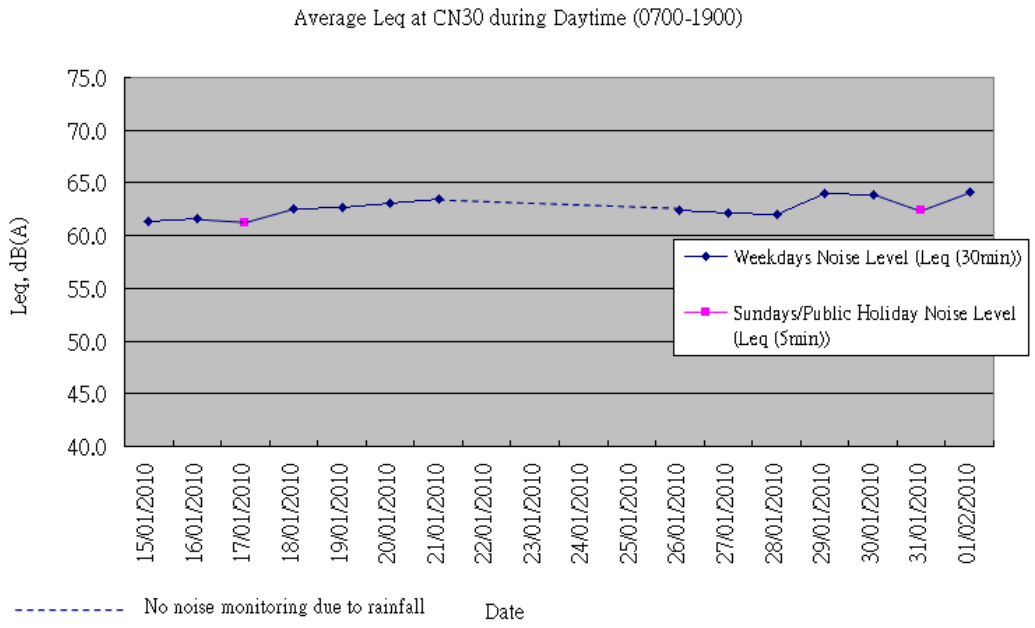
Time Slot	Leq, 5min	L10	L90
23:30-23:45	56.9	58.4	54.9
	56.8	58.3	54.7
	56.7	58.3	54.7
23:45-00:00	56.3	57.9	54.4
	56.5	58.1	54.5
	56.5	57.9	54.6
00:00-00:15	56.7	58.2	54.8
	56.4	58.0	54.1
	56.2	57.8	53.8
00:15-00:30	55.8	57.3	53.9
	55.8	57.4	53.7
	55.4	57.0	53.3
00:30-00:45	55.0	56.7	52.9
	55.1	56.8	52.7
	55.0	56.7	52.7
00:45:01:00	54.7	56.3	52.3
	54.6	56.6	52.0
	54.4	56.3	51.9
01:00-01:15	53.7	55.6	51.3
	54.0	55.5	51.7
	53.9	55.8	51.5
01:15-01:30	54.2	55.8	51.2
	53.8	56.1	51.1
	53.3	55.1	51.0
01:30-01:45	53.1	54.8	50.6
	52.8	54.5	50.2
	52.7	54.4	50.2
01:45-02:00	53.7	55.1	50.3
	52.8	54.8	50.2
	52.5	54.5	50.0
02:00-02:15	52.3	54.0	50.1
	52.3	53.7	49.6
	52.6	54.3	49.7
02:15-02:30	52.2	53.9	49.7
	51.9	53.6	49.5
	52.1	53.8	49.6
02:30-02:45	52.2	54.1	49.6
	51.9	53.9	49.3

Time Slot	Leq, 5min	L10	L90
	52.0	53.8	49.4
02:45-03:00	51.5	53.5	48.9
	51.6	53.3	48.9
	51.7	53.5	49.0
03:00-03:15	51.6	53.3	48.8
	51.7	53.3	48.8
	51.4	53.4	48.7
03:15-03:30	51.5	53.5	48.8
	51.3	53.2	48.7
	51.4	53.4	48.9
03:30-03:45	51.5	53.3	48.9
	51.5	53.5	48.6
	52.1	54.2	49.0
03:45-04:00	51.7	53.9	48.7
	51.4	53.3	48.7
	51.4	53.5	48.6
04:00-04:15	51.2	53.3	48.5
	51.4	53.4	48.8
	51.5	53.4	48.8
04:15-04:30	51.1	52.7	48.6
	51.5	53.3	48.6
	51.8	53.9	48.9
04:30-04:45	51.4	53.5	48.7
	51.5	53.4	49.0
	51.5	53.5	48.7
04:45-05:00	51.7	53.6	48.8
	51.4	53.2	49.2
	51.7	53.5	49.2
05:00-05:15	51.5	53.4	48.7
	51.9	54.0	49.1
	52.6	54.5	50.0
05:15-05:30	52.9	54.8	50.5
	52.8	54.6	50.3
	52.8	54.6	50.1
05:30-05:45	52.0	53.8	49.7
	52.6	54.6	50.1
	52.4	54.1	50.2
05:45-06:00	55.0	55.0	50.6

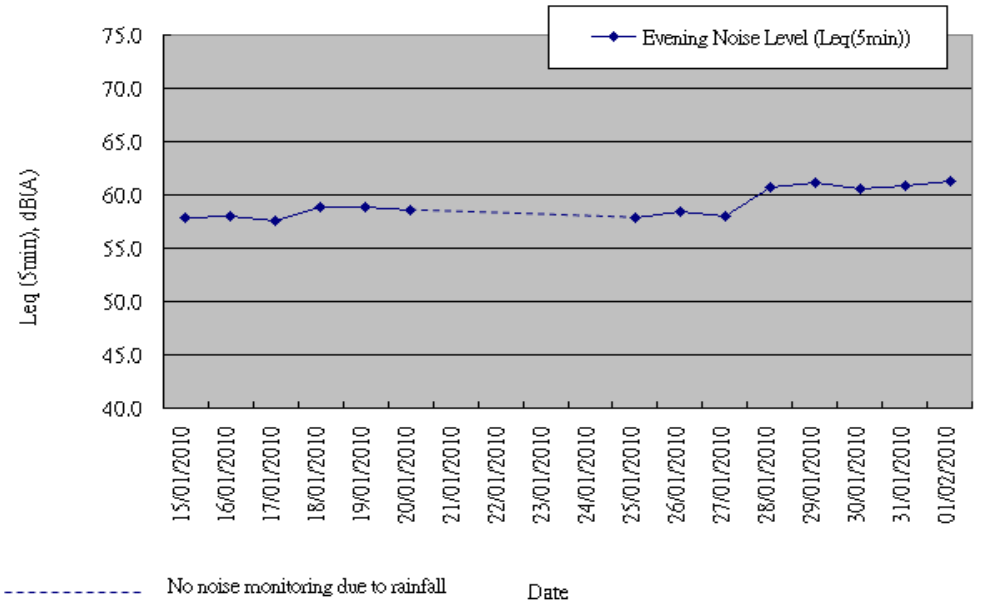
Time Slot	Leq, 5min	L10	L90
	53.3	55.1	50.8
	54.2	55.4	51.0
06:00-06:15	57.0	58.8	52.9
	59.6	62.4	53.9
	60.5	64.0	54.9
06:15-06:30	59.1	61.1	55.6
	58.8	60.3	55.9
	61.8	62.8	59.4
06:30-06:45	62.0	62.8	60.6
	62.1	62.8	60.5
	63.0	63.3	60.7
06:45-07:00	62.8	63.6	60.9
	62.8	63.4	60.9
	62.7	63.9	60.9
Average	55.9	57.4	53.5
Max	68.4	68.9	62.2
Min	47.3	48.8	45.3

Log average was used

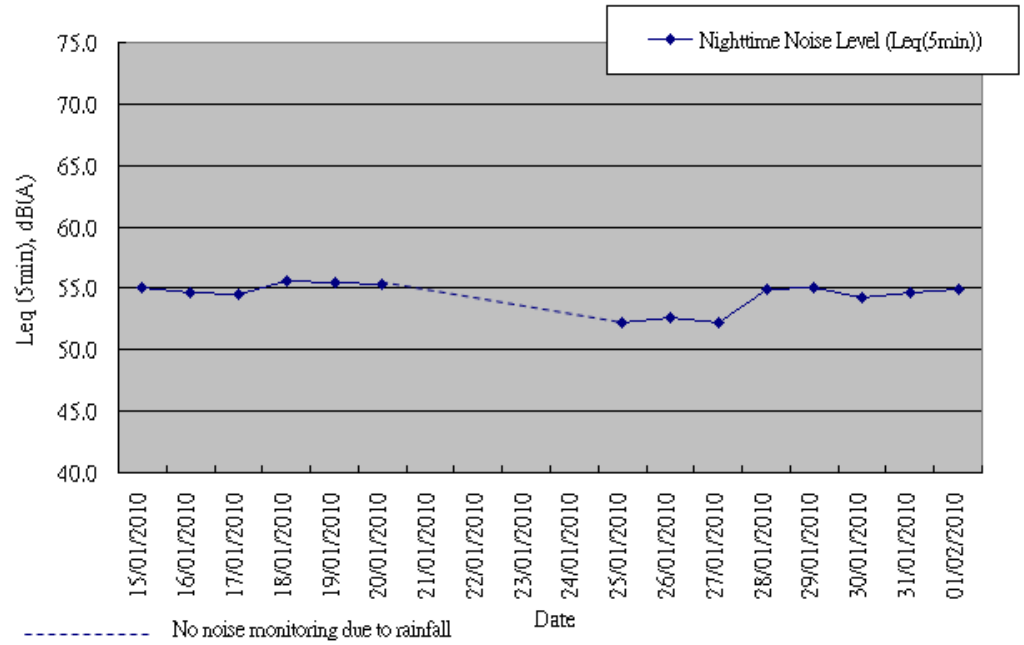
Graphical plot for CNM-1, please refer to CN30 in XRL Baseline Report Part 5 rev 1



Average Leq(5min) at CN30 during Evening (1900-2300) for all days



Average Leq(5min) at CN30 during Nighttime (2300-0700) for all days



Baseline Noise Monitoring Result

Location: CNM-2 ~ Tower 6, Sorrento
Baseline monitoring period: 24/12/2009-21/1/2010

Sound Level Meter (S/N) Rion NL-31 (S/N: 00320533)
Parameter: Leq

Time Slot Averaged Baselines

1)Weekdays Daytime Noise Level, dB(A)

Time slot	Leq, 30 min	L10	L90
07:00-07:30	64.7	66.4	62.8
07:30-08:00	65.7	67.2	63.9
08:00-08:30	66.6	68.0	65.0
08:30-09:00	67.0	68.3	65.4
09:00-09:30	66.8	68.2	65.3
09:30-10:00	66.5	67.9	65.0
10:00-10:30	67.5	69.2	65.5
10:30-11:00	68.1	69.9	65.7
11:00-11:30	67.7	69.6	65.5
11:30-12:00	66.5	68.3	64.5
12:00-12:30	66.1	67.6	64.1
12:30-13:00	66.2	67.7	64.3
13:00-13:30	67.0	68.7	65.0
13:30-14:00	67.7	69.5	65.5
14:00-14:30	67.0	68.7	65.0
14:30-15:00	66.5	68.1	64.8
15:00-15:30	66.8	68.3	64.9
15:30-16:00	66.5	68.0	64.8
16:00-16:30	66.5	67.9	64.8
16:30-17:00	66.1	67.5	64.5
17:00-17:30	66.1	67.5	64.5
17:30-18:00	66.1	67.6	64.4
18:00-18:30	65.9	67.3	64.1
18:30-19:00	65.6	67.3	63.9
Average	66.6	68.2	64.8
Max	68.1	69.9	65.7
Min	64.7	66.4	62.8

Noise Control Period Averaged Baselines

2) Weekdays Evening Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
19:00-19:15	65.7	67.1	63.9
	65.4	66.8	63.7
	65.4	66.9	63.6
19:15-19:30	65.2	66.6	63.5
	65.5	67.2	63.5
	65.6	67.2	63.6
19:30-19:45	65.5	67.2	63.6
	65.4	66.8	63.6
	65.8	68.0	63.5
19:45-20:00	65.2	66.7	63.5
	65.2	66.7	63.4
	65.0	66.5	63.2
20:00-20:15	64.6	66.0	62.9
	64.8	66.3	62.9
	64.8	66.4	63.0
20:15-20:30	64.6	66.1	63.0
	64.7	66.2	62.9
	64.6	66.2	62.7
20:30-20:45	64.2	65.8	62.5
	64.6	66.3	62.7
	64.4	66.0	62.5
20:45-21:00	64.5	66.1	62.6
	64.4	66.1	62.5
	64.5	66.0	62.8
21:00-21:15	64.2	65.7	62.4
	64.4	65.8	62.5
	64.7	66.2	63.0
21:15-21:30	64.3	65.9	62.4
	64.5	66.1	62.6
	64.5	66.1	62.8
21:30-21:45	64.5	66.1	62.6
	64.7	66.3	62.8
	64.7	66.4	62.6

Time Slot	Leq, 5min	L10	L90
21:45-22:00	65.8	68.3	62.7
	64.5	66.1	62.4
	64.6	66.2	62.6
22:00-22:15	64.7	66.3	62.9
	64.5	66.2	62.6
	64.8	66.5	62.8
22:15-22:30	64.3	65.8	62.5
	64.3	65.9	62.4
	64.3	65.9	62.5
22:30-22:45	64.5	66.1	62.7
	64.2	65.8	62.5
	64.1	65.8	62.2
22:45-23:00	64.1	65.8	62.3
	64.3	66.0	62.3
	64.2	66.0	62.1
Average	64.8	66.4	62.9
Max	70.7	75.1	65.2
Min	63.2	64.3	60.6

3) General Holidays (including Sundays) (0700-2300) Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
0700-07:15	62.3	64.2	60.1
	63.4	65.3	61.1
	63.4	65.1	61.1
07:15-07:30	63.5	65.3	61.4
	63.6	65.5	61.4
	63.4	65.0	61.6
07:30-07:45	63.5	65.3	61.0
	63.4	65.3	61.3
	63.8	65.6	61.5
07:45-08:00	63.9	65.8	61.8
	63.8	65.2	61.9
	63.6	65.6	61.5
08:00-08:15	64.1	65.8	61.9
	64.2	65.9	61.9

Time Slot	Leq, 5min	L10	L90
	64.1	65.9	62.0
08:15-08:30	64.1	65.9	62.0
	64.2	65.7	62.3
	64.3	65.8	62.6
08:30-08:45	64.4	66.1	62.1
	64.3	66.0	62.1
	64.0	65.6	61.9
08:45-09:00	64.4	66.2	62.5
	64.3	66.0	62.5
	64.4	66.1	62.4
09:00-09:15	64.4	66.0	62.4
	64.4	66.3	62.2
	64.5	66.1	62.5
09:15-09:30	64.4	66.0	62.5
	64.2	66.0	62.5
	64.8	66.3	62.6
09:30-09:45	64.3	66.0	62.3
	64.5	66.1	62.6
	64.3	65.8	62.4
09:45-10:00	64.5	66.1	62.6
	64.4	66.0	62.5
	64.6	66.3	62.7
10:00-10:15	64.9	66.1	62.7
	64.6	66.1	62.8
	64.9	66.5	63.1
10:15-10:30	64.9	66.5	63.0
	65.0	66.4	63.1
	65.0	66.5	63.3
10:30-10:45	64.8	66.5	62.9
	64.7	66.2	62.7
	65.1	66.7	63.0
10:45-11:00	65.1	66.6	63.2
	64.8	66.3	63.0
	64.8	66.2	63.1
11:00-11:15	64.8	66.4	63.1
	65.1	66.8	63.3

Time Slot	Leq, 5min	L10	L90
	64.8	66.5	63.1
11:15-11:30	65.0	66.5	63.3
	64.7	66.1	63.1
	65.1	66.5	63.4
11:30-11:45	64.9	66.3	63.3
	64.9	66.4	63.3
	65.1	66.8	63.2
11:45-12:00	65.0	66.4	63.4
	64.8	66.3	63.0
	65.2	66.8	63.4
12:00-12:15	64.8	66.1	63.2
	64.7	66.2	63.0
	65.1	66.6	63.5
12:15-12:30	65.0	66.5	63.2
	65.0	66.6	63.3
	65.1	66.6	63.4
12:30-12:45	64.9	66.5	63.2
	65.0	66.5	63.1
	65.1	66.7	63.3
12:45-13:00	65.3	66.8	63.5
	65.1	66.6	63.3
	65.1	66.6	63.4
13:00-13:15	65.1	66.7	63.1
	65.0	66.7	63.3
	65.3	66.7	63.4
13:15-13:30	65.2	66.8	63.4
	65.0	66.5	63.2
	65.3	66.8	63.5
13:30-13:45	65.1	66.6	63.4
	64.8	66.3	63.2
	65.2	66.7	63.6
13:45-14:00	65.1	66.7	63.3
	65.2	66.8	63.5
	65.5	67.1	63.6
14:00-14:15	65.5	67.2	63.2
	65.3	67.0	63.5

Time Slot	Leq, 5min	L10	L90
	65.3	66.9	63.2
14:15-14:30	65.1	66.4	63.4
	64.9	66.4	63.2
	65.3	66.7	63.6
14:30-14:45	65.1	66.6	63.4
	65.0	66.3	63.4
	65.2	66.8	63.5
14:45-15:00	65.4	66.9	63.6
	65.0	66.6	63.0
	65.3	66.8	63.5
15:00-15:15	65.1	66.6	63.2
	65.2	66.8	63.5
	65.3	66.9	63.6
15:15-15:30	65.5	67.2	63.6
	64.9	66.2	63.2
	65.2	66.8	63.5
15:30-15:45	67.2	70.4	63.7
	66.0	68.1	63.6
	65.3	67.2	63.5
15:45-16:00	65.2	66.6	63.6
	65.1	66.6	63.3
	65.0	66.5	63.3
16:00-16:15	65.2	66.7	63.3
	65.4	66.9	63.6
	65.1	66.7	63.1
16:15-16:30	65.3	67.0	63.3
	65.2	66.6	63.4
	65.3	66.8	63.3
16:30-16:45	65.3	66.7	63.5
	65.2	66.4	63.5
	65.2	66.6	63.6
16:45-17:00	65.3	66.8	63.5
	65.3	66.8	63.7
	65.4	66.9	63.5
17:00-17:15	65.2	66.6	63.5
	65.3	67.2	63.4

Time Slot	Leq, 5min	L10	L90
	65.3	66.9	63.5
17:15-17:30	65.2	66.8	63.4
	65.4	67.0	63.6
	65.3	66.8	63.6
17:30-17:45	65.2	66.8	63.5
	65.0	66.5	63.2
	64.9	66.4	63.3
17:45-18:00	65.2	66.7	63.4
	64.9	66.3	63.3
	65.1	66.6	63.3
18:00-18:15	65.0	66.4	63.2
	65.6	66.9	63.3
	64.7	66.3	63.0
18:15-18:30	64.7	66.3	63.0
	64.9	66.3	63.1
	65.3	66.9	63.4
18:30-18:45	64.6	66.0	62.8
	64.4	65.8	62.8
	64.4	65.8	62.6
18:45-19:00	64.7	66.1	63.1
	64.6	66.1	63.0
	65.0	66.4	63.3
19:00-19:15	64.8	66.2	63.0
	64.9	66.6	62.9
	64.3	65.7	62.6
19:15-19:30	64.6	66.0	62.8
	64.5	65.7	62.8
	65.3	67.4	63.1
19:30-19:45	64.8	66.4	62.8
	64.6	66.2	62.9
	64.9	66.6	63.1
19:45-20:00	64.7	66.2	62.8
	64.5	66.2	62.7
	64.5	66.2	62.7
20:00-20:15	64.2	65.7	62.7
	64.1	65.6	62.4

Time Slot	Leq, 5min	L10	L90
	64.2	65.7	62.4
20:15-20:30	64.2	65.8	62.2
	64.1	65.6	62.3
	64.5	66.1	62.7
20:30-20:45	64.4	65.9	62.3
	64.7	66.4	62.3
	64.4	66.1	62.6
20:45-21:00	64.1	65.7	62.4
	64.1	65.6	62.2
	64.4	65.7	62.4
21:00-21:15	64.4	66.1	62.6
	64.4	66.1	62.4
	64.4	66.1	62.5
21:15-21:30	64.2	65.9	62.4
	64.7	66.4	62.6
	64.6	66.2	62.6
21:30-21:45	64.2	66.0	62.3
	64.4	66.0	62.6
	64.7	66.2	62.6
21:45-22:00	64.4	65.9	62.4
	64.3	65.8	62.5
	64.2	65.6	62.4
22:00-22:15	67.1	70.4	62.8
	64.1	65.8	62.1
	64.5	66.0	62.6
22:15-22:30	64.7	66.1	62.5
	64.2	65.6	62.5
	64.2	65.8	62.5
22:30-22:45	64.0	65.5	62.1
	64.0	65.5	62.2
	64.2	65.6	62.3
22:45-23:00	63.9	65.4	62.0
	64.0	65.6	62.1
	64.2	66.0	62.1
Average	64.8	66.4	62.9
Max	70.7	74.9	64.4

Time Slot	Leq, 5min	L10	L90
Min	61.8	64.2	58.9

4) Night-time (for all days) Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
23:00-23:15	65.0	66.5	62.1
	64.1	65.7	62.1
	64.7	66.4	62.0
23:15-23:30	63.8	65.3	61.8
	63.9	65.7	61.9
	64.1	65.6	62.1
23:30-23:45	63.8	65.5	61.8
	63.7	65.4	61.6
	63.7	65.5	61.6
23:45-00:00	63.6	65.3	61.6
	63.3	65.0	61.4
	63.6	65.2	61.5
00:00-00:15	63.3	65.0	61.2
	63.2	64.9	61.0
	62.7	64.4	60.7
00:15-00:30	62.8	64.5	60.8
	62.3	64.0	60.4
	62.1	63.9	60.0
00:30-00:45	61.6	63.3	59.6
	61.5	63.0	59.2
	61.3	63.1	59.0
00:45:01:00	61.0	62.8	58.9
	61.0	62.8	58.8
	60.9	62.8	58.5
01:00-01:15	60.1	61.8	58.0
	60.1	61.6	58.2
	59.9	61.4	58.0
01:15-01:30	60.0	61.7	57.8
	60.9	63.8	57.5
	59.3	60.9	57.4
01:30-01:45	59.3	60.7	57.2

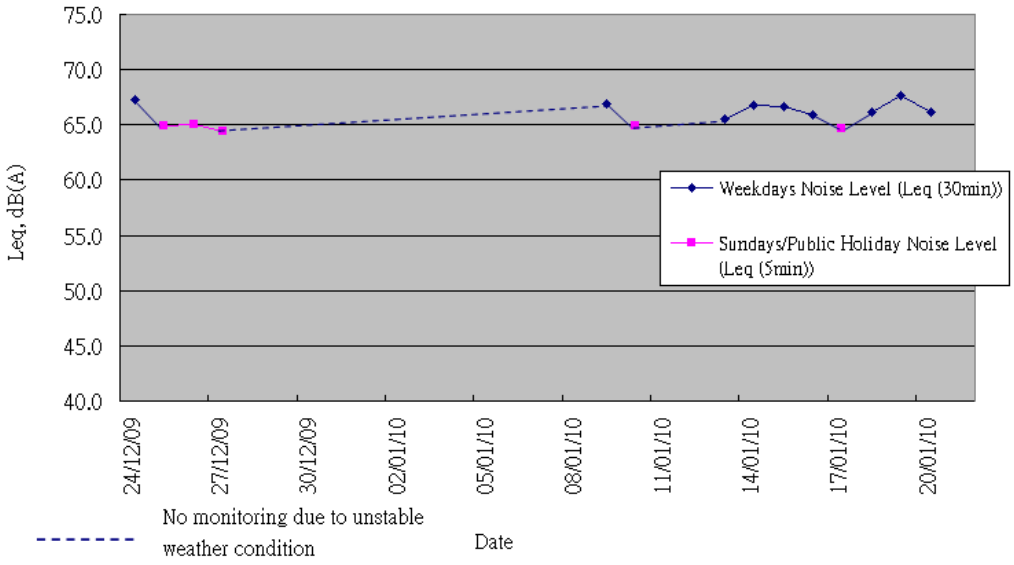
Time Slot	Leq, 5min	L10	L90
	59.2	61.0	57.2
	59.3	60.7	57.1
01:45-02:00	60.0	62.4	57.1
	59.1	60.8	57.1
	59.2	60.9	56.9
02:00-02:15	59.1	60.7	56.9
	59.2	61.8	56.7
	58.8	60.5	56.7
02:15-02:30	58.5	60.0	56.6
	58.2	59.6	56.4
	58.6	60.2	56.5
02:30-02:45	58.7	60.3	56.5
	58.6	60.1	56.4
	58.3	59.8	56.3
02:45-03:00	58.5	60.2	56.4
	58.1	59.6	56.1
	58.6	60.2	56.3
03:00-03:15	58.0	59.5	56.0
	58.2	59.9	56.2
	57.8	59.5	55.9
03:15-03:30	57.9	59.5	55.9
	58.0	59.5	55.7
	58.3	60.3	55.9
03:30-03:45	57.8	59.4	55.8
	57.9	59.6	55.8
	57.6	59.2	55.8
03:45-04:00	59.2	61.4	55.8
	57.7	59.0	55.6
	58.0	59.8	55.7
04:00-04:15	57.8	59.5	55.8
	58.2	59.9	56.0
	58.0	59.6	55.9
04:15-04:30	57.8	59.4	55.8
	58.2	60.0	55.8
	58.2	59.9	55.9
04:30-04:45	58.2	60.0	56.0

Time Slot	Leq, 5min	L10	L90
	58.1	59.8	56.1
	58.1	59.8	55.9
04:45-05:00	58.4	60.2	56.0
	57.9	59.5	56.0
	58.4	60.3	56.1
05:00-05:15	58.4	60.2	56.2
	58.3	60.1	56.0
	59.2	61.1	56.8
05:15-05:30	59.5	61.3	57.3
	59.8	61.8	57.3
	59.6	61.6	57.2
05:30-05:45	59.0	60.7	56.9
	59.4	61.7	57.1
	59.1	60.8	57.2
05:45-06:00	59.7	61.6	57.4
	59.8	61.6	57.6
	59.9	61.9	57.8
06:00-06:15	61.0	62.9	58.9
	61.4	63.3	59.0
	61.3	63.3	59.1
06:15-06:30	61.8	63.6	59.6
	61.9	63.8	59.7
	62.4	64.2	60.2
06:30-06:45	62.3	64.0	60.2
	62.6	64.4	60.4
	63.3	65.3	60.8
06:45-07:00	63.2	65.0	60.7
	63.0	64.8	60.9
	63.8	65.6	61.6
Average	60.8	62.6	58.6
Max	71.1	72.8	64.3
Min	55.4	56.2	53.3

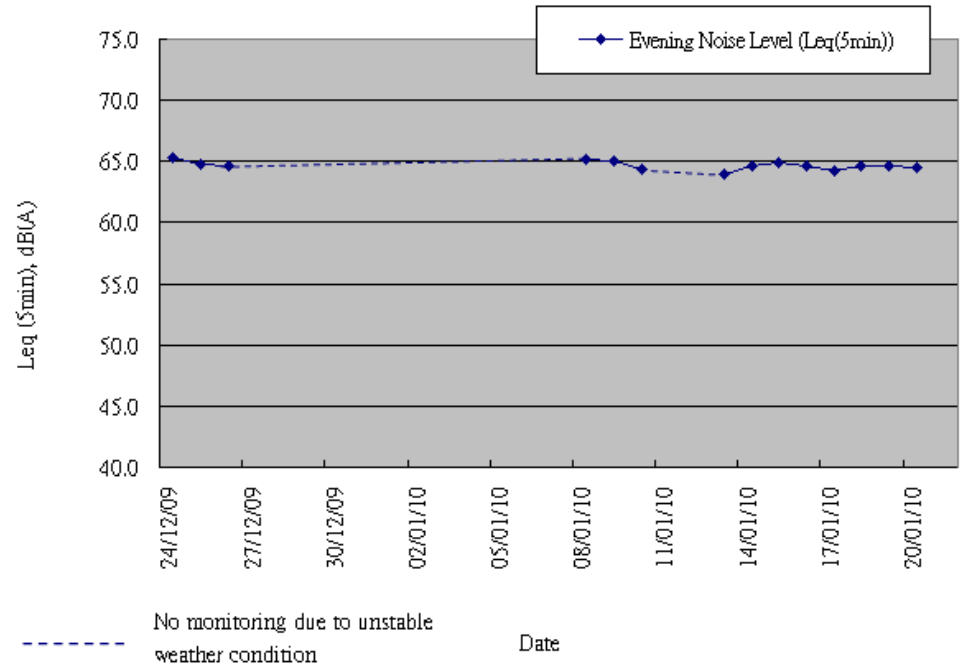
Log average was used.

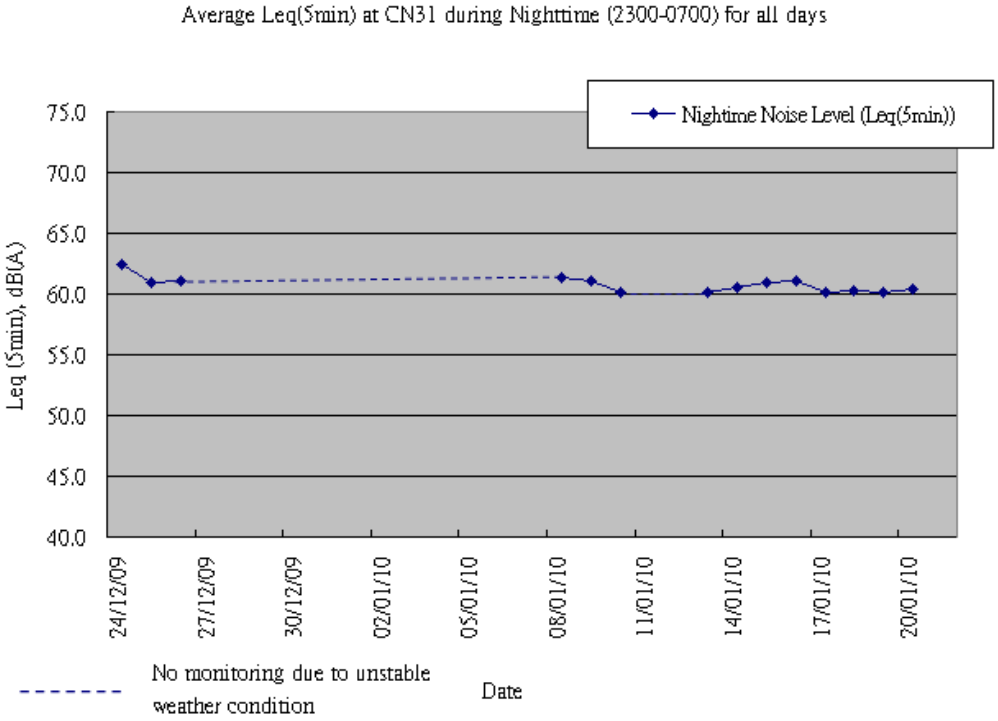
Graphical plot for CNM-2, please refer to CN31 in XRL Baseline Report Part 4

Average Leq at CN31 during Daytime (0700-1900)



Average Leq(5min) at CN31 during Evening (1900-2300) for all days




Average Leq(5min) at CN31 during Nighttime (2300-0700) for all days
Nightime Noise Level (Leq(5min))
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
Leq (5min), dB(A)
24/12/09
27/12/09
30/12/09
02/01/10
05/01/10
08/01/10
11/01/10
14/01/10
17/01/10
20/01/10
No monitoring due to unstable weather condition
Date

Baseline Noise Monitoring Result

Location: CNM-3 ~ Tower3, The Waterfront
Baseline monitoring period: 3/12/2009-21/12/2009

Sound Level Meter (S/N) Rion NL-31 (S/N: 00320533)
Parameter: Leq

Time Slot Averaged Baselines

1) Weekdays Daytime Noise Level, dB(A)

Time slot	Leq, 30 min	L10	L90
07:00-07:30	69.8	71.2	68.0
07:30-08:00	71.1	72.3	69.4
08:00-08:30	72.0	73.4	70.3
08:30-09:00	72.0	73.4	70.5
09:00-09:30	71.8	72.9	70.3
09:30-10:00	71.7	72.9	70.2
10:00-10:30	71.6	72.7	70.0
10:30-11:00	71.4	72.7	69.9
11:00-11:30	71.3	72.6	69.8
11:30-12:00	71.1	72.3	69.5
12:00-12:30	71.0	72.3	69.4
12:30-13:00	71.2	72.5	69.5
13:00-13:30	71.1	72.4	69.4
13:30-14:00	71.3	72.6	69.7
14:00-14:30	71.3	72.5	69.7
14:30-15:00	71.3	72.6	69.8
15:00-15:30	71.2	72.4	69.6
15:30-16:00	71.4	72.7	69.6
16:00-16:30	71.3	72.6	69.7
16:30-17:00	71.4	72.6	69.6
17:00-17:30	71.5	72.8	69.9
17:30-18:00	71.4	72.6	69.9
18:00-18:30	71.3	72.5	69.7
18:30-19:00	70.8	72.1	69.2
Average	71.3	72.6	69.7
Maximum	72.0	73.4	70.5
Minimum	69.8	71.2	68.0

Noise Control Period Averaged Baselines

2) Weekdays Evening Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
19:00-19:15	70.6	71.9	69.0
	70.4	71.7	68.7
	70.4	71.7	68.6
19:15-19:30	70.3	71.6	68.3
	70.0	71.4	68.3
	70.2	71.6	68.4
19:30-19:45	70.1	71.5	68.4
	70.3	71.7	68.5
	70.4	71.8	68.5
19:45-20:00	70.3	71.6	68.4
	70.5	72.0	68.5
	70.4	71.8	68.5
20:00-20:15	70.2	71.6	68.4
	70.2	71.5	68.4
	70.2	71.5	68.3
20:15-20:30	70.0	71.3	68.0
	70.0	71.4	68.3
	69.9	71.4	68.1
20:30-20:45	69.8	71.2	67.9
	69.8	71.2	67.9
	69.9	71.3	68.2
20:45-21:00	69.8	71.2	67.9
	69.9	71.5	67.8
	69.7	71.1	67.8
21:00-21:15	69.9	71.4	68.0
	69.7	71.1	67.8
	69.8	71.3	67.7
21:15-21:30	69.6	71.0	67.6
	69.5	71.0	67.5
	69.6	71.0	67.8
21:30-21:45	69.7	71.1	67.8
	69.6	71.1	67.7
	69.7	71.1	67.6

Time Slot	Leq, 5min	L10	L90
21:45-22:00	69.7	71.2	67.8
	69.9	71.4	67.9
	69.8	71.2	67.9
22:00-22:15	70.0	71.4	68.1
	69.8	71.2	68.0
	70.0	71.4	68.2
22:15-22:30	69.8	71.1	68.0
	69.7	71.0	67.9
	69.5	71.0	67.6
22:30-22:45	69.7	71.0	67.9
	69.4	70.9	67.6
	69.6	71.1	67.7
22:45-23:00	69.5	71.1	67.4
	69.7	71.1	67.8
	69.4	70.9	67.4
Average	69.9	71.3	68.0
Max	70.6	72.0	69.0
Min	69.4	70.9	67.4

3) General Holidays (including Sundays) (0700-2300) Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
0700-07:15	67.4	69.3	64.9
	67.3	69.2	65.0
	67.7	69.8	64.9
07:15-07:30	67.4	69.4	64.9
	67.9	69.8	65.5
	67.9	69.5	64.9
07:30-07:45	68.2	70.1	65.6
	68.3	70.3	65.7
	68.7	70.5	66.5
07:45-08:00	68.4	70.1	66.3
	68.6	70.4	66.4
	68.4	70.1	66.0
08:00-08:15	68.4	70.4	65.8
	68.8	70.4	66.9
	69.1	71.0	67.1

Time Slot	Leq, 5min	L10	L90
08:15-08:30	68.7	70.1	67.0
	69.2	71.0	67.1
	68.9	70.3	66.9
08:30-08:45	69.1	70.8	66.9
	69.0	70.7	66.9
	69.0	70.6	67.2
08:45-09:00	69.3	71.3	66.9
	69.3	71.0	67.3
	69.4	71.0	67.4
09:00-09:15	69.6	71.2	67.4
	69.6	71.0	67.3
	69.6	71.4	67.6
09:15-09:30	69.5	71.1	67.5
	69.5	71.2	67.8
	69.6	71.1	67.6
09:30-09:45	69.6	71.1	67.8
	69.7	71.0	68.0
	69.8	71.4	67.8
09:45-10:00	69.9	71.5	68.0
	69.9	71.4	68.1
	69.8	71.3	67.9
10:00-10:15	69.6	71.2	67.8
	69.8	71.4	67.9
	69.9	71.6	68.2
10:15-10:30	69.9	71.4	68.1
	69.9	71.4	68.2
	70.0	71.3	68.3
10:30-10:45	69.9	71.6	68.0
	69.9	71.4	68.0
	69.9	71.5	67.9
10:45-11:00	70.5	71.8	68.4
	70.1	71.6	68.3
	69.7	71.2	67.8
11:00-11:15	70.4	72.0	68.2
	70.1	71.6	68.4
	69.9	71.3	68.1
11:15-11:30	69.9	71.6	67.9

Time Slot	Leq, 5min	L10	L90
	70.3	71.8	68.4
	70.2	71.8	68.4
11:30-11:45	70.2	71.7	68.2
	70.2	71.7	68.3
	69.9	71.4	67.9
11:45-12:00	69.9	71.3	68.3
	70.3	71.9	68.1
	69.6	70.9	67.7
12:00-12:15	70.0	71.0	68.2
	70.3	71.2	68.5
	70.4	71.2	68.5
12:15-12:30	70.3	71.4	68.6
	70.3	71.5	68.3
	69.7	70.7	68.0
12:30-12:45	70.4	71.2	68.5
	70.0	71.0	68.6
	70.4	71.2	68.2
12:45-13:00	70.0	71.0	68.4
	70.3	71.4	68.7
	70.1	71.2	68.0
13:00-13:15	70.0	71.0	68.3
	70.2	71.1	68.2
	70.2	71.2	68.5
13:15-13:30	70.2	71.2	68.3
	70.4	71.8	68.5
	70.1	71.0	68.5
13:30-13:45	70.2	71.0	68.4
	70.6	71.6	68.6
	70.1	71.3	68.3
13:45-14:00	70.3	71.4	68.6
	70.3	71.3	68.5
	70.4	71.3	68.8
14:00-14:15	70.2	71.4	68.2
	70.3	71.0	68.5
	70.1	71.0	68.3
14:15-14:30	70.1	70.8	68.3
	70.3	71.2	68.6

Time Slot	Leq, 5min	L10	L90
	70.5	71.5	68.9
14:30-14:45	70.4	71.5	68.5
	70.5	71.4	68.6
	70.4	71.5	68.7
14:45-15:00	70.5	71.4	68.5
	70.3	71.2	68.6
	70.4	71.4	68.4
15:00-15:15	70.0	71.2	68.3
	70.8	71.6	68.7
	70.6	71.7	68.9
15:15-15:30	70.6	71.4	68.7
	70.3	71.1	68.6
	70.3	71.1	68.5
15:30-15:45	70.3	71.3	68.5
	70.3	71.2	68.8
	70.5	71.6	68.7
15:45-16:00	70.3	71.2	68.4
	70.2	71.1	68.4
	70.8	71.3	68.7
16:00-16:15	70.2	71.2	68.2
	70.6	71.5	68.5
	70.2	71.2	68.1
16:15-16:30	69.9	70.7	68.2
	70.4	71.6	68.6
	70.2	71.1	68.4
16:30-16:45	70.5	71.4	68.5
	70.2	71.2	68.4
	70.3	71.1	68.7
16:45-17:00	70.1	70.9	68.5
	70.3	71.3	68.7
	70.3	71.0	68.6
17:00-17:15	70.0	70.8	68.3
	69.8	70.8	67.9
	70.2	71.2	68.5
17:15-17:30	70.4	71.2	68.5
	70.2	71.2	68.4
	70.2	71.1	68.5

Time Slot	Leq, 5min	L10	L90
17:30-17:45	70.3	71.3	68.8
	70.2	71.1	68.4
	70.4	71.3	68.6
17:45-18:00	70.5	71.4	68.9
	70.2	71.2	68.2
	70.4	71.1	68.8
18:00-18:15	70.4	71.3	68.7
	70.4	71.3	68.5
	70.3	71.3	68.6
18:15-18:30	70.5	71.4	68.6
	70.0	71.0	68.4
	70.5	70.9	68.6
18:30-18:45	69.8	71.0	68.0
	69.7	70.7	67.9
	69.9	70.9	68.3
18:45-19:00	69.7	70.5	68.0
	69.9	70.9	68.0
	69.6	70.5	68.0
19:00-19:15	70.2	71.2	68.3
	69.8	70.8	67.8
	69.8	71.1	67.9
19:15-19:30	69.8	70.7	67.9
	69.9	70.9	68.3
	69.4	70.4	67.5
19:30-19:45	70.0	71.0	68.2
	69.7	70.6	67.8
	69.6	70.7	67.4
19:45-20:00	69.2	70.0	67.6
	69.5	70.5	67.7
	69.1	69.9	67.3
20:00-20:15	69.3	70.6	67.1
	69.2	70.1	67.1
	69.0	70.2	66.9
20:15-20:30	69.3	70.4	67.3
	69.1	70.1	67.0
	69.2	70.1	67.5
20:30-20:45	69.2	70.3	67.1

Time Slot	Leq, 5min	L10	L90
	69.1	70.1	67.3
	69.5	70.7	67.6
20:45-21:00	69.3	70.4	67.4
	69.7	70.7	67.6
	69.4	70.2	67.3
21:00-21:15	69.4	70.5	67.5
	69.9	70.4	67.5
	69.3	70.4	67.4
21:15-21:30	69.5	70.1	67.9
	69.7	70.9	67.7
	69.2	70.0	67.5
21:30-21:45	69.4	70.3	67.4
	69.5	70.4	67.3
	69.4	70.4	67.3
21:45-22:00	69.6	70.2	67.9
	69.8	70.9	68.1
	69.4	70.2	67.5
22:00-22:15	70.0	70.7	68.0
	69.4	70.3	67.4
	69.4	70.4	67.4
22:15-22:30	69.3	70.3	67.2
	69.8	70.7	67.6
	68.9	69.8	67.2
22:30-22:45	69.3	70.5	67.1
	69.3	70.1	67.5
	69.3	70.5	67.1
22:45-23:00	69.1	70.1	67.1
	69.0	69.9	67.2
	68.8	69.8	66.8
Average	69.8	71.0	67.9
Max	70.8	72.0	68.9
Min	67.3	69.2	64.9

4) Night-time (for all days) Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
23:00-23:15	69.3	70.7	67.2

Time Slot	Leq, 5min	L10	L90
	69.3	70.6	67.1
	69.1	70.3	67.2
23:15-23:30	69.1	70.5	66.9
	69.1	70.5	66.9
	69.1	70.4	66.9
23:30-23:45	68.9	70.2	66.9
	68.7	70.1	66.6
	68.9	70.3	66.8
23:45-00:00	68.9	70.3	66.7
	68.6	70.0	66.4
	68.5	70.0	66.2
00:00-00:15	68.4	70.0	66.2
	68.3	69.9	65.9
	68.1	69.7	65.7
00:15-00:30	68.2	69.6	65.7
	67.7	69.1	65.3
	67.5	69.3	64.9
00:30-00:45	67.7	69.2	64.9
	66.9	68.5	64.1
	66.9	68.6	64.2
00:45:01:00	66.7	68.4	64.1
	66.4	68.1	63.6
	66.3	68.1	63.4
01:00-01:15	66.4	68.3	63.3
	66.2	68.0	63.2
	66.1	67.8	63.3
01:15-01:30	65.8	67.6	63.0
	65.8	67.6	62.4
	65.5	67.2	62.3
01:30-01:45	65.8	67.4	62.5
	65.4	67.3	62.0
	65.5	67.3	62.1
01:45-02:00	65.2	67.0	62.0
	64.8	66.7	61.6
	64.9	66.8	61.8
02:00-02:15	64.9	66.6	61.9
	64.7	66.6	61.5

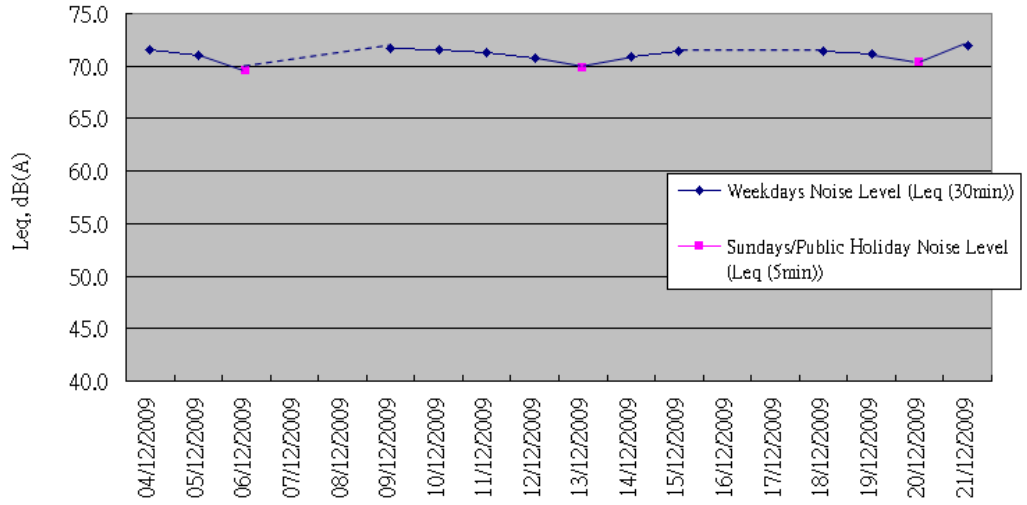
Time Slot	Leq, 5min	L10	L90
	64.8	66.5	62.0
02:15-02:30	64.5	66.3	61.5
	64.6	66.6	61.3
	64.7	66.5	61.6
02:30-02:45	64.8	66.7	61.4
	64.4	66.5	60.9
	64.2	66.3	60.8
02:45-03:00	64.5	66.3	61.2
	64.1	66.0	60.8
	64.1	66.0	61.0
03:00-03:15	64.1	66.2	60.7
	64.0	65.8	61.0
	63.7	65.6	60.5
03:15-03:30	63.7	65.7	60.5
	63.4	65.4	60.2
	63.6	65.7	60.2
03:30-03:45	63.7	65.6	60.7
	63.6	65.5	60.4
	63.7	65.7	60.6
03:45-04:00	63.9	65.9	60.5
	63.8	65.7	60.7
	63.6	65.5	60.4
04:00-04:15	63.6	65.6	60.5
	63.7	65.6	60.7
	63.7	65.5	60.4
04:15-04:30	63.5	65.4	60.5
	63.8	65.7	60.5
	63.8	65.6	60.5
04:30-04:45	64.1	65.9	61.1
	64.0	65.9	60.7
	63.8	65.6	60.5
04:45-05:00	64.1	66.1	61.0
	64.3	66.2	61.3
	64.4	66.3	61.2
05:00-05:15	64.2	66.0	61.4
	64.5	66.3	61.5
	65.0	66.9	61.8

Time Slot	Leq, 5min	L10	L90
05:15-05:30	64.8	66.7	61.5
	65.0	66.7	62.2
	65.2	67.0	62.1
05:30-05:45	65.2	67.0	62.5
	65.1	67.0	62.0
	65.2	66.9	62.1
05:45-06:00	65.7	67.6	62.7
	65.8	67.6	62.9
	66.0	67.8	63.1
06:00-06:15	66.0	67.7	62.9
	66.3	68.2	63.3
	66.3	68.2	63.5
06:15-06:30	66.5	68.1	63.7
	66.9	68.7	64.1
	67.2	68.9	64.6
06:30-06:45	67.4	69.1	64.6
	67.6	69.1	65.2
	67.7	69.3	65.4
06:45-07:00	68.3	69.7	66.0
	68.2	69.7	66.0
	68.5	70.0	66.3
Average	66.2	67.9	63.5
Max	69.3	70.7	67.2
Min	63.4	65.4	60.2

Log average was used.

Graphical plot for CNM-3, please refer to CN32 in XRL Baseline Report Part 3 rev 2

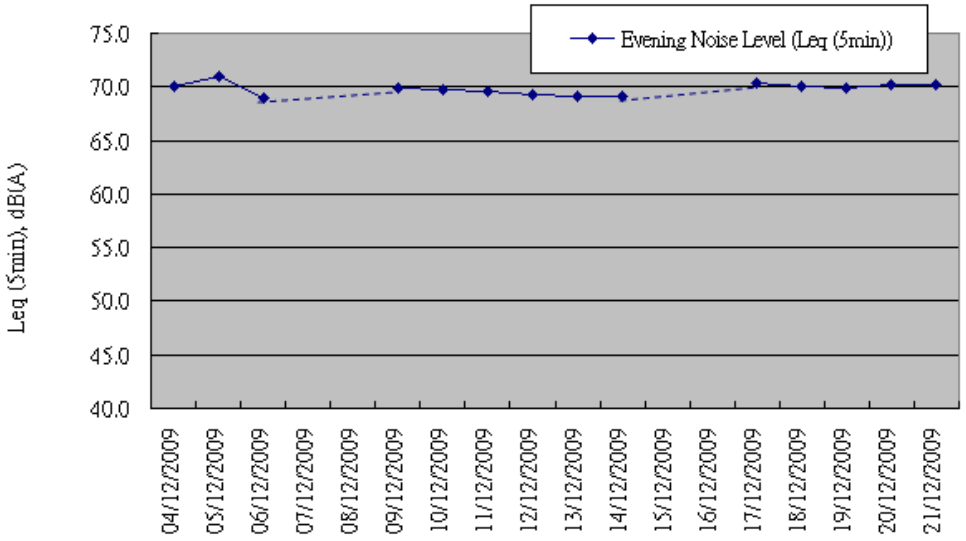
Average Leq at CN32 during Daytime (0700-1900)



--------- No monitoring due to rainfall

Date

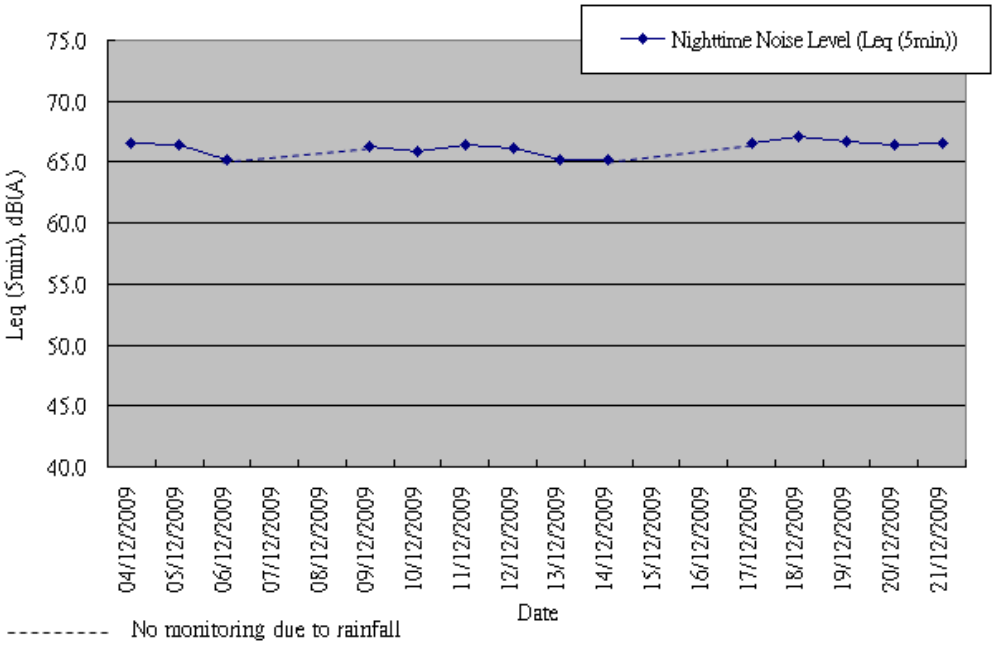
Average Leq(5min) at CN32 during Evening (1900-2300) for all days



--------- No monitoring due to rainfall

Date

Average Leq(5min) at CN32 during Nighttime (2300-0700) for all days



--------- No monitoring due to rainfall

Baseline Noise Monitoring Result

Location: CNM-4 ~ Tower 2, The Harbour Side
Baseline monitoring period: 19/2/2010-4/3/2010

Sound Level Meter (S/N) Rion NL-18 (S/N: 00360030)
Parameter: Leq

Time Slot Averaged Baselines

1) Weekdays Daytime Noise Level, dB(A)

Time slot	Leq, 30 min	L10	L90
07:00-07:30	63.5	66.8	57.3
07:30-08:00	63.2	66.2	57.3
08:00-08:30	63.0	66.2	56.6
08:30-09:00	63.1	66.3	57.1
09:00-09:30	63.6	66.8	57.6
09:30-10:00	63.8	67.1	57.7
10:00-10:30	65.1	68.0	60.1
10:30-11:00	65.2	68.3	59.7
11:00-11:30	66.2	69.1	61.3
11:30-12:00	66.8	70.0	61.5
12:00-12:30	67.9	70.9	63.0
12:30-13:00	68.5	71.3	63.6
13:00-13:30	68.8	71.5	64.6
13:30-14:00	68.9	71.5	64.9
14:00-14:30	69.1	71.7	65.1
14:30-15:00	69.0	71.5	65.1
15:00-15:30	69.3	72.1	65.2
15:30-16:00	69.4	72.0	65.7
16:00-16:30	69.6	72.1	65.6
16:30-17:00	69.5	71.9	66.0
17:00-17:30	69.5	72.1	65.6
17:30-18:00	69.7	72.4	65.1
18:00-18:30	69.2	71.9	64.3
18:30-19:00	69.3	71.9	65.3
Average	67.8	70.5	63.4

Min	63.0	66.2	56.6

Noise Control Period Averaged Baselines

2) Weekdays Evening Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
19:00-19:15	69.9	73.0	65.7
	69.9	72.6	66.1
	69.6	72.1	65.7
19:15-19:30	69.6	72.2	66.0
	69.9	72.6	65.6
	69.7	72.3	65.5
19:30-19:45	69.9	72.3	66.3
	70.0	72.6	66.3
	70.5	73.1	66.1
19:45-20:00	70.1	72.6	66.3
	70.2	72.6	66.2
	70.5	73.0	66.4
20:00-20:15	70.7	73.3	66.6
	70.2	72.7	66.3
	70.1	72.9	65.7
20:15-20:30	70.3	72.9	65.7
	70.2	73.0	66.1
	70.2	73.1	65.7
20:30-20:45	69.9	72.7	65.5
	70.0	72.6	65.8
	69.5	72.1	65.8
20:45-21:00	69.8	72.5	65.7
	70.3	73.0	66.0
	70.0	72.6	66.3
21:00-21:15	69.8	72.4	66.0
	69.6	72.5	65.0
	69.2	71.9	64.7
21:15-21:30	69.0	71.6	64.5
	69.2	71.8	65.1
	69.2	71.9	64.9
21:30-21:45	69.3	71.9	65.1

Time Slot	Leq, 5min	L10	L90
	69.1	71.7	65.0
	69.6	72.4	65.3
21:45-22:00	69.5	72.0	65.5
	69.4	72.1	65.0
	69.3	72.1	64.6
22:00-22:15	68.9	71.8	64.4
	69.2	72.0	64.5
	69.2	71.9	64.5
22:15-22:30	69.2	72.0	64.7
	69.3	72.0	64.7
	69.4	72.2	65.3
22:30-22:45	68.9	71.7	64.2
	69.3	72.0	64.6
	68.9	71.7	64.6
22:45-23:00	68.8	71.6	64.6
	69.5	72.0	64.9
	69.2	71.8	64.9
Average	69.7	72.3	65.5
Max	70.7	73.3	66.6
Min	68.8	71.6	64.2

3) General Holidays (including Sundays) (0700-2300) Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
0700-07:15	65.6	68.0	61.5
	66.2	69.2	59.2
	66.4	69.4	61.8
07:15-07:30	69.1	70.0	59.7
	65.2	68.1	60.9
	66.6	70.1	61.1
07:30-07:45	64.9	67.8	59.3
	66.9	70.1	60.5
	67.1	70.3	61.3
07:45-08:00	66.1	68.2	60.8
	66.1	69.1	59.0
	66.5	69.5	60.6

Time Slot	Leq, 5min	L10	L90
08:00-08:15	66.1	69.2	59.5
	64.9	68.1	59.0
	67.6	71.0	60.7
08:15-08:30	66.6	69.6	60.3
	66.9	70.2	60.5
	65.9	69.5	60.1
08:30-08:45	67.1	70.5	61.1
	65.6	68.9	59.9
	66.0	69.0	59.5
08:45-09:00	66.8	69.7	61.5
	67.7	70.6	61.5
	66.6	69.8	61.6
09:00-09:15	66.2	69.4	61.1
	66.5	69.7	60.4
	66.8	70.7	60.7
09:15-09:30	66.9	69.7	62.6
	67.0	70.5	61.8
	66.1	69.0	61.0
09:30-09:45	66.9	70.2	61.2
	66.2	69.0	61.6
	67.4	70.7	62.2
09:45-10:00	67.2	70.2	61.2
	67.3	70.8	61.1
	68.2	71.7	61.5
10:00-10:15	67.1	70.3	61.8
	66.7	70.0	60.6
	66.4	69.4	61.6
10:15-10:30	67.5	70.9	61.6
	66.8	69.9	61.5
	67.2	70.3	61.7
10:30-10:45	66.4	69.1	62.0
	66.6	70.3	61.1
	66.6	69.2	62.2
10:45-11:00	67.5	71.0	62.2
	66.9	69.5	62.4
	66.5	69.8	61.6

Time Slot	Leq, 5min	L10	L90
11:00-11:15	66.7	69.6	62.3
	66.1	69.1	61.6
	65.1	67.8	60.6
11:15-11:30	66.5	69.5	61.5
	65.8	68.6	61.7
	65.8	68.7	60.8
11:30-11:45	66.0	69.0	60.7
	66.7	69.6	61.3
	65.4	68.2	61.5
11:45-12:00	66.1	68.7	61.4
	65.5	68.6	60.9
	65.4	68.3	60.5
12:00-12:15	66.0	69.1	61.1
	66.3	69.4	61.4
	65.8	68.7	61.6
12:15-12:30	65.6	68.9	60.8
	66.3	69.1	62.0
	65.5	68.9	60.1
12:30-12:45	65.6	68.8	60.9
	66.0	69.0	61.0
	65.8	68.7	60.2
12:45-13:00	65.3	68.3	60.2
	65.3	68.0	60.7
	65.9	68.4	60.5
13:00-13:15	65.9	68.4	62.2
	65.7	68.8	60.0
	65.2	68.4	60.0
13:15-13:30	65.6	68.6	60.3
	66.0	69.0	59.6
	64.7	67.5	59.5
13:30-13:45	65.7	68.7	59.9
	65.2	68.0	60.3
	65.5	68.6	60.3
13:45-14:00	65.6	68.5	60.9
	65.4	68.0	60.7
	66.2	68.6	60.6

Time Slot	Leq, 5min	L10	L90
14:00-14:15	65.7	68.7	59.8
	65.5	68.5	59.9
	64.9	67.2	61.0
14:15-14:30	66.6	69.8	60.7
	64.6	67.7	59.6
	66.7	68.8	59.8
14:30-14:45	66.0	68.8	59.7
	66.4	69.8	59.7
	66.6	68.6	60.9
14:45-15:00	65.5	68.7	60.3
	65.6	69.3	60.1
	65.7	68.2	60.8
15:00-15:15	65.6	68.1	60.2
	66.5	69.4	61.1
	66.1	69.0	60.9
15:15-15:30	65.7	68.7	60.5
	65.2	68.3	60.9
	65.6	68.5	60.3
15:30-15:45	67.4	70.4	60.1
	66.6	69.7	61.2
	66.9	69.6	61.4
15:45-16:00	66.9	69.9	61.9
	66.2	68.7	61.4
	66.7	69.9	60.3
16:00-16:15	67.2	70.8	61.9
	67.1	69.8	61.0
	67.2	70.4	62.3
16:15-16:30	67.2	70.3	61.1
	67.3	70.3	61.5
	67.4	70.6	62.0
16:30-16:45	66.4	69.3	62.0
	69.5	71.6	63.2
	67.3	70.1	61.5
16:45-17:00	66.7	70.0	61.9
	67.0	70.1	61.5
	67.2	70.0	62.8

Time Slot	Leq, 5min	L10	L90
17:00-17:15	66.9	70.0	61.5
	67.1	70.2	61.7
	66.1	69.7	60.6
17:15-17:30	66.4	69.3	61.5
	67.6	70.8	62.6
	65.9	69.2	60.7
17:30-17:45	67.6	71.1	61.9
	67.7	70.6	62.1
	67.1	70.0	62.7
17:45-18:00	67.3	70.0	62.4
	68.4	71.6	62.6
	67.6	70.3	62.2
18:00-18:15	66.8	69.5	62.6
	68.4	72.0	62.1
	67.6	70.9	62.0
18:15-18:30	67.2	69.7	62.0
	68.2	70.9	64.1
	66.5	69.7	61.9
18:30-18:45	66.8	69.8	61.1
	67.8	70.8	62.9
	66.9	70.0	61.5
18:45-19:00	70.2	72.9	63.5
	67.4	70.3	62.4
	67.3	70.4	62.1
19:00-19:15	67.9	71.0	63.1
	68.1	71.3	62.8
	67.3	70.3	62.7
19:15-19:30	68.0	71.2	63.4
	67.4	70.3	62.5
	68.3	71.4	62.6
19:30-19:45	67.7	70.6	62.3
	67.6	70.8	62.9
	66.7	69.5	62.3
19:45-20:00	69.1	72.5	63.4
	68.2	71.3	63.8
	68.3	71.4	62.5

Time Slot	Leq, 5min	L10	L90
20:00-20:15	67.5	70.5	63.3
	68.0	70.6	62.8
	68.1	71.3	61.9
20:15-20:30	67.3	70.2	62.4
	69.1	72.0	63.8
	68.0	71.5	62.1
20:30-20:45	68.2	70.9	62.5
	67.8	70.7	62.1
	68.0	70.6	62.7
20:45-21:00	68.6	71.9	62.9
	67.3	70.0	62.3
	68.8	72.2	62.4
21:00-21:15	67.4	70.3	62.3
	67.5	70.4	62.2
	68.5	71.8	63.0
21:15-21:30	67.6	70.3	62.3
	67.9	70.9	62.7
	68.4	71.7	62.7
21:30-21:45	67.8	71.2	62.3
	67.0	69.8	61.4
	68.4	71.4	63.3
21:45-22:00	67.8	71.5	61.8
	67.9	71.3	62.6
	67.5	70.3	62.6
22:00-22:15	68.2	71.4	62.4
	67.3	70.2	63.1
	67.3	70.7	61.9
22:15-22:30	67.4	70.6	62.0
	67.5	70.7	62.3
	67.0	70.2	61.1
22:30-22:45	67.7	70.9	61.8
	66.7	69.8	61.9
	68.2	71.1	62.4
22:45-23:00	68.0	71.7	63.5
	67.6	70.3	62.9
	68.1	70.8	62.4

Time Slot	Leq, 5min	L10	L90
Average	67.0	70.0	61.6
Max	70.2	72.9	64.1
Min	64.6	67.2	59.0

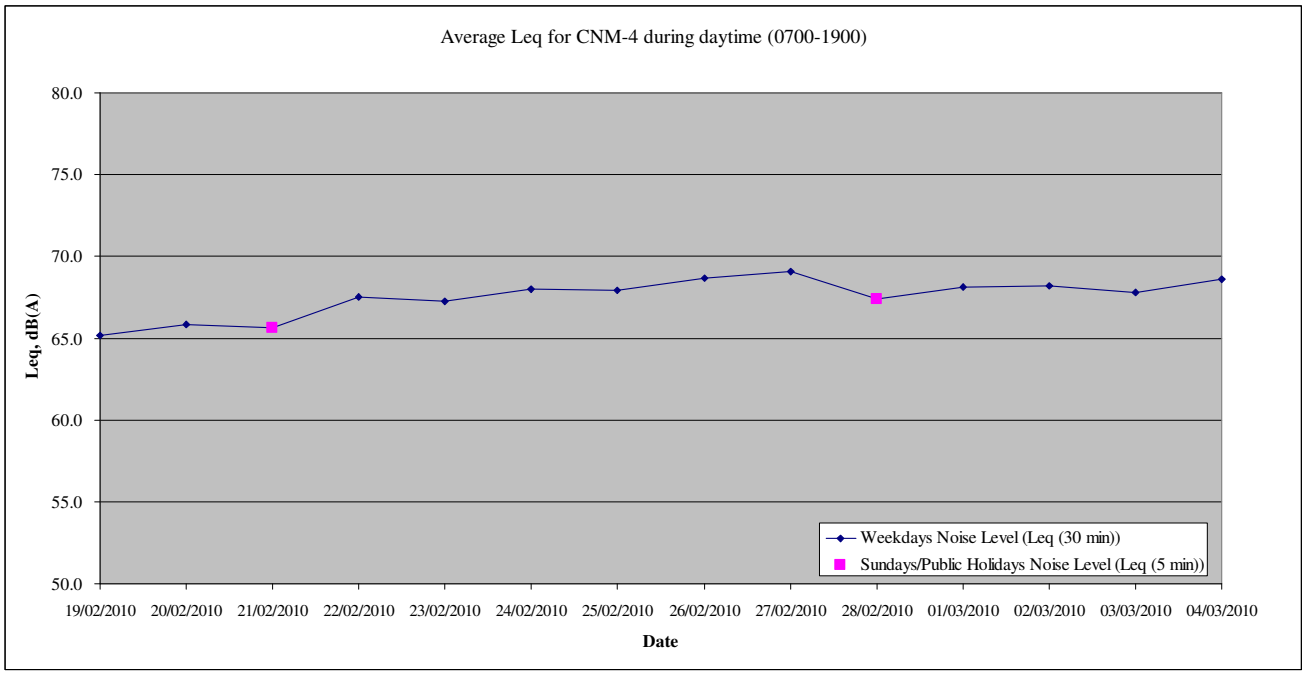
4) Night-time (for all days) Noise Level, dB(A)

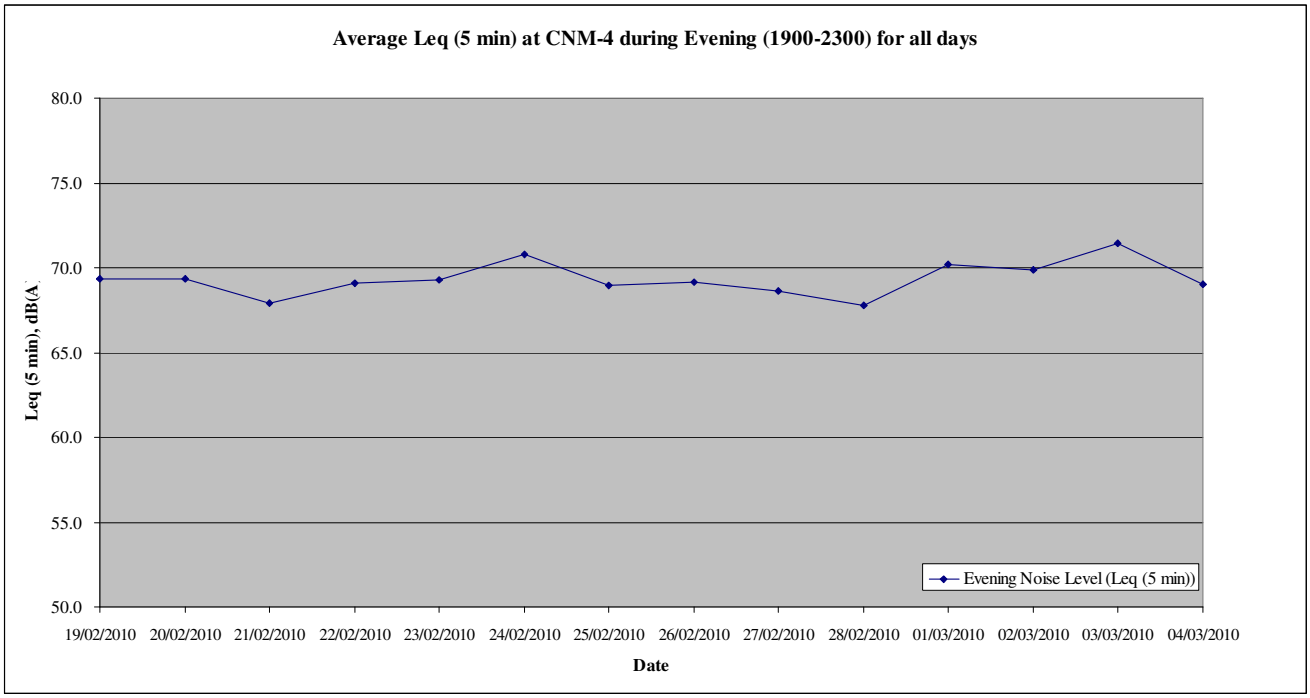
Time Slot	Leq, 5min	L10	L90
23:00-23:15	68.9	71.7	64.0
	69.4	72.6	64.3
	69.2	72.1	64.5
23:15-23:30	68.8	71.7	64.0
	68.6	71.4	64.0
	68.7	71.5	64.1
23:30-23:45	68.8	71.7	64.3
	68.7	71.4	64.2
	69.3	72.0	64.0
23:45-00:00	68.3	71.2	63.4
	68.3	71.0	63.9
	68.8	71.5	64.1
00:00-00:15	68.4	71.4	63.6
	68.2	71.1	63.5
	68.7	71.4	64.0
00:15-00:30	68.3	71.0	63.7
	68.6	71.5	63.7
	68.6	71.6	63.8
00:30-00:45	68.1	70.9	63.4
	68.1	71.0	63.4
	68.4	71.2	63.5
00:45:01:00	68.4	71.3	63.4
	68.2	71.1	63.2
	69.0	72.3	63.4
01:00-01:15	68.5	71.7	63.4
	68.0	71.2	62.7
	68.6	71.8	63.0
01:15-01:30	68.6	71.4	63.6
	68.3	71.2	63.5

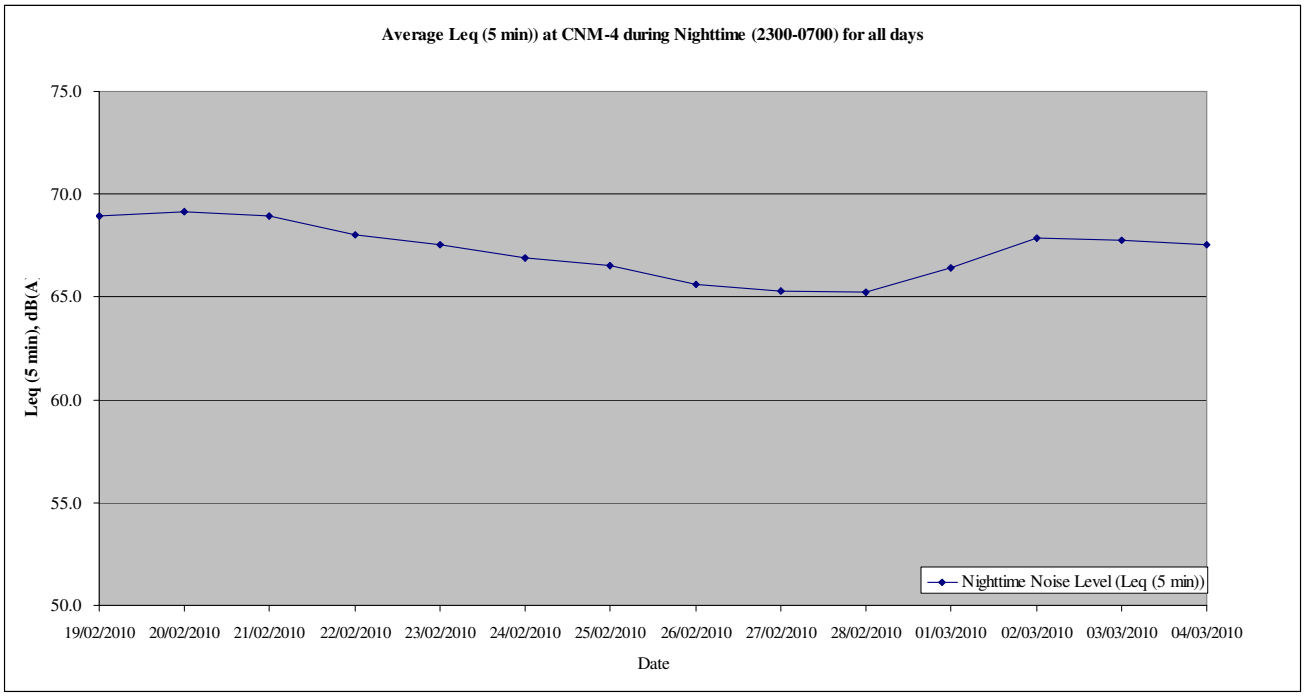
Time Slot	Leq, 5min	L10	L90
	68.7	71.4	63.1
01:30-01:45	68.1	71.1	63.1
	68.0	70.8	62.8
	67.7	70.9	62.5
01:45-02:00	67.6	70.6	62.4
	67.7	70.7	62.6
	67.7	70.7	62.5
02:00-02:15	67.6	70.8	62.0
	67.7	70.8	62.6
	67.7	70.5	62.7
02:15-02:30	68.7	71.5	62.5
	67.7	71.0	62.4
	67.7	70.6	61.8
02:30-02:45	67.6	70.8	61.9
	68.0	70.9	62.6
	67.4	70.3	62.0
02:45-03:00	67.3	70.3	61.8
	67.0	70.2	61.8
	67.3	70.3	61.7
03:00-03:15	67.0	70.0	61.4
	67.0	70.1	61.6
	67.3	70.2	62.0
03:15-03:30	67.2	70.4	61.3
	67.0	70.0	62.0
	67.1	70.0	61.3
03:30-03:45	66.8	69.8	61.4
	66.9	70.0	61.3
	66.9	69.9	61.5
03:45-04:00	66.4	69.5	61.1
	66.8	69.8	61.6
	67.1	70.2	61.2
04:00-04:15	66.9	69.4	61.3
	67.0	70.1	61.5
	66.3	69.5	60.9
04:15-04:30	66.4	69.5	60.7
	66.3	69.3	60.5

Time Slot	Leq, 5min	L10	L90
	66.7	69.8	60.7
04:30-04:45	66.5	69.8	60.8
	66.1	69.3	60.8
	66.2	69.5	60.7
04:45-05:00	66.6	69.8	60.7
	66.3	69.7	60.4
	65.7	68.9	59.8
05:00-05:15	65.9	69.0	60.3
	65.9	69.1	60.2
	66.7	69.5	60.2
05:15-05:30	65.5	68.9	59.7
	65.8	69.2	59.5
	65.6	68.7	59.3
05:30-05:45	65.5	68.6	59.8
	66.1	69.6	60.3
	65.5	68.7	59.8
05:45-06:00	65.2	68.5	59.2
	65.7	69.1	59.2
	65.4	68.6	59.2
06:00-06:15	65.0	68.3	58.8
	65.0	68.4	59.2
	64.7	68.0	58.5
06:15-06:30	65.0	68.1	58.3
	65.7	68.4	59.5
	64.9	68.2	58.8
06:30-06:45	64.3	67.6	58.6
	64.7	68.0	58.1
	64.5	67.8	58.3
06:45-07:00	63.7	67.0	57.6
	64.5	67.7	58.0
	63.8	67.1	57.6
Average	67.3	70.3	62.0
Max	69.4	72.6	64.5
Min	63.7	67.0	57.6

Log average was used.


Average Leq for CNM-4 during daytime (0700-1900)
80.0
75.0
70.0
65.0
60.0
55.0
50.0
Leq, dB(A)
Weekdays Noise Level (Leq (30 min))
Sundays/Public Holidays Noise Level (Leq (5 min))
19/02/2010
20/02/2010
21/02/2010
22/02/2010
23/02/2010
24/02/2010
25/02/2010
26/02/2010
27/02/2010
28/02/2010
01/03/2010
02/03/2010
03/03/2010
04/03/2010
Date


Average Leq (5 min) at CNM-4 during Evening (1900-2300) for all days
80.0
75.0
70.0
65.0
60.0
55.0
50.0
Leq (5 min), dB(A
Evening Noise Level (Leq (5 min))
19/02/2010
20/02/2010
21/02/2010
22/02/2010
23/02/2010
24/02/2010
25/02/2010
26/02/2010
27/02/2010
28/02/2010
01/03/2010
02/03/2010
03/03/2010
04/03/2010
Date


Average Leq (5 min)) at CNM-4 during Nighttime (2300-0700) for all days
75.0
70.0
65.0
60.0
55.0
50.0
Leq (5 min), dB(A)
19/02/2010
20/02/2010
21/02/2010
22/02/2010
23/02/2010
24/02/2010
25/02/2010
26/02/2010
27/02/2010
28/02/2010
01/03/2010
02/03/2010
03/03/2010
04/03/2010
Date
Nighttime Noise Level (Leq (5 min))

Appendix C

Calibration Certificates for Monitoring Equipments

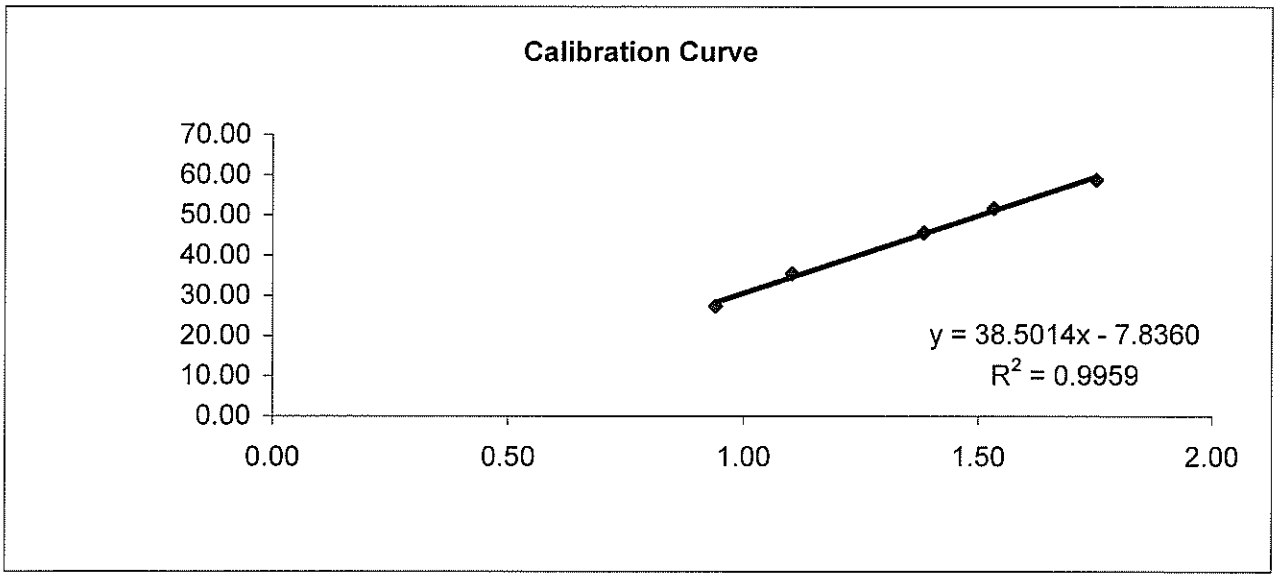
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	22-Dec-09	**Barometric pressure**	765 mm Hg
Next Calibration date	20-Jun-10	**Tempature (°C)**	18 °C
Sampler location	The Victoria Towers	**Tempature (K)**	291 K
Sampler model	TE-5170	**P_{std}**	760 mm Hg
Sampler serial number	528	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	1378
Slope of the standard curve, m_s	2.00826
Intercept of the standard curve, b_s	-0.01649

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	3.40	27.00	0.94	27.41
7	4.70	35.00	1.10	35.53
10	7.40	45.00	1.38	45.69
13	9.10	51.00	1.53	51.78
18	11.90	58.00	1.75	58.89



Linear Regression

Sampler slope (m) :	**38.5014**
Sampler intercept (b) :	**-7.8360**
Correlation coefficient (R^2) :	**0.9959**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: _____ Date: 22/12/2009

Checked by: _____ Date: 22/12/2009

Approved by: _____ Date: 23/12/2009

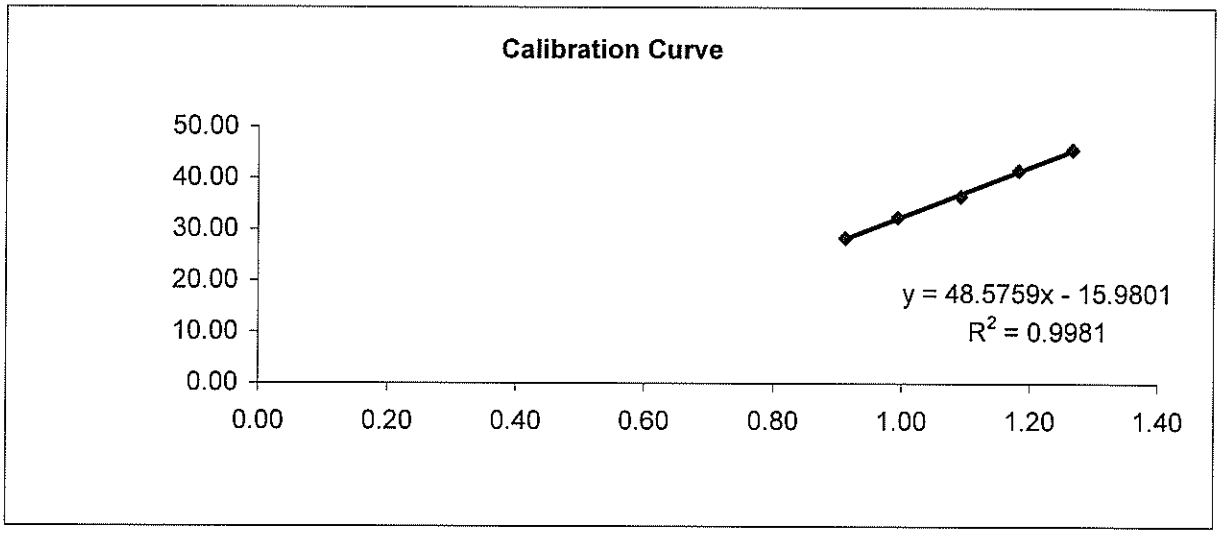
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	5-Dec-09	**Barometric pressure**	765 mm Hg
Next Calibration date	3-Jun-10	**Tempature (°C)**	18 °C
Sampler location	Tower 6, Sorrento	**Tempature (K)**	291 K
Sampler model	TE-5170	**P_{std}**	760 mm Hg
Sampler serial number	0515	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	1378
Slope of the standard curve, m_s	2.00826
Intercept of the standard curve, b_s	-0.01649

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	3.20	28.00	0.91	28.43
7	3.80	32.00	0.99	32.49
10	4.60	36.00	1.09	36.55
13	5.40	41.00	1.18	41.63
18	6.20	45.00	1.27	45.69



Linear Regression

Sampler slope (m) :	**48.5759**
Sampler intercept (b) :	**-15.9801**
Correlation coefficient (R^2) :	**0.9981**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by:		Date:	5/12/09
Checked by:		Date:	5/12/09
Approved by:		Date:	18/12/09

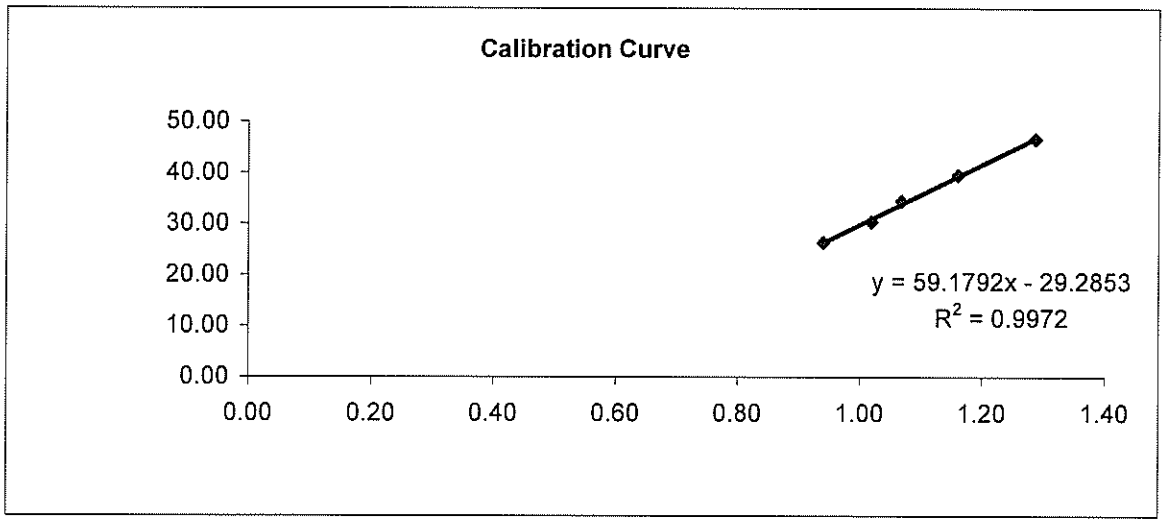
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	5-Dec-09	**Barometric pressure**	765 mm Hg
Next Calibration date	3-Jun-10	**Tempature (°C)**	18 °C
Sampler location	Waterfront	**Tempature (K)**	291 K
Sampler model	GMWS-2310-105	**P_{std}**	760 mm Hg
Sampler serial number	1282	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	1378
Slope of the standard curve, m_s	2.00826
Intercept of the standard curve, b_s	-0.01649

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	3.40	26.00	0.94	26.40
7	4.00	30.00	1.02	30.46
10	4.40	34.00	1.07	34.52
13	5.20	39.00	1.16	39.60
18	6.40	46.00	1.29	46.70



Linear Regression

Sampler slope (m) :	**59.1792**
Sampler intercept (b) :	**-29.2853**
Correlation coefficient (R^2) :	**0.9972**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by:		Date:	5/12/09
Checked by:		Date:	5/12/09
Approved by:		Date:	18/12/09

ThermoFisher
SCIENTIFIC
27 FORGE PARKWAY
FRANKLIN MA 02038
TOLL FREE: 866-282-0430
TEL: 508-553-6949
FAX: 508-541-8366
www.thermofisher.com

PDR1000 CALIBRATION CERTIFICATE

This calibration is traceable to the National Institute of Standards and Testing

SERIAL NUMBER:	4239	
CALIBRATION RATIO:	1.003	
AVG. PDR CONCENTRATION:	1.28	mg/m3
MASTER AVG CONCENTRATION:	1.03	mg/m3
PDR BACKROUND CONCENTRATION:	0.216	mg/m3

TEMPERATURE:	72	F
RH:	39	%

CALIBRATION MASTER:	D325
LAST CALIBRATED:	29/7/2008

TECHNICIAN: R.A. DATE: 26/8/2008

ThermoFisher
SCIENTIFIC
27 FORGE PARKWAY
FRANKLIN MA 02038
TOLL FREE: 866-282-0430
TEL: 508-553-6949
FAX: 508-541-8366
www.thermofisher.com

PDR1000 CALIBRATION CERTIFICATE

This calibration is traceable to the National Institute of Standards and Testing

SERIAL NUMBER:	4243	
CALIBRATION RATIO:	1	
AVG. PDR CONCENTRATION:	1.29	mg/m3
MASTER AVG CONCENTRATION:	1.03	mg/m3
PDR BACKROUND CONCENTRATION:	0.239	mg/m3

TEMPERATURE:	72	F
RH:	39	%

CALIBRATION MASTER:	D325
LAST CALIBRATED:	29/7/2008

TECHNICIAN: R.A. DATE: 26/8/2008

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C093733

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter

Manufacturer : Rion

Model No. : NL-31

Serial No. : 00320533

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C093733.

The equipment is supplied by

Co. Name : Envirotech Services Co.

Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

Date of Issue : 16 July 2009

Certified by : *H C Chan*

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C093733

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Meter
MANUFACTURER : Rion
MODEL NO. : NL-31
SERIAL NO. : 00320533

TEST CONDITIONS

AMBIENT TEMPERATURE : (23 ± 2)°C RELATIVE HUMIDITY : (55 ± 20)%
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 15 July 2009 ***JOB NO.*** : IC09-1740

TEST RESULTS

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested by : K C Lee *Date : 16 July 2009*

Report No. : C093733

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C090024
CL281	Multifunction Acoustic Calibrator	DC090052

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	94.2	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 120	L_A	A	Fast	94.00	1	94.2 (Ref.)
				104.00		104.2
				114.00		114.2

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	94.2	Ref.
			Slow			94.1	± 0.1

Report No. : C093733

Calibration Report

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
20 - 110	L_A	A	Fast	106.00	Continuous	106.0	Ref.
	L_{Amax}				200 ms	105.0	-1.0 ± 1.0
	L_A		Slow		Continuous	106.0	Ref.
	L_{Amax}				500 ms	102.0	-4.1 ± 1.0

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_A	A	Fast	94.00	31.5 Hz	55.0	-39.4 ± 1.5
					63 Hz	68.3	-26.2 ± 1.5
					125 Hz	78.3	-16.1 ± 1.0
					250 Hz	85.7	-8.6 ± 1.0
					500 Hz	91.0	-3.2 ± 1.0
					1 kHz	94.2	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	94.4	+1.0 ± 1.0
					8 kHz	90.1	-1.1 (+1.5 ; -3.0)
					12.5 kHz	83.9	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_C	C	Fast	94.00	31.5 Hz	91.4	-3.0 ± 1.5
					63 Hz	93.6	-0.8 ± 1.5
					125 Hz	94.1	-0.2 ± 1.0
					250 Hz	94.3	0.0 ± 1.0
					500 Hz	94.3	0.0 ± 1.0
					1 kHz	94.2	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	92.7	-0.8 ± 1.0
					8 kHz	88.3	-3.0 (+1.5 ; -3.0)
					12.5 kHz	82.1	-6.2 (+3.0 ; -6.0)

Report No. : C093733

Calibration Report

6.4 Time Averaging

UUT Setting				Applied Value					UUT	IEC 60804
Range (dB)	Mode	Frequency Weighting	Time Weighting	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type I Spec. (dB)
20 - 110	L_{Aeq}	A	10 sec.	4	1	1/10	110.0	100	100.3	± 0.5
						$1/10^2$		90	90.3	± 0.5
			60 sec.			$1/10^3$		80	80.3	± 1.0
			5 min.			$1/10^4$		70	70.3	± 1.0

Remarks : - Mfr's Spec. : IEC 60651 & IEC 60804 Type 1

- Uncertainties of Applied Value : 94 dB : 31.5 Hz - 125 Hz : ± 0.35 dB
  250 Hz - 500 Hz : ± 0.30 dB
  1 kHz : ± 0.20 dB
  2 kHz - 4 kHz : ± 0.35 dB
  8 kHz : ± 0.45 dB
  12.5 kHz : ± 0.70 dB
  104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
  114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
  Burst equivalent level : ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Calibration Report only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C095683

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter

Manufacturer : Rion

Model No. : NL-31

Serial No. : 00983400

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C095683.

The equipment is supplied by

Co. Name : Envirotech Services Co.

Address : Shop 6, G/F., Casio Mansion. 209 Shaukeiwan Road, Hong Kong

Date of Issue : 23 October 2009

Certified by : K C Lee

Calibration and Testing Laboratory of Sun Creation Engineering Limited
Tel: 2927 2606 Fax: 2744 8986 E-mail: cannon@suncreation.com website: www.suncreation.com

Send to:	Ref:
Received by:	Date.
Action taken:	
Copy to:	Date: / Action req:

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C095683

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Meter
MANUFACTURER : Rion
MODEL NO. : NL-31
SERIAL NO. : 00983400

TEST CONDITIONS

AMBIENT TEMPERATURE : (23 ± 2)°C RELATIVE HUMIDITY : (55 ± 20)%
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

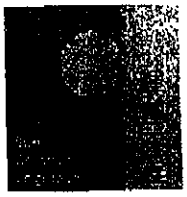
DATE OF TEST : 22 October 2009 ***JOB NO.*** : IC09-2709

TEST RESULTS

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

Tested by : *L L Cheung* *Date : 23 October 2009*



輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C095683

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C090024
CL281	Multifunction Acoustic Calibrator	DC090052

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	94.2	± 1.1

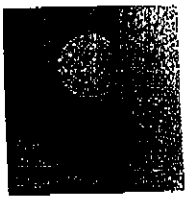
6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 120	L_A	A	Fast	94.00	1	94.2 (Ref.)
				104.00		104.2
				114.00		114.2

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	94.2	Ref.
			Slow			94.2	± 0.3



輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C095683

Calibration Report

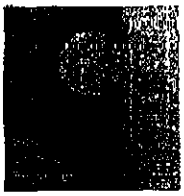
6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_A	A	Fast	94.00	31.5 Hz	54.3	-39.4 ± 2.0
					63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.9	-16.1 ± 1.5
					250 Hz	85.4	-8.6 ± 1.4
					500 Hz	90.9	-3.2 ± 1.4
					1 kHz	94.2	Ref.
					2 kHz	95.5	+1.2 ± 1.6
					4 kHz	95.3	+1.0 ± 1.6
					8 kHz	93.2	-1.1 (+2.1 ; -3.1)
					12.5 kHz	90.3	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_C	C	Fast	94.00	31.5 Hz	90.9	-3.0 ± 2.0
					63 Hz	93.3	-0.8 ± 1.5
					125 Hz	94.0	-0.2 ± 1.5
					250 Hz	94.2	0.0 ± 1.4
					500 Hz	94.2	0.0 ± 1.4
					1 kHz	94.2	Ref.
					2 kHz	94.1	-0.2 ± 1.6
					4 kHz	93.5	-0.8 ± 1.6
					8 kHz	91.3	-3.0 (+2.1 ; -3.1)
					12.5 kHz	88.4	-6.2 (+3.0 ; -6.0)



輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C095683

Calibration Report

Remarks : - Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB :	31.5 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
104 dB :	1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB :	1 kHz	: ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Calibration Report only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4 L, Feng Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C093473

Certificate of Calibration

This is to certify that the equipment

Description : Precision Integrating Sound Level Meter

Manufacturer : Rion

Model No. : NL-18

Serial No. : 00360030

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C093473.

The equipment is supplied by

Co. Name : Envirotech Services Co.

Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

Date of Issue : 6 July 2009

Certified by : H C Chan

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: caliab@suncreation.com Website: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C093473

Calibration Report

ITEM TESTED

DESCRIPTION : Precision Integrating Sound Level Meter
MANUFACTURER : Rion
MODEL NO. : NL-18
SERIAL NO. : 00360030

TEST CONDITIONS

AMBIENT TEMPERATURE : (23 ± 2)°C RELATIVE HUMIDITY : (55 ± 20)%
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 3 July 2009 ***JOB NO.*** : IC09-1664

TEST RESULTS

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested by : *K C Lee* *Date : 6 July 2009*

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

Report No. : C093473

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using the internal standard (After Adjustment) was performed before the test 6.1.2 - 6.4.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C090024
CL281	Multifunction Acoustic Calibrator	DC090052

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)		IEC 651 Type 1
Range (dB)	Mode	Weight	Response	Level (dB)	Freq. (kHz)	Before Adjustment	After Adjustment	Spec. (dB)
50 - 110	LA	A	Fast	94.00	1	93.3	94.1	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT
Range (dB)	Mode	Weight	Response	Level (dB)	Freq. (kHz)	Reading (dB)
60 - 120	LA	A	Fast	94.00	1	94.2 (Ref.)
				104.00		104.2
				114.00		114.2

IEC 651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT	IEC 651 Type 1
Range (dB)	Mode	Weight	Response	Level (dB)	Freq. (kHz)	Reading (dB)	Spec. (dB)
50 - 110	LA	A	Fast	94.00	1	94.1	Ref.
			Slow			94.0	± 0.1

Report No. : C093473

Calibration Report

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 651 Type 1 Spec. (dB)
Range (dB)	Mode	Weight	Response	Level (dB)	Burst Duration		
50 -110	LA	A	Fast	106.00	Continuous	106.0	Ref.
	LAmx				200 ms	105.0	-1.0 ± 1.0
	LA		Slow		Continuous	106.0	Ref.
	LAmx				500 ms	102.4	-4.1 ± 1.0

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 651 Type 1 Spec. (dB)
Range (dB)	Mode	Weight	Response	Level (dB)	Freq.		
40 - 100	LA	A	Fast	94.00	31.5 Hz	54.7	-39.4 ± 1.5
					63 Hz	68.0	-26.2 ± 1.5
					125 Hz	78.0	-16.1 ± 1.0
					250 Hz	85.4	-8.6 ± 1.0
					500 Hz	90.8	-3.2 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	95.3	+1.2 ± 1.0
					4 kHz	94.9	+1.0 ± 1.0
					8 kHz	91.7	-1.1 (+1.5 ; -3.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 651 Type 1 Spec. (dB)
Range (dB)	Mode	Weight	Response	Level (dB)	Freq.		
40 - 100	LC	C	Fast	94.00	31.5 Hz	91.4	-3.0 ± 1.5
					63 Hz	93.6	-0.8 ± 1.5
					125 Hz	94.1	-0.2 ± 1.0
					250 Hz	94.2	0.0 ± 1.0
					500 Hz	94.2	0.0 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.1	-0.8 ± 1.0
					8 kHz	89.8	-3.0 (+1.5 ; -3.0)

Report No. : C093473

Calibration Report

6.4 Time Averaging

UUT Setting				Applied Value					UUT	IEC 60804
Range (dB)	Mode	Freq. Weight	Integrating Time	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type 1 Spec. (dB)
50 - 110	LAeq	A	10 sec.	4	1	1/10	110.0	100	100.2	± 0.5
						$1/10^2$		90	90.2	± 0.5
			60 sec.			$1/10^3$		80	79.8	± 1.0
			5 min.			$1/10^4$		70	70.2	± 1.0

Remarks : - Mfr's Spec. : IEC 651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

94 dB	:	31.5Hz - 125 Hz	: ± 0.35 dB
		250 Hz - 500 Hz	: ± 0.30 dB
		1 kHz	: ± 0.20 dB
		2 kHz - 4 kHz	: ± 0.35 dB
		8 kHz	: ± 0.45 dB
104 dB	:	1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	:	1 kHz	: ± 0.10 dB (Ref. 94 dB)
Burst equivalent level			: ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Calibration Report only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
香港黃竹坑道37號利達中心地下，9樓，12樓，13樓及20樓
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel : (852) 2873 6860
Fax : (852) 2555 7533
HOKLAS 028

CERTIFICATE OF CALIBRATION

Certificate No.: 09CA0523 02-02A **Page:** 1 **of** 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: Rion Co., Ltd.
Type/Model No.: NC-73
Serial/Equipment No.: 10186489
Adaptors used: -

Item submitted by

Curstomer: Allied Environmental Consultants Limited
Address of Customer: 1001, Shanghai Industrial Investment Building, 48 Hennessy Road, Wanchai
Request No.: -
Date of request: 22-May-2009

Date of test: 23-May-2009

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	29-Jun-2009	SCL
Preamplifier	B&K 2673	2239857	02-Dec-2009	CEPREI
Measuring amplifier	B&K 2610	2346941	03-Dec-2009	CEPREI
Signal generator	DS 360	61227	18-Jul-2009	CEPREI
Digital multi-meter	34401A	US36087050	03-Dec-2009	CIGISMEC
Audio analyzer	8903B	GB41300350	27-Nov-2009	CEPREI
Universal counter	53132A	MY40003662	11-Jul-2009	CEPREI

Ambient conditions

Temperature: 23 ± 1 °C
Relative humidity: 60 ± 10 %
Air pressure: 1000 ± 10 hPa

Test specifications

1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on **page 2** of this certificate.

Approved Signatory: Huang Jian Min/Feng Jun Qi **Date:** 05-Oct-2009 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the conditon of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

綜合試驗有限公司
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CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 09CA0523 02-02A **Page:** 2 **of** 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Uncertainty dB
1000	94.00	93.83	0.1

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz **STF = 0.005 dB**

Estimated uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz **Actual Frequency = 986.4 Hz**

Estimated uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz **TND = 0.5%**

Estimated uncertainty 0.7%

The uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95 %. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: C.Y. Fung **Checked by:**
Date: 23-May-2009 **Date:** 05-Oct-2009

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C093598

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Calibrator

Manufacturer : Rion

Model No. : NC-73

Serial No. : 10786708

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C093598.

The equipment is supplied by

Co. Name : Envirotech Services Co.

Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

Issued to: Winnie KO Ref.
Received by: Date:
Action taken:
Issued by: Date: Authorised by:

Date Received by EHM
Login Ref. EC-370

Date of Issue : 10 July 2009

Certified by : H C Chan

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C093598

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Calibrator
MANUFACTURER : Rion
MODEL NO. : NC-73
SERIAL NO. : 10786708

TEST CONDITIONS

AMBIENT TEMPERATURE : (23 ± 2)°C RELATIVE HUMIDITY : (55 ± 20)%
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 9 July 2009 ***JOB NO.*** : IC09-1664

TEST RESULTS

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested by : *K C Lee* *Date : 10 July 2009*

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

Report No. : C093598

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
TST150A	Measuring Amplifier	C080751
CL129	Universal Counter	C093121
CL281	Multifunction Acoustic Calibrator	DC090052

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	93.9	± 0.5	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (Hz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.991 6	1 kHz ± 2 %	± 0.1

Remark : - The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Calibration Report only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Appendix D

Figures

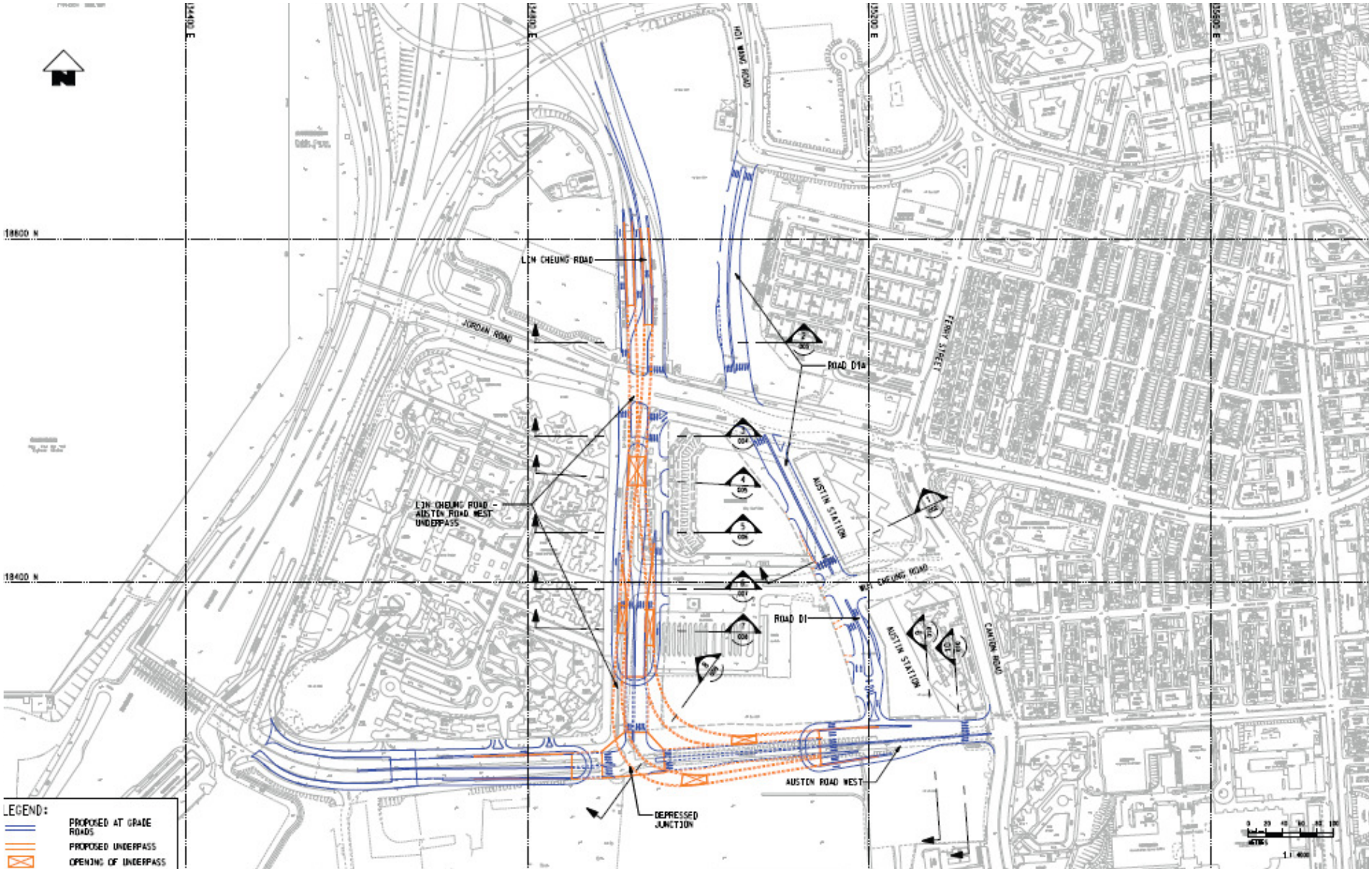
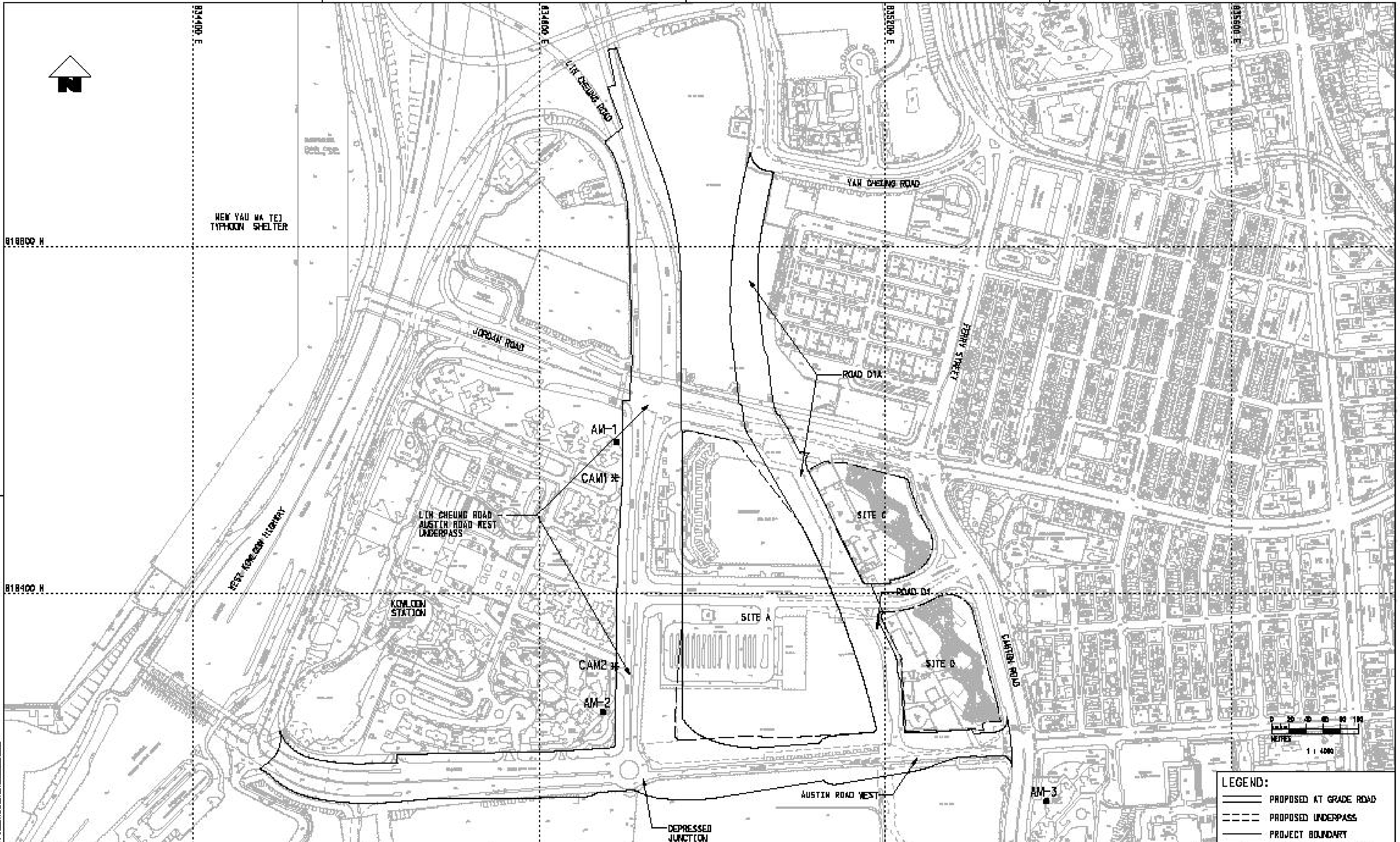


Figure 1 – Works Area for Road Works



STATION I.D.	LOCATION
CAM-1	PODIUM BETWEEN SORRENTO AND THE WATERFRONT (ALT. LOCATION)
CAM-2	PODIUM NEXT TO TOWER 3, THE WATERFRONT (ALT. LOCATION)
CAM-3	ROOF OF LIFT BUILDING, THE VICTORIA TOWERS (ALT. LOCATION)

A1 FIRST DRAFT

DRAWN: YCC
CHECKED: MC
DATE: 03/MAY/2011

MTR

EXPRESS RAIL LINK

PROJECTS DIVISION

SUSTAINABILITY DEVELOPMENT DEPARTMENT

CADD REF. XRLENV_L_WKT_MTR_M62_102A1.DGN

TITLE

ROADWORKS AT WEST KOWLOON
LOCATIONS OF CONSTRUCTION DUST MONITORING STATIONS

SCALE 1:4000 @ A1

DRAWING NO. XRLENV/K/WKT/MTR/M62/102

REV. A1

LEGEND:	
ID NO.	NOISE MONITORING STATION
CNM - 1	MAN CHEONG STREET REFUSE STATION (ALTERNATIVE LOCATION)
CNM - 2	TOWER 6, SORRENTO
CNM - 3	PODIUM NEXT TO TOWER 3, THE WATERFRONT (ALTERNATIVE LOCATION)
CNM - 4	TOWER 2, THE HARBOUR SIDE

PLOT DRV: x:\cadd_library\microstation\workspace\plotdrv\PDF_BW_300dpi_080924.plt
MODEL NAME: Default
FILENAME: x:\dp_EPHD\XRL\K\ENV\EPD_report\XRLENV_K_WKT_MTR_M52_00ALL.DGN
PRINTED BY: 4425656
PRINTED ON: 19/05/11

REV	DESCRIPTION	BY	DATE	APPROVED
A1	FIRST DRAFT	YCC	19MAY11	-

DRAWN	YCC
DESIGNED	
CHECKED	MC
APPROVED	
DATE	03/MAY/2011

MTR

EXPRESS RAIL LINK

ORIGINATOR
PROJECTS DIVISION | SUSTAINABILITY DEVELOPMENT DEPARTMENT

CADD REF. XRLENV_K_WKT_MTR_M52_101A1.DGN

TITLE
ROADWORK AT WEST KOWLOON
LOCATION OF CONSTRUCTION NOISE MONITORING STATION

SCALE 1:6000 @ A3

DRAWING NO. XRLENV/K/WKT/MTR/M52/101

REV. A1