

MTR Corporation Limited

HONG KONG SECTION OF GUANGZHOU –
SHENZHEN – HONG KONG EXPRESS RAIL LINK
(No. EP-349/2009)

Baseline Monitoring Report (Part 1) Rev 4

Verified by:	 _____
Position:	<u>Independent Environmental Checker</u>
Date:	<u>27 July 2010</u>

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Position:

Environmental Team Leader

Date:

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EXECUTIVE SUMMARY

The environmental baseline monitoring for the Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link, hereinafter referred to “the XRL” was conducted at 4 noise and 1 air quality monitoring locations in the vicinity of Works Area N, O, P, Q and Y (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).

Monitoring of 1-hour TSP level was conducted between 3/12/2009 and 16/12/2009. The average 1-hour TSP level at AM13 (St Andrew Primary School) was $94.3\mu\text{g}/\text{m}^3$, the lowest and highest level of 1-hour TSP levels were 30.3 and $313.5\mu\text{g}/\text{m}^3$ respectively. Monitoring of 24-hour TSP level was conducted between 4/12/2009 and 17/12/2009. The average 24-hour TSP level was $77.4\mu\text{g}/\text{m}^3$, the lowest and highest level of 24-hour TSP levels were 21.7 and $146.4\mu\text{g}/\text{m}^3$ respectively. The Action Level of 1-hour and 24-hour average TSP levels at AM 13 was $311.3\mu\text{g}/\text{m}^3$ and $180.3\mu\text{g}/\text{m}^3$ respectively.

Baseline noise monitoring was conducted at CN 23, 24, 25 (Tack Ching Girls' Secondary School) and 26 between 17/11/2009 and 1/12/2009. Given no access for conducting impact monitoring at CN 25 (Tack Ching Girls' Secondary School) for the commencement of construction, the location of CN 25 was relocated to the nearby St. Mary's Church Mok Hing Yiu College. Supplementary baseline monitoring was conducted at the new location of CN 25 from 11/06/2010 to 24/06/2010. 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. The highest noise level recorded at daytime during normal weekdays was recorded at CN 26 (Ying Wah College) and the lowest at CN 23 (HKIVE Haking Wong Waterfront Annex) during the monitoring period. In this report, the measured noise levels on weekdays were presented separately from general holidays and Sundays for easy of reference. The daytime baseline noise levels at all of the four locations exceeded the Limit Level for exam period of 65 dB(A) and approached the daytime Limit Level of 70 dB(A). In consideration of this situation, the baseline noise level at CN 26 would be reviewed prior to construction and regularly once every six months to confirm its validity. The review of baseline noise level at CN 26 would be covered in the EM&A Report.

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 Huang gang. Along the railway corridor, there will be a total of eight ventilation buildings/ emergency access point (EAP), stabling sidings and a maintenance facility at Shek Kong (SSS) and an Emergency Rescue Station (ERS) next to SSS serving the operation of the XRL.

1.2 Purpose of the report

In accordance with the Environmental Monitoring and Audit (EM&A) Manual, environmental baseline monitoring was carried out for air quality (1-hr and 24-hr TSP) and noise. This Baseline Monitoring Report (Part 1) contains baseline monitoring findings in the vicinity of Works Area N, O, P, Q and Y(Figure 1). The findings of baseline monitoring would be used to establish the Action Level for impact monitoring at subsequent stages. In addition to baseline monitoring findings, the report includes information on monitoring methodology and the respective Action and Limit Levels.

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 St. Andrew Primary School located in the vicinity of the works areas P and Y. 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 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, baseline air quality monitoring was carried out during 3/12/2009 – 16/12/2009 and 4/12/2009 – 17/12/2009 to determine the ambient levels of both 1-hour and 24-hour TSP levels respectively at St. Andrew Primary School (AM 13) in the vicinity of Works Area P and Y. The locations of the works area and the respective ASRs are shown in Figures 1 and 2 respectively. The information of the ASRs where baseline air monitoring had been conducted is summarized in the table below:

Monitoring Station ID	Air Monitoring Location	Monitoring period
AM 13	St. Andrew Primary School	3/12/2009 – 16/12/2009 (1-hr); 4/12/2009 – 17/12/2009 (24-hr);

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. Calibration certificate is attached in Appendix C. Calibration of the MIE by certified laboratory or manufacturer was carried out every two years and properly documented. Calibration certificate is attached in Appendix C.

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 source of dust in the vicinity was observed to originate mainly from a work site located to the east of the school

Monitoring results of 1-hour and 24-hour TSP are summarised in Table 2.3 and 2.4. All monitoring data of 1-hour and 24-hour are shown in Appendix A.

Monitoring Location	Average TSP Concentration, $\mu\text{g}/\text{m}^3$ (Range)
St. Andrew Primary School (AM 13)	94.3 (30.3-313.5)

Table 2.3: Summary of baseline 1-hour TSP level

Monitoring Location	Average TSP Concentration, $\mu\text{g}/\text{m}^3$ (Range)
St. Andrew Primary School (AM 13)	77.4 (21.7-146.4)

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)	• $BL \leq 200 \mu\text{g m}^{-3}$, $AL = (BL * 1.3 + LL)/2$ • $BL > 200 \mu\text{g m}^{-3}$, $AL = LL$	$260 \mu\text{g m}^{-3}$
TSP (1 hour average)	• $BL \leq 384 \mu\text{g m}^{-3}$, $AL = (BL * 1.3 + LL)/2$ • $BL > 384 \mu\text{g m}^{-3}$, $AL = LL$	$500 \mu\text{g m}^{-3}$

(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
St. Andrew Primary School (AM 13)	TSP (24-hour average)	$180.3 \mu\text{g m}^{-3}$	$260 \mu\text{g m}^{-3}$
	TSP (1-hour average)	$311.3 \mu\text{g m}^{-3}$	$500 \mu\text{g m}^{-3}$

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, Rion NL-18, Rion NL-31 and B&K 2250 sound level meters, which complies with the above-mentioned specifications, were used.

The monitoring station shall normally be at a point 1m from the exterior of the noise sensitive façade. The microphones were positioned to face towards the works area.

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.

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 at CN 23-26 during 17/11/2009 to 1/12/2009 at Noise Sensitive Receivers (NSRs) located in the vicinity of Works Area N, O, P, Q and Y. Given no access for conducting impact monitoring at CN 25 (Tack Ching Girls' Secondary School) for the commencement of construction, the location of CN 25 was relocated to the nearby St. Mary's Church Mok Hing Yiu College. Supplementary baseline monitoring was conducted at the new location of CN 25 from 11/06/2010 to 24/06/2010.

The locations of the NSR are shown in Figure 3. Monitoring was carried out at the following stations in accordance with the EM&A Manual:

Monitoring Station ID	Noise Monitoring Location	Monitoring period
CN 23	HKIVE Haking Wong Waterfront Annex	17/11/2009-1/12/2009
CN 24	St. Andrew Primary School	17/11/2009-1/12/2009
CN 25	St. Mary's Church Mok Hing Yiu College	11/6/2010-24/6/2010 ¹
CN 26	Ying Wah College	17/11/2009-1/12/2009

¹ Baseline monitoring was conducted at the original CN 25 location (Tack Ching Girls' Secondary School) from 17/11/2009 to 1/12/2009. As no access was provided for conducting impact monitoring for the commencement of construction, CN 25 was relocated to St. Mary's Church Mok Hing Yiu College and supplementary baseline monitoring was conducted from 11/6/2010-24/6/2010.

Table 3.1: Information of Noise Monitoring Stations

3.4 Calibration Requirements

Rion NC 18 and Rion NC 31 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 are verified by the certified laboratory or manufacturer once every year 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 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 17/11/2009 and 1/12/2009 for CN 23, 24 and 26; between 11/06/2010 and 24/06/2010 for CN 25. The weather condition was mainly fine during the monitoring period. No façade correction has been made since measurements were taken at building façade at all four monitoring locations. The major noise sources at respective monitoring locations are summarized at the table below:

Monitoring location ID	Monitoring location	Major noise source
CN 23	HKIVE Haking Wong Waterfront Annex	Traffic noise
CN 24	St. Andrew Primary School	Traffic Noise, school bells, noise from student activities
CN 25	St. Mary s Church Mok Hing Yiu College	Traffic Noise
CN 26	Ying Wah College	Traffic Noise, Minor construction works by other projects from the Nam Cheong Station area

Table 3.3: Major noise source at noise monitoring locations

Baseline noise monitoring results are summarised in Table 3.3 over the monitoring periods. All monitoring data are contained in Appendix B. Graphical presentations of the monitoring results are shown in Appendix B.

Period	Monitoring Station	L_{eq}(30min) – dB(A)	L₁₀(30min) – dB(A)	L₉₀(30min) – dB(A)
0700 – 1900 (Daytime, Normal weekday)	CN 23	66	69	62
	CN 24	67	69	64
	CN 25	68	71	64
	CN 26	70	73	66
Period	Monitoring Station	L_{eq}(5min) – dB(A)	L₁₀(5min) – dB(A)	L₉₀(5min) – dB(A)
0700 – 2300 (General Holiday including Sunday)	CN 23	64	66	59
	CN 24	62	64	59
	CN 25	65	68	61
	CN 26	69	72	64
1900 – 2300 (Evening,	CN 23	64	66	60
	CN 24	62	64	60

Normal weekday)	CN 25	66	69	62
	CN 26	69	72	63
2300 – 0700 (Night-time, all days)	CN 23	60	62	55
	CN 24	60	63	56
	CN 25	64	67	58
	CN 26	66	69	60

Table 3.4: Baseline noise monitoring results

As revealed from the monitoring results, baseline noise levels for daytime (0700-1900) during normal weekdays at the noise monitoring locations range from 66 dB(A) to 70 dB(A). It was noted from the monitoring results that ambient noise level for daytime at Ying Wah College (CN 26), 70 dB(A) is highest among the four monitoring locations. The daytime baseline noise levels at all of the four locations exceeded the Limit Level for exam period of 65 dB(A) and approached the daytime Limit Level of 70 dB(A).

In consideration of this situation, the baseline noise level at CN 26 would be reviewed prior to construction and regularly once every six months to confirm its validity. The review of baseline noise level at CN 26 would be covered in the EM&A Report.

During impact monitoring, observations of project-related construction activities and/or non-project related noise sources in the vicinity of CN 26 would be recorded. In case exceedance is recorded, the dominant noise source would be determined based on site observations. The monitoring results and observations would be verified by the IEC and reported in the monthly EM&A Report.

4. CONCLUSION

4.1 Air

1-hour TSP

Baseline 1-hour TSP monitoring was conducted at St. Andrew Primary School (AM13) between the period 3/12/2009 and 16/12/2009. Baseline 1-hour TSP monitoring was found in the range of 30.3 to 313.5 $\mu\text{g}/\text{m}^3$. The average 1-hour TSP level was recorded to be 94.3 $\mu\text{g}/\text{m}^3$. The weather condition was mostly fine with occasional rainy days.

24-hour TSP

Baseline 24-hour TSP monitoring was conducted at St. Andrew Primary School (AM13) between the period 4/12/2009 and 17/12/2009. Baseline 24-hour TSP monitoring was found in the range of 21.7 to 146.4 $\mu\text{g}/\text{m}^3$. The average 24-hour TSP level was recorded to be 77.4 $\mu\text{g}/\text{m}^3$.

From site observation, it was noted that the major source of TSP at St Andrew Primary School (AM 13) was originated mainly from a work site located to the east of the school.

Based on the findings of 1-hour and 24-hour levels, the Action and Limit Levels were established for impact environmental monitoring. The Action Levels for 1-hour and 24-hour TSP are 311.3 $\mu\text{g}/\text{m}^3$ and 180.3 $\mu\text{g}/\text{m}^3$ respectively.

4.2 Airborne Construction Noise

Baseline noise monitoring were carried at CN 23, 24 and 26 from 17/11/2009 to 1/12/2009; at CN 25 from 11/06/2010 to 24/06/2010. The weather during the baseline monitoring period was generally sunny and fine.

As revealed from the monitoring results, baseline noise levels for daytime (0700-1900) during normal weekdays at the noise monitoring locations range from 66 dB(A) to 70 dB(A). It was noted from the monitoring results that ambient noise level for daytime

at Ying Wah College (CN 26) was 70 dB(A) which is highest among the four monitoring locations. The daytime baseline noise levels at all of the four locations exceeded the Limit Level for exam period of 65 dB(A) and approached the daytime Limit Level of 70 dB(A).

In consideration of this situation, the baseline noise level at CN 26 would be reviewed prior to construction and regularly once every six months to confirm its validity. The review of baseline noise level at CN 26 would be covered in the EM&A report.

Appendix A

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

Details of 1-hour TSP Level monitoring at St. Andrew Primary School (AM 13) from 3/12/2009 to 16/12/2009

Month	Date	Receptor No.	Set No.	Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (µg/m³)	Remarks
				Start	Finish						
Dec-09	03-Dec-09	AM13	1	8:58	9:58	Fine	Normal	18.0	765.0	119.1	
Dec-09	03-Dec-09	AM13	2	9:58	10:58	Fine	Normal	18.0	765.0	121.8	
Dec-09	03-Dec-09	AM13	3	10:58	11:58	Fine	Normal	18.0	765.0	118.3	
Dec-09	04-Dec-09	AM13	1	8:46	9:46	Fine	Normal	18.0	765.0	31.5	
Dec-09	04-Dec-09	AM13	2	9:46	10:46	Fine	Normal	18.0	765.0	122.7	
Dec-09	04-Dec-09	AM13	3	10:46	11:46	Fine	Normal	18.0	765.0	128.0	
Dec-09	05-Dec-09	AM13	1	8:52	9:52	Fine	Normal	18.0	765.0	67.0	
Dec-09	05-Dec-09	AM13	2	9:52	10:52	Fine	Normal	18.0	765.0	67.5	
Dec-09	05-Dec-09	AM13	3	10:52	11:52	Fine	Normal	18.0	765.0	65.4	
Dec-09	06-Dec-09	AM13	1	9:49	10:49	Fine	Normal	18.0	764.0	66.5	
Dec-09	06-Dec-09	AM13	2	10:49	11:49	Fine	Normal	18.0	764.0	54.0	
Dec-09	06-Dec-09	AM13	3	11:49	12:49	Fine	Normal	18.0	764.0	50.0	
Dec-09	07-Dec-09	AM13	1	9:27	10:27	Rainy	Normal	19.0	763.0	108.3	
Dec-09	07-Dec-09	AM13	2	10:27	11:27	Rainy	Normal	19.0	763.0	108.8	
Dec-09	07-Dec-09	AM13	3	11:27	12:27	Rainy	Normal	19.0	763.0	117.2	
Dec-09	08-Dec-09	AM13	1	10:14	11:14	Rainy	Normal	18.0	762.0	67.3	
Dec-09	08-Dec-09	AM13	2	11:14	12:14	Rainy	Normal	18.0	762.0	51.5	

Month	Date	Receptor No.	Set No.	Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (µg/m³)	Remarks
				Start	Finish						
Dec-09	08-Dec-09	AM13	3	12:14	13:14	Rainy	Normal	18.0	762.0	36.8	
Dec-09	09-Dec-09	AM13	1	10:15	11:15	Cloudy	Normal	19.0	762.0	67.3	
Dec-09	09-Dec-09	AM13	2	11:15	12:15	Cloudy	Normal	19.0	762.0	59.6	
Dec-09	09-Dec-09	AM13	3	12:15	13:15	Cloudy	Normal	19.0	762.0	54.0	
Dec-09	10-Dec-09	AM13	1	14:41	15:41	Cloudy	Normal	20.0	761.0	295.4	
Dec-09	10-Dec-09	AM13	2	15:41	16:41	Cloudy	Normal	20.0	761.0	298.5	
Dec-09	10-Dec-09	AM13	3	16:41	17:41	Cloudy	Normal	20.0	761.0	313.5	
Dec-09	11-Dec-09	AM13	1	14:40	15:40	Fine	Normal	21.0	761.0	44.3	
Dec-09	11-Dec-09	AM13	2	15:40	16:40	Fine	Normal	21.0	761.0	42.1	
Dec-09	11-Dec-09	AM13	3	16:40	17:40	Fine	Normal	21.0	761.0	99.0	
Dec-09	12-Dec-09	AM13	1	13:28	14:28	Fine	Normal	22.0	762.0	88.9	
Dec-09	12-Dec-09	AM13	2	14:28	15:28	Fine	Normal	22.0	762.0	92.7	
Dec-09	12-Dec-09	AM13	3	15:28	16:28	Fine	Normal	22.0	762.0	92.8	
Dec-09	13-Dec-09	AM13	1	13:04	14:04	Fine	Normal	21.0	763.0	106.3	
Dec-09	13-Dec-09	AM13	2	14:04	15:04	Fine	Normal	21.0	763.0	107.7	
Dec-09	13-Dec-09	AM13	3	15:04	16:04	Fine	Normal	21.0	763.0	109.3	
Dec-09	14-Dec-09	AM13	1	13:45	14:45	Fine	Normal	21.0	763.0	69.7	
Dec-09	14-Dec-09	AM13	2	14:45	15:45	Fine	Normal	21.0	763.0	67.2	
Dec-09	14-Dec-09	AM13	3	15:45	16:45	Fine	Normal	21.0	763.0	72.9	

Month	Date	Receptor No.	Set No.	Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (µg/m³)	Remarks
				Start	Finish						
Dec-09	15-Dec-09	AM13	1	13:16	14:16	Fine	Normal	20.0	763.0	84.0	
Dec-09	15-Dec-09	AM13	2	14:16	15:16	Fine	Normal	20.0	763.0	98.4	
Dec-09	15-Dec-09	AM13	3	15:16	16:16	Fine	Normal	20.0	763.0	95.0	
Dec-09	16-Dec-09	AM13	1	13:37	14:37	Cloudy	Normal	20.0	763.0	30.3	
Dec-09	16-Dec-09	AM13	2	14:37	15:37	Cloudy	Normal	20.0	763.0	35.0	
Dec-09	16-Dec-09	AM13	3	15:37	16:37	Cloudy	Normal	20.0	763.0	34.0	

Details of 24-hour TSP Level monitoring at St. Andrew Primary School (AM13) from 4/12/2009 – 17/12/2009

Filter No.	Date	Time periods		Receptor No.	Weather condition	Site condition	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)	Remarks
		Start	Finish				Initial	Final		Start	Finish				
100503	04-Dec-09	11:50	11:50	AM13	Fine	Normal Operation	1.1380	1.1380	1.1380	12679.26	12703.26	1440.00	1638.72	128.4	
100504	05-Dec-09	11:53	11:53	AM13	Fine	Normal Operation	1.1380	1.1373	1.1377	12703.26	12727.26	1440.00	1638.22	146.4	
100508	06-Dec-09	12:06	12:06	AM13	Fine	Normal Operation	1.1373	1.1347	1.1360	12727.26	12751.26	1440.00	1635.84	119.8	
100512	07-Dec-09	12:06	12:06	AM13	Rainy	Normal Operation	1.1347	1.1359	1.1353	12751.26	12775.26	1440.00	1634.83	60.3	
100551	08-Dec-09	12:09	12:09	AM13	Rainy	Normal Operation	1.1359	1.1340	1.1350	12775.26	12799.26	1440.00	1634.33	21.7	
100555	09-Dec-09	12:22	12:22	AM13	Rainy	Normal Operation	1.1061	1.1037	1.1049	12799.26	12823.26	1440.00	1591.06	46.9	
100559	10-Dec-09	14:42	14:42	AM13	Cloudy	Normal Operation	1.1316	1.1316	1.1316	12823.26	12847.26	1440.00	1629.50	106.0	
100563	11-Dec-09	14:55	14:55	AM13	Fine	Normal Operation	1.1298	1.1287	1.1293	12847.26	12871.26	1440.00	1626.12	114.3	
100523	12-Dec-09	14:56	14:56	AM13	Fine	Normal Operation	1.1287	1.1311	1.1299	12871.26	12895.26	1440.00	1627.06	33.8	
100571	13-Dec-09	14:58	14:58	AM13	Fine	Normal Operation	1.1311	1.1311	1.1311	12895.26	12919.26	1440.00	1628.78	39.4	
100567	14-Dec-09	15:02	15:02	AM13	Fine	Normal Operation	1.1311	1.1330	1.1321	12919.26	12943.26	1440.00	1630.15	46.1	
100586	15-Dec-09	15:05	15:05	AM13	Fine	Normal Operation	1.1608	1.1330	1.1469	12943.26	12967.26	1440.00	1651.54	40.0	
100575	16-Dec-09	15:10	15:10	AM13	Cloudy	Normal Operation	1.1421	1.1468	1.1445	12967.26	12991.26	1440.00	1648.01	47.5	
100520	17-Dec-09	15:11	15:11	AM13	Cloudy	Normal Operation	1.1468	1.1468	1.1468	12991.26	13015.26	1440.00	1651.39	132.4	

Appendix B

Baseline noise monitoring data

Baseline Noise Monitoring Result

Location: CN 23 HKIVE Haking Wong Waterfront Annex

Baseline monitoring period: 17/11/2009-1/12/2009

Parameter: Leq

Time Slot Averaged Baselines

1) Weekdays Daytime Noise

Level, dB(A)

Time slot	Leq, 30 min	L10	L90
07:00-07:30	64.8	67.6	60.0
07:30-08:00	65.8	68.5	61.7
08:00-08:30	66.1	68.7	61.8
08:30-09:00	65.8	69.1	62.2
09:00-09:30	65.5	68.2	61.7
09:30-10:00	65.9	68.8	61.8
10:00-10:30	65.6	68.3	61.6
10:30-11:00	66.1	68.8	61.8
11:00-11:30	66.5	69.3	62.0
11:30-12:00	65.9	69.1	61.5
12:00-12:30	65.7	68.5	61.2
12:30-13:00	65.4	68.2	61.2
13:00-13:30	65.5	68.2	61.5
13:30-14:00	65.9	68.4	61.9
14:00-14:30	65.9	68.7	61.9
14:30-15:00	65.9	68.5	61.7
15:00-15:30	66.2	68.9	62.4
15:30-16:00	66.2	69.1	62.0
16:00-16:30	66.7	70.0	62.0
16:30-17:00	66.1	68.8	62.0
17:00-17:30	66.1	68.5	61.7
17:30-18:00	65.3	67.6	61.1
18:00-18:30	64.9	67.2	61.1
18:30-19:00	64.9	67.2	60.7
Average	65.8	68.5	61.6

Noise Control Period Averaged Baselines

2) Weekdays Evening Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
19:00-19:15	64.5	67.1	60.6
	64.3	66.6	60.4
	64.1	66.6	60.4
19:15-19:30	63.9	66.3	60.2
	63.9	66.3	60.3
	64.0	66.3	60.3
19:30-19:45	63.5	65.8	60.0
	64.5	67.0	60.3
	64.7	66.2	60.2
19:45-20:00	64.7	67.1	60.4
	63.5	65.9	59.9
	64.6	66.7	59.9
20:00-20:15	65.1	66.2	59.7
	63.8	66.6	60.0
	63.8	66.3	59.9
20:15-20:30	62.9	65.3	59.4
	64.1	66.5	59.9
	63.6	65.8	59.6
20:30-20:45	63.1	65.5	59.5
	63.2	65.6	59.5
	63.6	65.9	59.5
20:45-21:00	63.3	65.7	59.3
	63.1	65.3	59.4
	63.4	65.9	59.5
21:00-21:15	62.7	64.7	59.3
	63.4	65.9	59.3
	63.8	66.6	59.4
21:15-21:30	62.6	64.6	59.2
	63.1	65.8	59.2
	63.5	66.0	59.2
21:30-21:45	63.0	65.2	59.2
	63.3	65.6	59.6
	63.9	66.3	59.8

21:45-22:00	63.5	66.3	59.4
	64.1	66.6	59.7
	63.4	66.0	59.2
22:00-22:15	62.8	65.3	58.4
	63.2	65.9	58.4
	62.4	65.1	58.7
22:15-22:30	62.3	64.8	58.5
	62.9	65.4	58.5
	63.0	65.8	58.6
22:30-22:45	63.1	65.3	58.4
	62.3	64.8	58.5
	63.9	67.0	58.9
22:45-23:00	62.5	64.7	58.0
	62.0	64.4	58.0
	63.7	65.8	58.2
Average	63.5	65.9	59.5

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

Time Slot	Laeq, 5min	L10	L90
0700-07:15	62.1	65.3	56.4
	60.6	62.8	56.5
	61.4	63.4	56.4
07:15-07:30	61.9	64.4	57.1
	62.8	66.5	56.5
	61.7	63.9	57.2
07:30-07:45	61.5	64.5	56.8
	62.2	65.0	57.4
	62.1	64.0	57.6
07:45-08:00	62.4	65.7	57.5
	62.0	64.1	57.7
	61.2	62.5	57.3
08:00-08:15	62.2	65.2	57.4
	62.5	64.7	57.7
	62.2	64.4	57.7
08:15-08:30	62.3	64.7	58.0
	62.4	63.6	57.9

Time Slot	Laeq, 5min	L10	L90
	62.2	64.9	58.8
08:30-08:45	61.6	64.1	58.2
	62.9	65.3	59.1
	63.5	66.4	59.6
08:45-09:00	64.5	66.4	59.2
	61.5	63.4	58.4
	63.1	65.0	58.9
09:00-09:15	62.4	64.9	59.0
	64.2	67.0	59.2
	62.9	65.2	59.1
09:15-09:30	63.7	66.5	59.7
	63.2	66.0	58.8
	63.7	66.4	59.6
09:30-09:45	64.5	67.4	59.4
	64.3	66.5	60.2
	63.7	65.8	60.0
09:45-10:00	63.7	65.7	59.9
	64.7	67.8	59.9
	64.6	67.3	59.8
10:00-10:15	61.7	63.7	59.0
	63.2	65.7	59.9
	63.9	66.0	60.3
10:15-10:30	64.0	66.1	60.4
	63.9	66.2	60.0
	63.5	65.7	60.0
10:30-10:45	63.6	66.2	59.6
	63.6	66.3	59.8
	63.6	65.4	60.2
10:45-11:00	64.3	67.4	60.1
	64.9	67.6	60.2
	64.0	66.0	60.6
11:00-11:15	63.4	65.8	59.9
	63.1	65.1	59.4
	63.4	65.9	59.7
11:15-11:30	63.5	66.1	60.0
	64.6	67.6	60.0

Time Slot	Laeq, 5min	L10	L90
	63.7	66.0	59.3
11:30-11:45	63.5	65.7	59.7
	63.1	65.4	59.6
	63.9	66.6	60.1
11:45-12:00	63.9	65.7	59.9
	63.3	65.5	59.5
	65.7	69.4	58.9
12:00-12:15	65.6	68.2	59.2
	64.8	68.3	59.7
	63.8	67.0	59.0
12:15-12:30	63.4	65.7	59.8
	63.1	65.1	59.4
	63.3	65.6	59.3
12:30-12:45	63.8	66.0	60.0
	63.8	66.4	59.7
	63.9	66.3	60.5
12:45-13:00	65.6	69.7	59.4
	64.7	68.5	59.3
	64.7	65.8	59.7
13:00-13:15	63.7	66.6	59.4
	65.7	69.5	60.6
	66.3	70.4	60.6
13:15-13:30	67.0	71.6	60.2
	65.1	68.6	59.5
	64.0	66.9	60.0
13:30-13:45	64.4	67.0	59.7
	63.8	66.2	60.0
	63.6	65.4	60.1
13:45-14:00	64.0	66.0	60.7
	64.1	66.6	60.4
	65.6	67.1	59.3
14:00-14:15	65.9	69.5	59.8
	63.8	65.7	59.8
	64.3	67.2	59.9
14:15-14:30	63.7	66.4	60.1
	63.8	65.9	60.4

Time Slot	Laeq, 5min	L10	L90
	63.5	65.7	60.1
14:30-14:45	62.9	64.9	59.5
	62.6	64.3	59.1
	63.9	67.1	59.6
14:45-15:00	63.8	65.3	59.8
	64.0	66.5	59.7
	64.5	67.0	60.1
15:00-15:15	63.9	65.9	60.3
	63.2	65.9	59.7
	63.3	65.9	59.7
15:15-15:30	63.5	65.5	60.2
	64.4	67.0	60.2
	62.7	64.7	59.2
15:30-15:45	63.7	66.2	59.7
	63.8	65.9	60.2
	63.8	66.0	60.1
15:45-16:00	63.5	65.8	59.9
	63.4	65.4	59.8
	63.7	66.0	59.9
16:00-16:15	64.3	66.7	60.0
	63.3	65.8	59.7
	64.1	66.8	60.6
16:15-16:30	63.0	65.7	59.7
	64.9	67.5	60.0
	64.1	66.3	60.3
16:30-16:45	64.0	66.6	60.2
	64.2	67.0	60.5
	64.6	66.8	59.9
16:45-17:00	63.7	66.6	60.0
	63.9	65.8	59.7
	64.2	66.7	60.2
17:00-17:15	63.2	64.9	60.3
	64.1	66.7	60.4
	63.7	65.7	60.8
17:15-17:30	62.9	64.8	60.0
	64.3	66.0	60.5

Time Slot	Laeq, 5min	L10	L90
	63.2	65.8	60.3
17:30-17:45	64.2	66.4	60.7
	63.3	65.9	60.2
	63.6	65.8	60.4
17:45-18:00	63.5	65.8	59.9
	63.7	65.7	59.7
	63.1	65.0	60.1
18:00-18:15	63.3	65.3	60.1
	63.4	65.4	60.6
	65.7	67.9	60.8
18:15-18:30	63.3	65.1	60.5
	63.7	66.2	60.1
	63.5	65.5	60.2
18:30-18:45	63.9	66.2	60.1
	63.0	65.2	59.5
	63.4	66.0	59.6
18:45-19:00	62.2	64.2	59.3
	63.5	66.6	59.7
	62.4	64.4	58.6
19:00-19:15	62.1	64.0	59.2
	64.1	66.4	59.5
	62.8	64.9	59.6
19:15-19:30	63.2	65.2	59.1
	63.6	66.0	59.4
	65.3	65.4	58.9
19:30-19:45	64.2	65.8	59.6
	63.6	65.7	59.5
	62.5	64.6	58.7
19:45-20:00	62.5	65.0	58.9
	62.9	65.2	58.7
	63.4	65.8	58.9
20:00-20:15	61.8	63.8	58.5
	64.1	67.1	59.0
	62.0	64.2	58.8
20:15-20:30	62.7	64.7	58.9
	62.5	65.0	58.7

Time Slot	Laeq, 5min	L10	L90
	62.1	64.0	59.1
20:30-20:45	63.3	65.3	59.5
	62.5	64.9	58.9
	62.4	64.0	58.7
20:45-21:00	62.0	64.1	59.0
	62.9	65.6	58.5
	61.6	63.9	57.9
21:00-21:15	63.3	66.3	58.6
	62.4	64.8	58.7
	63.0	64.8	58.5
21:15-21:30	61.4	63.5	58.1
	63.1	65.8	58.7
	62.2	63.6	58.4
21:30-21:45	62.8	64.6	58.6
	62.7	64.5	59.0
	62.2	64.0	58.6
21:45-22:00	61.9	64.4	58.2
	62.1	64.3	58.3
	62.2	64.0	58.2
22:00-22:15	61.2	63.3	57.6
	63.3	65.9	58.4
	61.6	63.8	57.7
22:15-22:30	61.6	63.8	58.0
	62.5	64.8	58.0
	62.8	65.5	57.6
22:30-22:45	63.4	65.5	58.1
	62.5	64.8	58.5
	63.5	66.4	58.6
22:45-23:00	61.6	64.2	58.2
	63.3	65.6	58.5
	62.3	64.6	58.3
Average	63.5	66.0	59.4

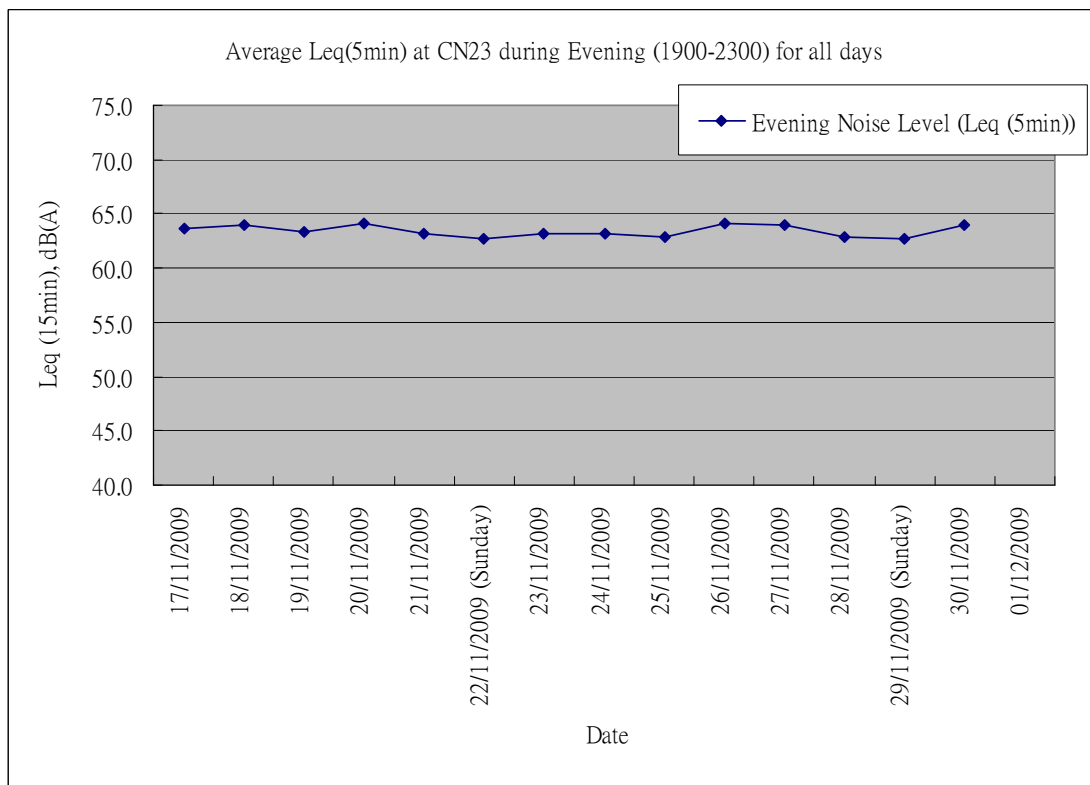
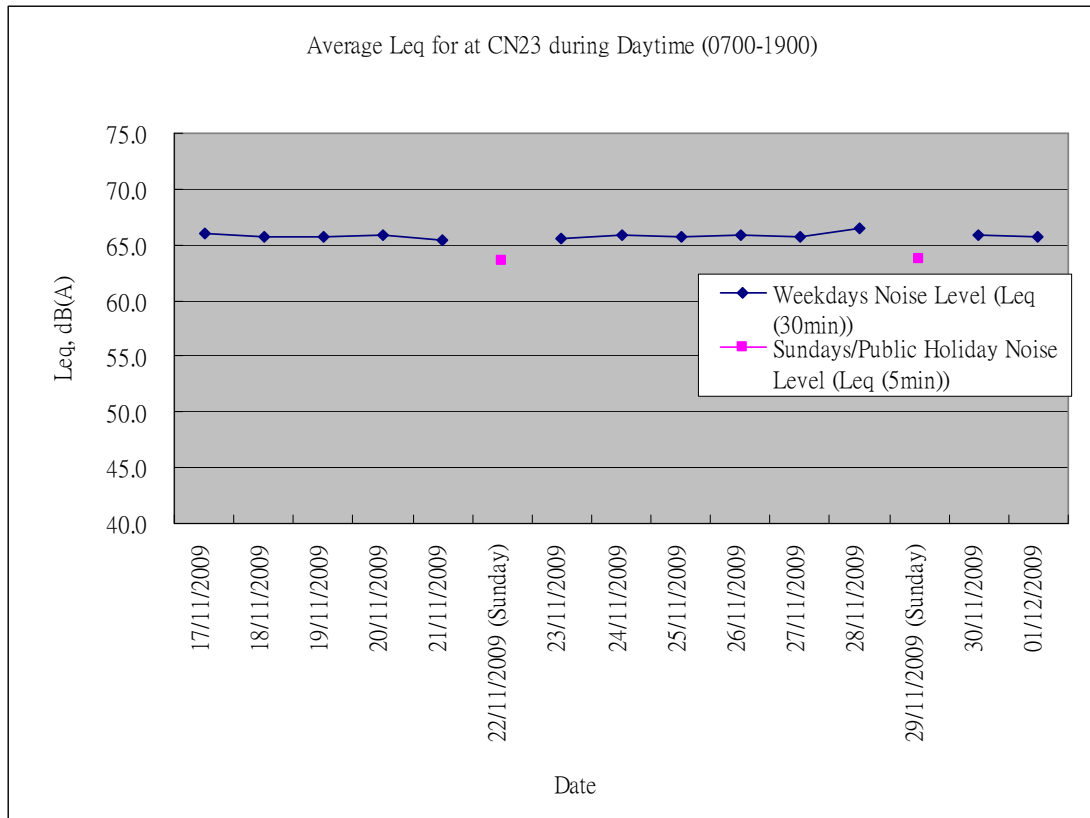
4) Night-time (for all days) Noise Level, dB(A)

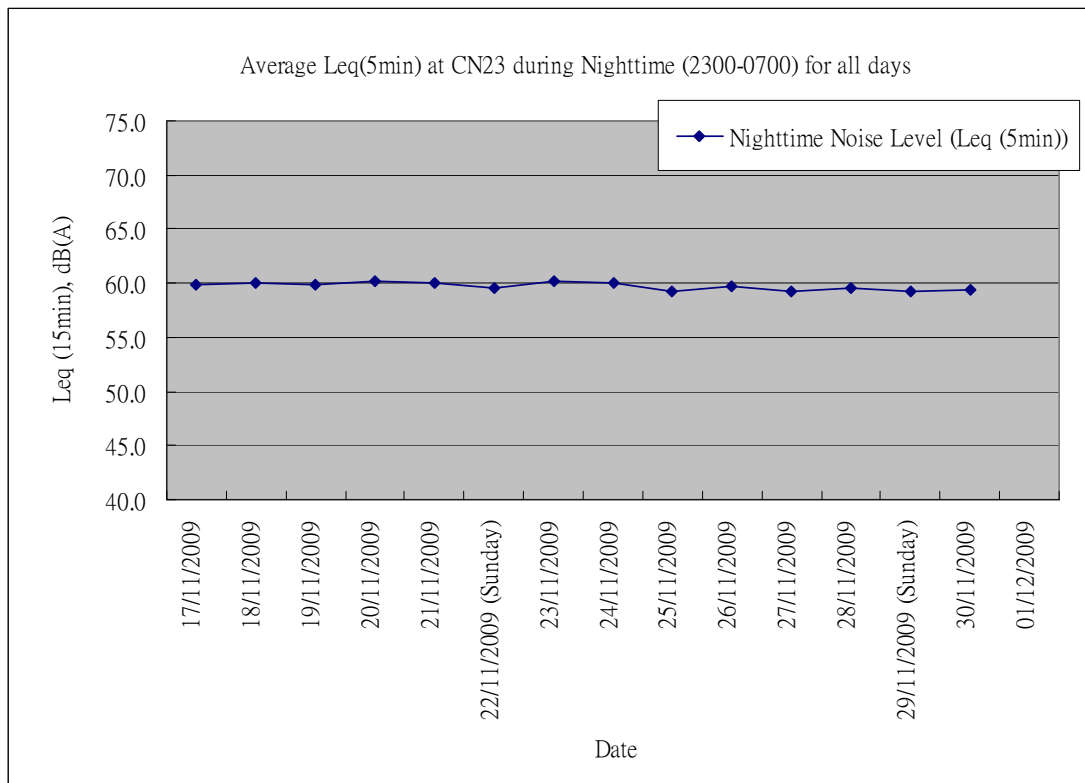
Time Slot	Laeq, 5min	L10	L90
23:00-23:15	62.0	64.5	57.9
	62.9	65.1	58.0
	62.6	65.3	58.2
23:15-23:30	62.6	65.3	58.1
	62.8	65.5	58.2
	62.7	65.3	58.0
23:30-23:45	62.6	65.1	57.9
	61.7	63.9	57.4
	62.7	65.5	57.9
23:45-00:00	63.1	65.3	57.4
	61.6	63.7	57.0
	62.1	64.1	57.3
00:00-00:15	61.8	64.4	57.2
	61.6	64.1	57.2
	61.9	64.4	57.0
00:15-00:30	62.0	64.7	56.8
	61.2	63.8	56.4
	60.7	63.0	56.1
00:30-00:45	60.3	62.7	56.0
	59.6	62.0	55.8
	59.2	61.5	55.5
00:45:01:00	59.5	61.9	55.5
	59.6	62.2	55.1
	59.4	61.4	54.8
01:00-01:15	58.2	60.8	54.5
	58.5	60.9	54.6
	58.5	60.9	54.2
01:15-01:30	58.1	60.6	54.2
	58.3	60.9	54.1
	57.7	60.3	54.0
01:30-01:45	59.2	61.3	54.2
	57.9	60.5	53.7
	57.6	60.1	53.8
01:45-02:00	59.0	60.6	53.8

Time Slot	Laeq, 5min	L10	L90
	57.9	60.6	54.0
	57.7	60.4	53.6
02:00-02:15	58.6	60.8	53.5
	57.2	59.6	53.2
	58.2	60.7	53.9
02:15-02:30	57.5	60.1	53.5
	58.1	60.7	53.5
	57.6	60.4	53.3
02:30-02:45	56.9	59.7	53.1
	57.4	60.2	53.2
	57.9	60.7	53.2
02:45-03:00	58.0	60.6	53.0
	57.1	59.9	52.9
	57.1	59.8	52.6
03:00-03:15	59.6	60.2	52.4
	57.6	60.1	52.6
	57.1	59.8	52.3
03:15-03:30	57.1	59.9	52.2
	57.3	59.9	52.5
	56.7	59.4	52.4
03:30-03:45	57.2	59.8	52.8
	57.4	60.1	52.4
	56.9	59.5	52.3
03:45-04:00	56.5	59.2	52.0
	56.4	59.2	51.8
	56.3	59.1	51.8
04:00-04:15	57.2	59.5	52.1
	56.4	59.2	52.3
	56.6	59.5	52.3
04:15-04:30	56.8	59.6	52.3
	56.9	59.5	52.3
	57.0	59.5	52.6
04:30-04:45	56.7	59.3	52.6
	57.1	59.9	52.7
	56.8	59.3	52.6
04:45-05:00	56.7	59.3	52.8

Time Slot	Laeq, 5min	L10	L90
	57.3	59.7	52.7
	57.2	59.6	53.1
05:00-05:15	56.5	59.0	52.9
	57.5	59.9	52.8
	57.3	59.8	53.2
05:15-05:30	57.1	59.7	53.0
	56.9	59.7	53.1
	57.9	60.8	53.9
05:30-05:45	58.1	60.6	53.5
	59.3	61.8	54.3
	59.5	61.3	54.3
05:45-06:00	58.1	60.7	54.0
	60.7	63.5	55.0
	59.9	62.6	54.7
06:00-06:15	59.4	61.9	54.6
	61.2	63.6	55.0
	59.8	62.5	55.1
06:15-06:30	60.5	63.3	55.6
	62.0	65.0	56.5
	62.7	64.9	56.9
06:30-06:45	61.4	64.0	56.7
	64.3	66.1	57.7
	63.1	66.0	58.0
06:45-07:00	62.5	65.2	57.7
	62.8	65.6	57.7
	62.7	65.4	58.0
Average	59.7	62.2	55.0

Log average was used





Baseline Noise Monitoring Result

Location: CN 24 St. Andrew Primary School

Baseline monitoring period: 17/11/2009-1/12/2009

Parameter: Leq

Time Slot Averaged Baselines

1) Weekdays Daytime Noise Level, dB(A)

Time slot	Leq, 30 min	L10	L90
07:00-07:30	64.4	66.0	60.9
07:30-08:00	65.9	67.9	63.1
08:00-08:30	68.5	71.6	64.7
08:30-09:00	67.4	70.2	64.1
09:00-09:30	66.1	67.8	63.4
09:30-10:00	66.3	68.0	63.7
10:00-10:30	67.1	68.9	64.4
10:30-11:00	66.8	68.6	64.0
11:00-11:30	66.7	68.5	64.0
11:30-12:00	66.0	67.9	63.3
12:00-12:30	66.3	68.1	63.6
12:30-13:00	66.3	68.3	63.5
13:00-13:30	69.5	71.4	66.5
13:30-14:00	66.8	68.9	63.9
14:00-14:30	66.2	68.1	63.4
14:30-15:00	68.2	70.6	65.0
15:00-15:30	67.0	68.8	64.4
15:30-16:00	67.0	68.6	64.7
16:00-16:30	66.2	67.9	63.4
16:30-17:00	67.1	68.5	63.4
17:00-17:30	66.6	68.8	62.8
17:30-18:00	65.7	67.4	62.5
18:00-18:30	65.0	66.3	62.0
18:30-19:00	64.7	65.9	61.5
Average	66.7	68.7	63.7

Noise Control Period Averaged Baselines

2) Weekdays Evening Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
19:00-19:15	63.5	65.4	61.0
	63.4	65.3	61.0
	63.5	65.6	61.0
19:15-19:30	63.4	65.4	60.9
	62.9	64.7	60.6
	63.1	65.0	60.7
19:30-19:45	62.6	64.7	60.1
	62.9	64.9	60.3
	63.5	65.8	60.4
19:45-20:00	63.1	65.4	60.1
	62.6	64.7	60.0
	62.4	64.3	59.9
20:00-20:15	62.3	64.4	59.6
	62.5	64.7	59.8
	62.4	64.4	59.7
20:15-20:30	62.4	64.6	59.7
	62.4	64.6	59.3
	62.3	64.3	59.4
20:30-20:45	62.4	64.5	59.4
	62.4	64.5	59.4
	62.0	64.4	59.4
20:45-21:00	62.3	64.4	59.4
	62.3	64.4	59.6
	61.6	63.5	59.1
21:00-21:15	61.8	63.7	59.1
	61.9	63.9	59.1
	61.3	63.2	59.1
21:15-21:30	61.4	63.3	58.9
	61.8	63.8	59.1
	61.6	63.4	59.0
21:30-21:45	62.1	64.5	59.2
	62.1	63.9	59.4

Time Slot	Leq, 5min	L10	L90
	62.5	64.6	59.3
21:45-22:00	61.8	63.8	59.1
	62.1	64.3	59.3
	61.9	64.0	59.0
22:00-22:15	61.7	63.8	58.9
	61.7	63.6	59.1
	61.8	63.7	59.1
22:15-22:30	61.1	62.8	58.9
	61.5	63.5	58.9
	61.3	63.2	58.7
22:30-22:45	61.1	63.2	58.4
	61.2	63.4	58.5
	62.3	64.5	58.7
22:45-23:00	61.9	64.6	58.7
	61.6	64.1	58.5
	61.0	63.0	58.5
Average	62.2	64.3	59.5

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

Time Slot	Laeq, 5min	L10	L90
0700-07:15	59.3	61.7	55.8
	61.0	63.7	56.5
	61.0	63.3	57.1
07:15-07:30	61.2	64.4	57.4
	59.8	61.9	57.1
	60.5	62.5	57.3
07:30-07:45	60.1	61.7	57.6
	61.5	64.5	57.9
	60.5	62.4	57.9
07:45-08:00	60.8	62.9	58.4
	61.4	63.6	58.7
	61.5	63.6	57.9
08:00-08:15	61.7	63.9	58.7
	61.6	64.2	57.9
	61.4	64.0	58.3

Time Slot	Laeq, 5min	L10	L90
08:15-08:30	61.8	64.1	58.6
	61.8	63.9	58.3
	62.3	64.6	59.2
08:30-08:45	61.7	64.1	58.7
	62.3	64.6	59.4
	61.8	63.8	59.1
08:45-09:00	62.5	65.0	59.2
	62.3	64.0	59.1
	61.4	63.5	58.5
09:00-09:15	61.3	63.7	58.3
	62.1	64.3	59.2
	62.2	64.4	59.5
09:15-09:30	61.7	64.3	58.8
	61.0	63.3	58.3
	61.4	63.5	58.5
09:30-09:45	62.0	64.1	58.7
	61.5	63.4	59.3
	61.7	63.6	59.0
09:45-10:00	61.8	63.8	59.5
	62.3	64.8	58.7
	61.2	63.4	58.4
10:00-10:15	61.3	63.8	58.4
	61.6	64.2	58.7
	61.8	64.1	58.9
10:15-10:30	62.2	64.5	59.3
	61.7	63.7	59.1
	63.2	65.8	59.9
10:30-10:45	61.2	63.2	58.4
	61.2	62.9	58.0
	61.9	64.1	58.8
10:45-11:00	62.3	64.6	58.7
	61.9	64.0	59.3
	62.5	64.4	60.0
11:00-11:15	61.5	63.6	59.2
	62.3	64.4	59.6
	62.1	64.8	59.1

Time Slot	Laeq, 5min	L10	L90
11:15-11:30	61.9	64.0	59.3
	62.2	63.8	59.1
	62.3	64.3	59.4
11:30-11:45	61.6	63.3	59.0
	62.4	64.5	59.2
	61.2	63.2	58.6
11:45-12:00	62.2	64.8	59.2
	63.3	65.7	60.0
	62.5	64.6	59.7
12:00-12:15	62.7	65.0	59.8
	65.4	68.4	60.1
	63.4	65.5	60.3
12:15-12:30	62.3	64.4	60.0
	62.1	63.8	59.4
	62.1	64.1	59.4
12:30-12:45	61.6	63.8	58.9
	62.2	63.6	58.9
	62.6	64.5	59.8
12:45-13:00	62.4	64.5	58.7
	61.4	63.0	59.0
	62.5	64.1	59.4
13:00-13:15	62.1	64.4	59.3
	62.9	65.1	59.9
	62.6	64.8	59.9
13:15-13:30	63.2	65.1	60.2
	62.8	65.0	60.3
	62.9	64.7	60.8
13:30-13:45	63.1	64.6	59.9
	62.5	64.1	60.5
	62.2	63.8	60.1
13:45-14:00	63.2	65.0	60.1
	62.7	65.0	59.7
	62.4	64.6	58.9
14:00-14:15	61.7	63.6	59.3
	62.3	63.7	60.0
	61.2	62.8	59.1

Time Slot	Laeq, 5min	L10	L90
14:15-14:30	62.0	64.1	59.4
	61.9	63.7	59.6
	62.5	64.4	59.9
14:30-14:45	61.8	63.7	59.4
	62.0	63.8	59.4
	62.5	64.4	60.2
14:45-15:00	62.2	64.0	59.8
	63.3	65.4	60.1
	63.0	64.7	60.0
15:00-15:15	62.0	64.0	59.8
	62.1	64.2	59.3
	62.0	63.8	59.6
15:15-15:30	62.9	65.2	60.2
	62.2	64.1	60.0
	61.9	64.2	59.4
15:30-15:45	61.3	63.3	58.7
	61.7	63.8	59.0
	61.2	63.1	58.6
15:45-16:00	61.9	63.7	59.2
	61.4	63.4	58.2
	61.9	64.2	58.8
16:00-16:15	61.5	63.6	58.8
	62.3	64.9	59.2
	62.4	64.3	59.8
16:15-16:30	62.0	64.1	59.1
	62.2	64.1	59.4
	62.0	64.3	59.1
16:30-16:45	61.7	64.0	59.0
	62.4	64.6	59.4
	63.0	65.2	60.2
16:45-17:00	62.3	64.4	59.6
	62.5	64.9	58.9
	61.8	63.9	59.3
17:00-17:15	61.9	63.9	59.1
	62.4	64.4	59.6
	62.6	64.8	59.6

Time Slot	Laeq, 5min	L10	L90
17:15-17:30	62.4	64.6	59.8
	62.2	64.6	59.5
	61.8	63.8	59.5
17:30-17:45	61.9	63.9	59.3
	61.6	63.4	59.6
	61.9	63.2	59.2
17:45-18:00	61.3	63.1	59.2
	61.4	63.2	59.3
	62.3	64.6	59.5
18:00-18:15	61.7	63.8	59.4
	62.1	64.0	59.6
	61.8	63.7	59.5
18:15-18:30	61.8	63.0	59.9
	61.3	62.9	59.6
	62.5	64.0	59.6
18:30-18:45	62.0	63.3	59.4
	61.7	64.0	59.0
	61.4	63.1	59.3
18:45-19:00	61.7	63.6	59.0
	61.2	63.0	58.8
	61.8	63.8	59.1
19:00-19:15	61.3	62.9	59.4
	61.9	63.7	59.3
	61.5	63.1	59.2
19:15-19:30	61.2	63.0	59.0
	61.7	63.9	58.4
	60.9	63.3	58.3
19:30-19:45	61.9	63.9	59.0
	61.9	64.2	58.8
	60.7	62.4	58.3
19:45-20:00	61.5	63.7	58.6
	61.6	63.5	58.7
	61.5	63.9	58.7
20:00-20:15	60.7	62.3	58.5
	60.3	62.4	57.7
	59.9	61.8	57.7

Time Slot	Laeq, 5min	L10	L90
20:15-20:30	60.5	62.5	57.8
	60.6	63.1	58.0
	61.0	62.9	58.5
20:30-20:45	60.5	62.4	58.5
	60.7	62.5	58.9
	61.2	62.6	58.2
20:45-21:00	61.1	63.1	58.6
	60.5	62.2	58.2
	61.1	63.0	58.8
21:00-21:15	60.5	62.1	58.1
	60.6	62.1	57.4
	60.3	62.1	58.2
21:15-21:30	59.7	61.4	57.3
	60.6	62.8	58.3
	61.3	63.1	58.8
21:30-21:45	61.0	63.1	58.2
	61.0	63.2	58.1
	61.6	64.1	58.5
21:45-22:00	61.5	63.7	58.6
	61.3	63.6	57.7
	61.4	63.8	58.9
22:00-22:15	60.3	61.6	57.6
	60.5	62.2	57.7
	61.0	62.7	58.2
22:15-22:30	60.3	62.1	58.0
	61.4	63.7	58.0
	59.6	61.5	57.5
22:30-22:45	60.4	62.8	56.9
	60.2	62.1	57.7
	60.5	63.1	57.3
22:45-23:00	61.2	63.7	58.0
	60.4	62.5	57.6
	61.9	64.3	58.8
Average	61.8	63.8	59.0

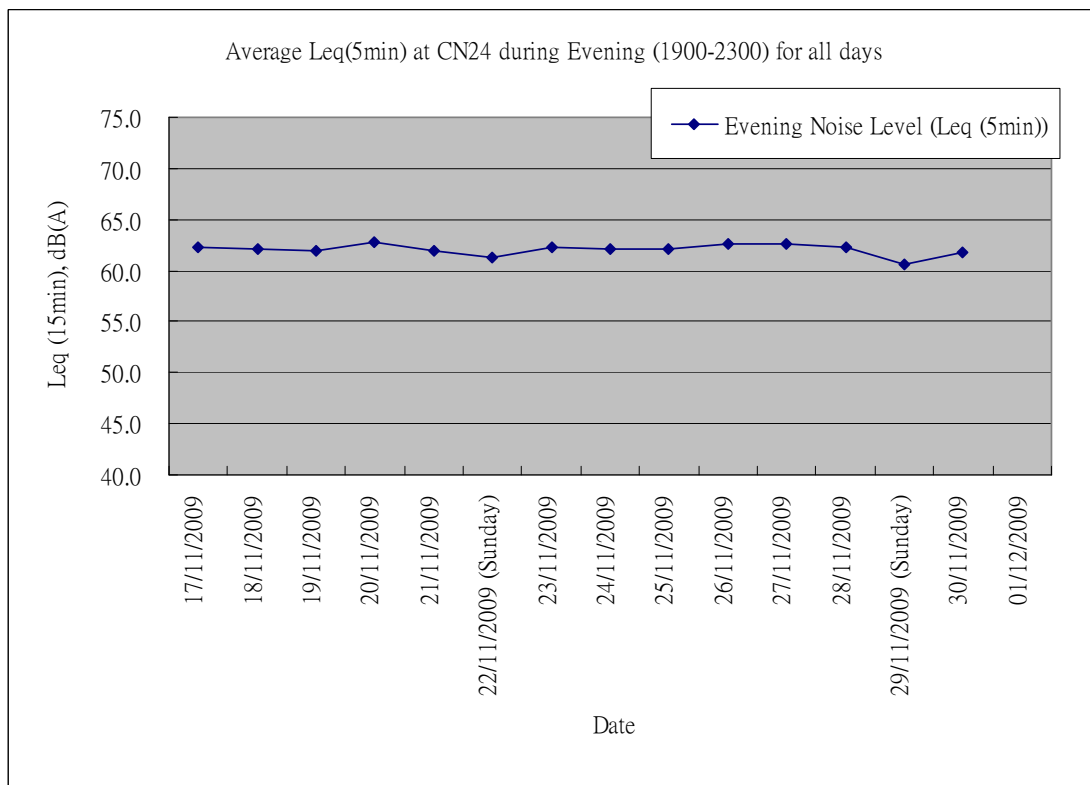
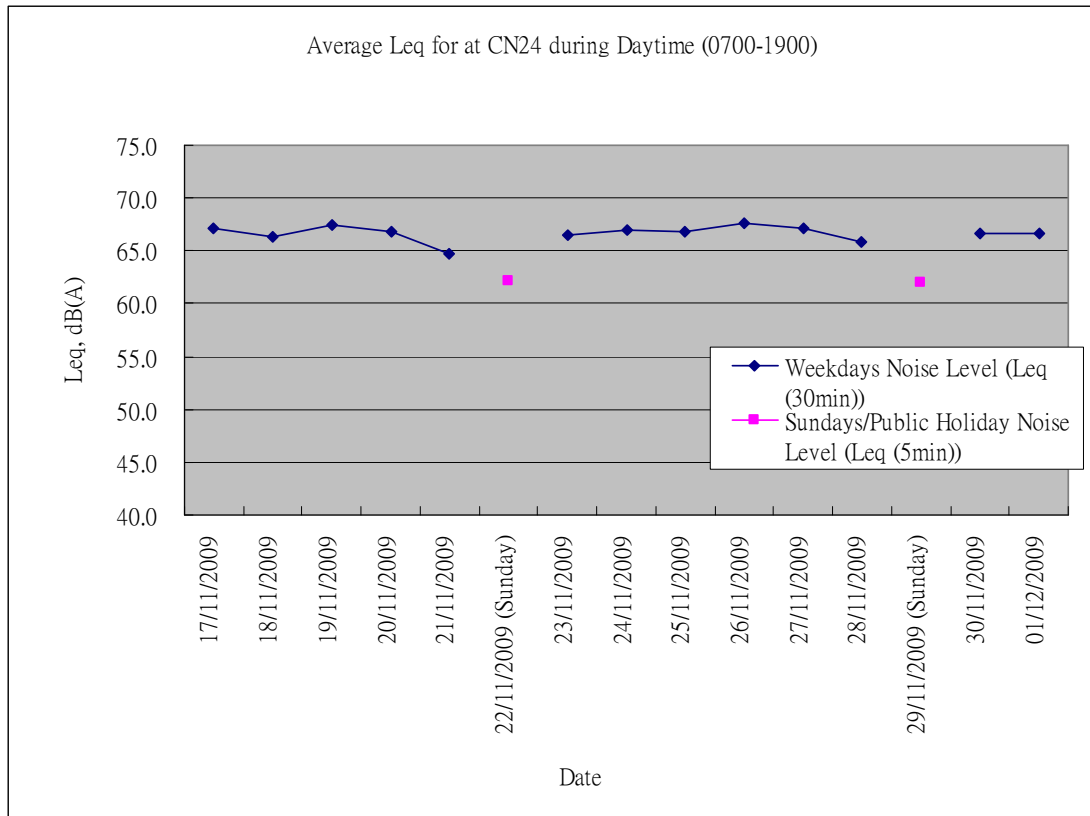
4) Night-time (for all days) Noise Level, dB(A)

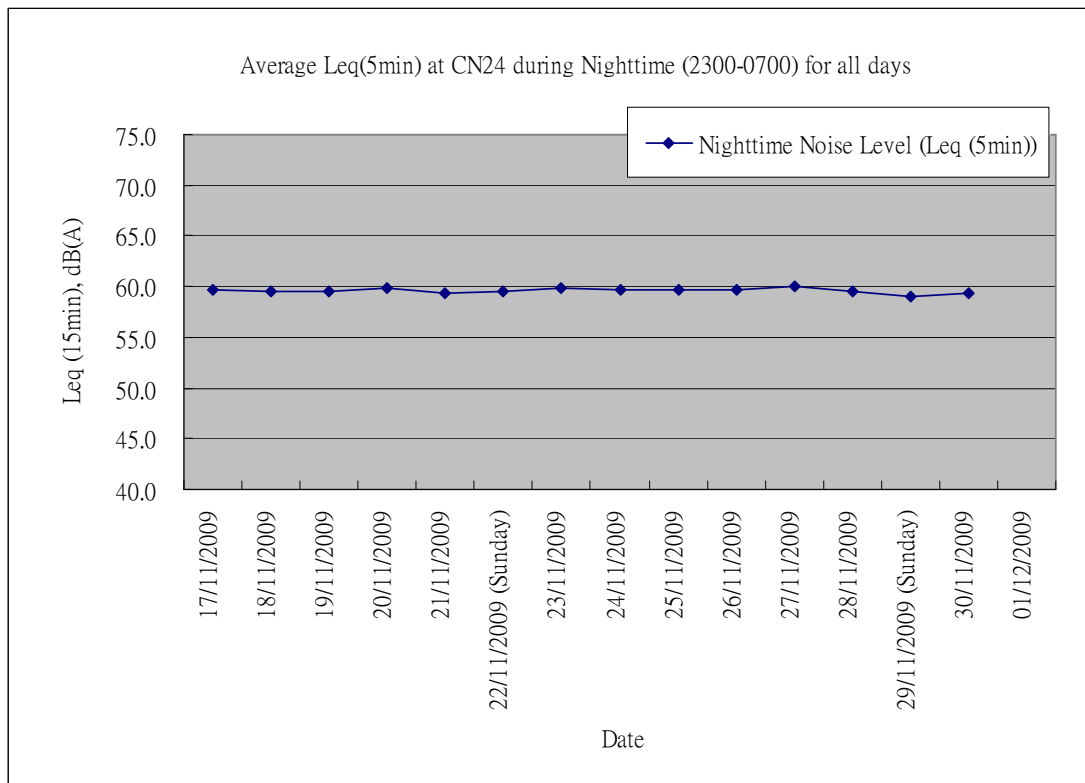
Time Slot	Laeq, 5min	L10	L90
23:00-23:15	61.1	63.2	58.2
	61.0	63.2	58.2
	61.3	63.6	58.4
23:15-23:30	60.9	63.0	58.1
	61.0	63.4	57.9
	61.6	64.0	58.1
23:30-23:45	61.3	63.9	58.2
	62.1	65.0	58.5
	61.7	64.5	58.4
23:45-00:00	61.1	63.4	58.0
	61.8	64.5	58.0
	62.7	65.9	58.5
00:00-00:15	62.2	65.2	58.0
	63.0	66.6	58.2
	63.2	66.8	57.9
00:15-00:30	62.8	66.5	57.9
	62.5	66.0	57.5
	62.5	66.1	57.4
00:30-00:45	63.2	67.2	57.5
	62.7	66.4	57.3
	62.3	66.5	56.8
00:45:01:00	61.8	65.7	56.5
	61.6	65.5	56.5
	60.9	64.6	55.9
01:00-01:15	58.8	61.5	54.6
	59.5	62.4	54.4
	58.7	61.2	54.7
01:15-01:30	57.9	60.2	54.2
	57.5	59.3	53.7
	57.5	59.6	53.6
01:30-01:45	58.2	61.2	53.7
	57.7	60.2	54.0
	56.8	59.1	53.3

Time Slot	Laeq, 5min	L10	L90
01:45-02:00	56.7	59.2	53.0
	56.6	58.8	53.1
	56.8	59.2	53.2
02:00-02:15	57.5	59.7	53.6
	57.1	59.1	53.0
	56.7	58.9	53.2
02:15-02:30	56.5	58.9	53.0
	56.4	58.3	52.6
	56.3	58.4	52.4
02:30-02:45	55.9	57.9	52.2
	57.0	59.2	52.8
	56.0	58.0	52.6
02:45-03:00	55.4	57.7	52.0
	55.8	58.3	52.1
	55.3	57.3	51.7
03:00-03:15	55.4	57.3	51.8
	56.9	58.9	51.7
	55.7	57.6	51.7
03:15-03:30	55.2	57.5	51.4
	55.4	57.9	51.6
	55.2	57.6	51.8
03:30-03:45	55.6	57.7	52.2
	57.4	59.6	52.3
	55.4	57.8	51.8
03:45-04:00	55.9	57.7	52.0
	55.5	57.6	51.8
	56.1	58.4	51.9
04:00-04:15	55.0	57.4	51.7
	57.4	58.9	51.7
	54.8	57.1	51.5
04:15-04:30	56.2	58.7	51.9
	56.6	58.7	52.1
	56.4	58.3	52.1
04:30-04:45	56.7	59.2	52.5
	57.4	59.4	52.1
	57.2	58.8	51.9

Time Slot	Laeq, 5min	L10	L90
04:45-05:00	57.1	59.7	52.6
	58.0	60.7	52.9
	58.6	61.0	53.6
05:00-05:15	60.2	63.3	54.2
	60.1	63.7	54.4
	58.2	60.8	54.2
05:15-05:30	59.1	61.7	53.4
	58.3	61.0	54.1
	58.7	61.5	54.1
05:30-05:45	59.3	61.8	54.4
	60.0	62.9	55.3
	59.2	61.8	55.2
05:45-06:00	59.7	62.8	55.0
	61.3	64.1	55.4
	60.9	63.8	56.6
06:00-06:15	59.5	62.3	55.6
	61.2	63.8	56.4
	59.5	61.8	56.2
06:15-06:30	60.4	62.9	56.5
	60.5	63.0	57.2
	60.5	63.0	57.2
06:30-06:45	60.6	63.2	56.8
	61.9	64.5	58.1
	61.8	64.1	58.5
06:45-07:00	62.2	64.8	58.9
	62.5	65.0	58.9
	62.6	65.2	59.4
Average	59.6	62.5	55.5

Log average was used





Baseline Noise Monitoring Result

Location: CN 25 St. Mary's Church Mok Hing Yiu College

Baseline monitoring period: 11/06/2010-24/06/2010

Parameter: Leq

Time Slot Averaged Baselines

1) Weekdays Daytime Noise

Level, dB(A)

Time slot	Leq, 30 min	L10	L90
07:00-07:30	67.4	70.1	62.9
07:30-08:00	68.3	71.0	64.2
08:00-08:30	68.5	71.0	64.9
08:30-09:00	69.2	71.7	65.7
09:00-09:30	68.9	71.4	65.4
09:30-10:00	68.5	71.0	65.0
10:00-10:30	68.4	70.8	64.9
10:30-11:00	68.5	71.0	64.7
11:00-11:30	68.7	71.2	64.9
11:30-12:00	68.2	70.8	64.3
12:00-12:30	67.6	70.3	63.5
12:30-13:00	67.9	70.5	63.7
13:00-13:30	68.2	70.8	64.3
13:30-14:00	68.3	70.8	64.5
14:00-14:30	68.5	71.1	64.7
14:30-15:00	68.5	71.1	64.7
15:00-15:30	68.3	71.0	64.4
15:30-16:00	68.5	71.4	64.1
16:00-16:30	68.5	71.2	64.5
16:30-17:00	68.5	71.0	64.7
17:00-17:30	68.3	71.1	64.2
17:30-18:00	68.0	70.7	63.5
18:00-18:30	67.7	70.2	63.7
18:30-19:00	67.4	70.1	63.2
Average	68.3	70.9	64.4

Noise Control Period Averaged Baselines

2) Weekdays Evening Noise Level, dB(A)

Time Slot	Laeq, 5min	L10	L90
19:00-19:15	66.8	69.4	62.6
	66.8	69.3	62.8
	66.7	69.5	62.5
19:15-19:30	66.0	68.4	62.2
	66.7	69.5	62.6
	66.8	69.5	62.6
19:30-19:45	68.0	70.8	63.5
	67.5	70.2	63.3
	67.4	70.3	62.7
19:45-20:00	67.7	70.5	62.8
	67.2	69.7	62.4
	67.1	69.7	62.8
20:00-20:15	67.4	70.4	62.6
	66.9	69.8	62.2
	66.5	69.2	62.2
20:15-20:30	66.2	68.6	62.0
	66.8	69.6	62.7
	66.6	69.5	62.0
20:30-20:45	66.5	69.4	62.2
	66.6	69.6	62.0
	66.3	69.2	61.7
20:45-21:00	66.3	69.2	61.7
	65.6	68.4	61.7
	65.7	68.6	61.7
21:00-21:15	65.8	68.5	61.7
	66.5	69.1	61.8
	66.2	69.1	61.8
21:15-21:30	65.9	68.5	61.7
	66.2	69.2	61.6
	66.0	68.6	62.1
21:30-21:45	65.5	68.4	61.0
	64.8	67.4	60.9

Time Slot	Laeq, 5min	L10	L90
	64.1	66.6	60.6
21:45-22:00	65.0	67.8	60.8
	65.5	68.5	61.2
	64.8	67.6	60.9
22:00-22:15	64.2	66.7	60.4
	64.9	67.6	60.6
	65.8	68.6	61.1
22:15-22:30	65.5	67.8	60.6
	67.5	71.0	60.5
	67.3	70.0	62.7
22:30-22:45	65.1	67.9	60.9
	65.3	68.5	60.6
	66.1	69.0	61.1
22:45-23:00	66.5	69.4	60.9
	66.7	69.4	61.5
	65.4	68.4	60.6
Average	66.3	69.1	61.8

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

Time Slot	Laeq, 5min	L10	L90
0700-07:15	63.3	66.7	58.5
	64.7	67.7	59.7
	63.8	66.9	59.3
07:15-07:30	63.9	66.8	59.0
	63.9	66.9	59.2
	63.6	66.8	59.5
07:30-07:45	64.0	66.8	59.6
	64.2	67.0	59.9
	64.1	66.8	60.1
07:45-08:00	64.8	68.0	59.8
	64.4	67.1	60.2
	63.7	66.4	60.1
08:00-08:15	65.3	68.0	60.9
	65.6	68.8	60.4

Time Slot	Laeq, 5min	L10	L90
	64.5	67.3	60.7
08:15-08:30	64.8	67.2	60.8
	64.9	67.3	60.5
	65.5	68.7	60.8
08:30-08:45	64.8	68.0	60.4
	64.5	67.3	60.8
	64.4	67.1	60.8
08:45-09:00	66.5	68.9	62.1
	64.9	67.4	60.7
	66.3	69.2	60.7
09:00-09:15	65.0	67.5	61.4
	65.5	68.4	60.5
	65.9	68.3	61.8
09:15-09:30	65.2	68.0	61.4
	64.7	67.4	60.5
	64.4	66.9	60.7
09:30-09:45	69.9	71.0	61.4
	65.6	68.4	61.3
	64.9	67.4	61.2
09:45-10:00	65.1	67.9	61.1
	65.2	67.7	61.4
	65.8	68.4	61.7
10:00-10:15	65.8	68.5	61.1
	65.2	67.8	61.3
	65.8	68.6	61.6
10:15-10:30	65.5	68.5	61.6
	65.3	68.1	61.4
	66.1	69.0	61.2
10:30-10:45	65.5	68.1	61.9
	65.5	68.3	61.6
	65.3	67.6	61.4
10:45-11:00	65.5	68.3	61.8
	65.5	67.7	61.5
	64.3	66.9	60.8
11:00-11:15	64.3	67.3	60.5
	65.0	67.4	61.5

Time Slot	Laeq, 5min	L10	L90
	65.7	68.4	61.5
11:15-11:30	64.5	67.0	61.5
	66.4	69.2	61.6
	65.0	67.5	61.1
11:30-11:45	64.7	66.8	61.9
	65.4	68.1	61.4
	66.3	68.6	61.8
11:45-12:00	66.0	68.3	61.7
	65.9	68.8	61.7
	66.2	68.6	62.4
12:00-12:15	65.0	67.5	61.5
	66.2	69.1	61.6
	64.6	67.3	60.7
12:15-12:30	64.6	66.8	61.5
	66.3	68.9	62.1
	65.7	68.3	61.6
12:30-12:45	65.8	68.3	61.8
	65.5	68.1	61.9
	65.5	68.0	61.5
12:45-13:00	67.6	70.3	61.4
	65.3	67.9	61.4
	65.4	68.5	61.3
13:00-13:15	65.1	67.6	61.1
	65.0	67.6	61.6
	65.1	67.8	61.8
13:15-13:30	65.4	68.1	61.6
	66.1	69.1	62.1
	64.9	67.4	61.1
13:30-13:45	65.6	68.5	61.5
	66.4	69.2	61.7
	65.1	67.8	61.5
13:45-14:00	65.3	68.4	61.2
	65.8	68.5	61.3
	66.0	68.9	61.5
14:00-14:15	65.2	68.0	61.3
	65.5	68.5	61.6

Time Slot	Laeq, 5min	L10	L90
	65.7	68.7	61.4
14:15-14:30	65.7	68.3	61.7
	65.7	68.1	61.4
	64.6	67.4	60.7
14:30-14:45	64.7	66.9	61.7
	66.6	69.8	61.9
	64.9	67.5	61.2
14:45-15:00	65.0	67.9	60.8
	65.9	68.6	61.9
	64.6	67.1	61.0
15:00-15:15	64.9	67.3	61.2
	67.1	70.1	61.2
	65.8	67.4	61.2
15:15-15:30	65.0	67.8	61.3
	64.9	67.5	61.5
	64.8	67.9	60.8
15:30-15:45	65.3	68.1	61.3
	65.8	68.9	61.0
	65.5	68.0	61.3
15:45-16:00	64.8	67.6	61.0
	65.3	67.2	61.3
	65.5	68.0	61.3
16:00-16:15	65.1	67.6	61.4
	65.8	68.2	61.4
	64.7	67.5	61.1
16:15-16:30	65.1	67.8	61.5
	65.4	68.5	61.5
	65.5	68.2	61.7
16:30-16:45	65.2	68.2	61.0
	65.2	68.1	61.2
	65.0	67.2	61.4
16:45-17:00	64.8	67.4	61.1
	66.7	68.3	61.4
	65.3	68.0	61.5
17:00-17:15	64.5	67.0	61.1
	64.9	67.7	61.1

Time Slot	Laeq, 5min	L10	L90
	66.5	69.1	61.8
17:15-17:30	64.3	66.5	61.1
	65.2	68.1	61.2
	64.6	67.1	61.0
17:30-17:45	64.5	67.0	61.0
	64.8	67.2	61.1
	65.6	68.1	61.6
17:45-18:00	65.7	68.2	61.6
	64.3	66.4	60.9
	64.7	67.2	61.6
18:00-18:15	64.4	66.9	61.1
	65.3	68.2	61.3
	65.0	67.4	61.8
18:15-18:30	65.0	67.2	61.5
	64.9	67.8	61.2
	65.2	67.4	61.6
18:30-18:45	63.7	65.8	60.7
	65.0	67.6	61.1
	64.6	67.3	61.3
18:45-19:00	65.4	68.4	61.3
	64.4	66.7	61.3
	66.0	68.9	61.1
19:00-19:15	64.9	67.6	60.7
	64.9	67.3	60.6
	64.3	67.0	60.4
19:15-19:30	65.6	68.4	60.7
	64.3	67.0	60.2
	63.6	66.4	59.9
19:30-19:45	64.2	67.1	60.1
	64.4	67.7	59.9
	64.1	67.2	60.3
19:45-20:00	64.1	66.9	60.2
	63.6	66.2	59.5
	63.1	65.5	60.0
20:00-20:15	63.9	66.9	59.8
	63.3	65.5	60.0

Time Slot	Laeq, 5min	L10	L90
	64.6	67.8	59.8
20:15-20:30	63.5	66.4	60.0
	63.4	66.5	59.4
	63.0	65.8	59.5
20:30-20:45	63.4	65.6	60.0
	63.9	67.2	59.8
	63.0	65.7	59.8
20:45-21:00	63.8	66.4	60.3
	63.5	66.1	60.0
	63.9	66.8	60.2
21:00-21:15	64.0	66.5	60.5
	64.0	66.4	60.4
	64.3	66.9	60.7
21:15-21:30	63.4	66.0	60.0
	63.8	66.5	60.0
	63.6	66.3	60.0
21:30-21:45	64.0	66.0	60.6
	65.3	67.7	60.9
	64.0	66.4	60.8
21:45-22:00	63.9	66.6	60.5
	65.1	67.7	61.3
	65.2	67.5	61.0
22:00-22:15	63.9	66.9	60.0
	64.2	66.9	59.9
	65.3	68.0	61.1
22:15-22:30	65.2	67.9	60.5
	64.9	66.3	60.2
	64.2	67.5	59.8
22:30-22:45	62.7	65.8	59.0
	63.2	65.9	59.0
	66.0	67.9	59.6
22:45-23:00	64.7	68.2	59.3
	64.8	67.8	59.5
	64.0	66.9	59.6
Average	65.1	67.7	61.0

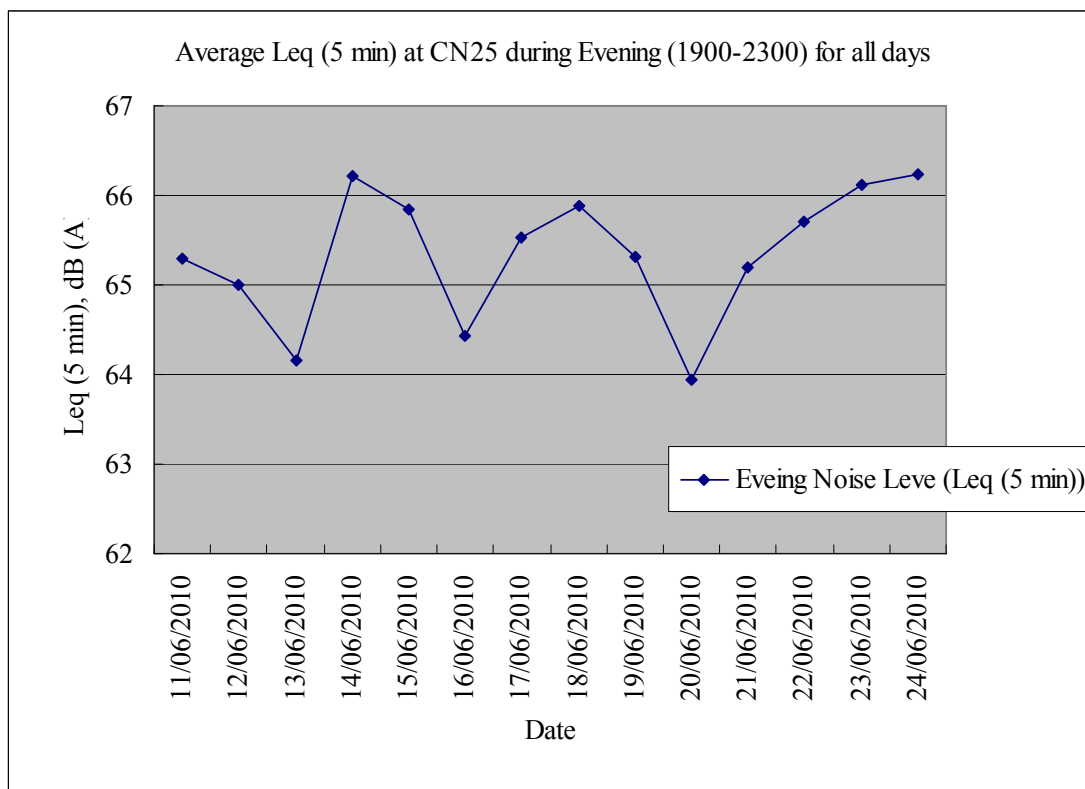
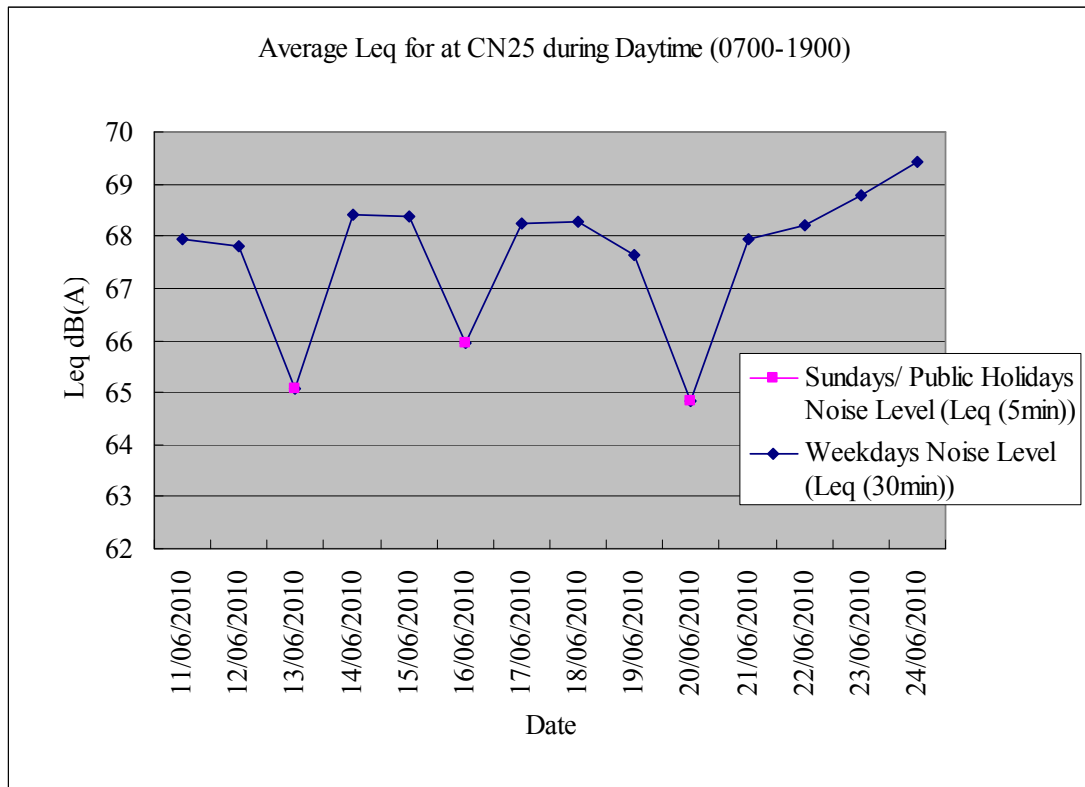
4) Night-time (for all days) Noise Level, dB(A)

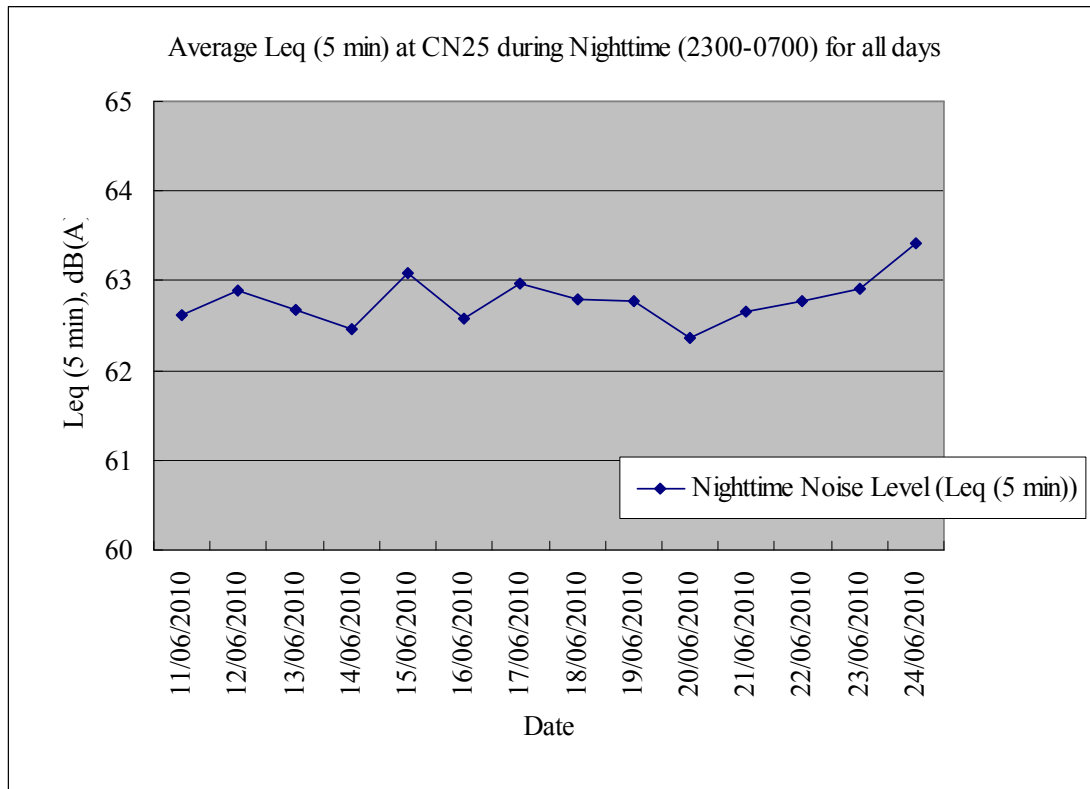
Time Slot	Laeq, 5min	L10	L90
23:00-23:15	65.3	68.4	59.4
	64.6	67.5	59.4
	64.4	67.2	59.2
23:15-23:30	64.1	67.1	59.0
	64.5	67.8	59.2
	64.3	67.6	58.8
23:30-23:45	64.1	67.3	59.0
	64.4	67.4	58.9
	64.9	68.2	59.3
23:45-00:00	65.6	69.0	59.5
	65.2	68.4	59.8
	66.2	70.2	59.3
00:00-00:15	66.6	70.3	60.3
	66.7	70.6	60.2
	67.2	70.5	60.7
00:15-00:30	67.4	71.1	60.3
	67.2	71.2	59.7
	67.2	70.8	60.2
00:30-00:45	67.3	70.9	60.6
	66.9	71.0	59.6
	66.9	70.7	59.7
00:45-01:00	67.0	70.8	60.2
	65.2	69.2	58.1
	64.6	67.7	57.6
01:00-01:15	63.7	66.9	56.8
	62.0	65.0	56.2
	63.3	66.9	56.4
01:15-01:30	62.4	65.7	55.9
	59.6	62.3	54.9
	60.3	63.4	55.1
01:30-01:45	61.5	65.3	55.6
	62.3	65.8	55.7
	60.8	64.0	54.5
01:45-02:00	59.5	62.3	54.5

Time Slot	Laeq, 5min	L10	L90
	60.3	63.4	54.9
	59.5	62.4	54.4
02:00-02:15	61.2	64.0	55.1
	61.0	62.9	54.8
	59.5	62.5	54.5
02:15-02:30	59.3	62.1	54.2
	59.6	62.3	54.4
	59.1	61.6	53.9
02:30-02:45	58.7	61.1	53.8
	58.7	61.3	54.0
	60.4	63.6	54.3
02:45-03:00	58.3	61.2	53.8
	59.7	62.6	53.9
	60.0	63.0	53.8
03:00-03:15	58.1	60.7	53.3
	60.5	62.5	53.6
	58.3	60.8	53.4
03:15-03:30	59.0	61.6	53.5
	59.1	61.6	53.8
	58.2	61.0	53.5
03:30-03:45	59.2	62.0	53.5
	61.6	64.6	53.5
	59.0	61.6	53.3
03:45-04:00	59.2	61.7	53.3
	59.9	62.5	53.5
	61.0	63.8	54.0
04:00-04:15	59.0	61.7	53.7
	60.0	62.3	53.6
	57.5	60.0	53.4
04:15-04:30	58.8	61.2	54.1
	60.6	63.2	53.7
	58.9	61.5	54.2
04:30-04:45	60.1	62.9	54.6
	61.5	64.4	55.0
	60.6	63.8	55.0
04:45-05:00	61.7	64.5	54.8

Time Slot	Laeq, 5min	L10	L90
	62.7	65.9	55.8
	62.7	65.7	56.5
05:00-05:15	64.0	67.4	57.0
	65.8	69.4	58.4
	64.3	67.5	57.2
05:15-05:30	63.6	66.9	56.6
	64.3	67.6	57.9
	63.8	67.4	56.5
05:30-05:45	63.6	66.9	57.1
	64.6	67.8	57.9
	64.4	67.7	58.6
05:45-06:00	64.1	67.2	57.7
	66.0	69.4	59.4
	65.4	68.7	59.9
06:00-06:15	65.9	69.1	59.2
	65.2	68.1	60.0
	64.3	67.4	59.2
06:15-06:30	64.1	66.9	58.7
	65.7	68.6	60.7
	65.6	68.4	60.2
06:30-06:45	65.2	68.1	60.1
	66.3	69.3	60.9
	65.6	68.7	60.6
06:45-07:00	66.9	69.7	60.9
	67.1	70.2	61.3
	67.2	70.4	61.3
Average	63.7	67.0	57.6

Log average was used





Baseline Noise Monitoring Result

Location: CN 26 Ying Wah College

Baseline monitoring period: 17/11/2009-1/12/2009

Parameter: Leq

Time Slot Averaged Baselines

**Weekdays Daytime Noise Level,
dB(A)**

Time slot	Leq, 30 min	L10	L90
07:00-07:30	70.1	72.9	65.5
07:30-08:00	70.7	73.4	66.4
08:00-08:30	71.0	73.7	66.3
08:30-09:00	70.7	73.5	66.1
09:00-09:30	70.5	73.6	66.1
09:30-10:00	70.3	73.1	65.7
10:00-10:30	70.2	73.0	65.6
10:30-11:00	70.1	73.1	65.6
11:00-11:30	70.0	72.9	65.3
11:30-12:00	70.1	72.9	65.2
12:00-12:30	70.0	72.9	65.2
12:30-13:00	70.3	73.1	65.5
13:00-13:30	70.2	73.1	65.6
13:30-14:00	70.2	73.1	65.5
14:00-14:30	70.0	72.9	65.5
14:30-15:00	70.0	72.7	65.5
15:00-15:30	70.2	73.0	65.9
15:30-16:00	70.4	73.0	66.0
16:00-16:30	70.1	72.9	65.7
16:30-17:00	70.3	73.0	65.9
17:00-17:30	70.1	72.9	65.7
17:30-18:00	69.9	72.6	65.2
18:00-18:30	69.8	72.4	65.2
18:30-19:00	69.3	72.1	64.7
Average	70.2	73.0	65.6

Noise Control Period Averaged Baselines

2) Weekdays Evening Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
19:00-19:15	69.2	72.0	64.1
	68.9	72.0	64.2
	68.8	71.7	64.1
19:15-19:30	68.9	72.1	63.8
	68.5	71.5	63.7
	69.4	72.1	64.1
19:30-19:45	68.8	71.9	63.7
	69.1	71.9	63.8
	68.8	71.9	63.3
19:45-20:00	68.8	72.1	63.6
	68.5	71.8	63.4
	69.0	72.0	63.4
20:00-20:15	69.2	72.3	63.8
	68.6	71.8	63.2
	68.8	72.2	63.4
20:15-20:30	68.6	71.9	63.4
	69.0	72.2	63.5
	68.5	71.9	63.5
20:30-20:45	68.3	71.5	63.2
	69.4	72.3	63.9
	68.5	71.8	63.4
20:45-21:00	68.4	71.7	63.1
	68.4	71.5	63.2
	68.3	71.5	63.2
21:00-21:15	68.8	72.1	63.0
	68.5	71.7	63.4
	68.4	71.8	63.1
21:15-21:30	68.5	71.7	63.1
	68.7	72.0	63.3
	68.9	72.1	63.7
21:30-21:45	68.3	71.5	63.3
	68.5	71.6	63.4

Time Slot	Leq, 5min	L10	L90
	68.4	71.6	63.4
21:45-22:00	68.4	71.6	63.1
	68.1	71.4	63.2
	68.4	71.8	63.1
22:00-22:15	68.1	71.3	63.0
	68.2	71.6	62.9
	68.3	71.7	62.6
22:15-22:30	67.9	71.0	62.8
	68.2	71.4	62.7
	67.7	71.1	62.3
22:30-22:45	68.0	71.3	62.6
	67.9	71.1	62.6
	67.7	71.2	62.4
22:45-23:00	68.0	71.4	62.4
	67.8	71.2	62.5
	67.6	70.9	62.3
Average	68.5	71.7	63.3

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

Time Slot	Laeq, 5min	L10	L90
0700-07:15	68.1	71.7	61.6
	68.1	71.9	62.4
	67.6	70.8	62.6
07:15-07:30	68.5	71.8	63.6
	69.1	72.5	63.7
	68.6	72.2	62.9
07:30-07:45	68.7	71.9	63.5
	69.1	72.5	61.9
	68.9	72.4	63.6
07:45-08:00	69.3	72.0	63.3
	69.0	72.3	63.9
	69.1	72.2	63.4
08:00-08:15	67.9	71.2	62.2
	69.2	72.5	64.1
	68.8	72.2	63.7
08:15-08:30	68.8	72.3	63.3

Time Slot	Laeq, 5min	L10	L90
	68.9	71.8	64.5
	68.6	72.3	63.0
08:30-08:45	70.2	73.2	64.6
	69.2	72.4	63.0
	68.7	71.8	63.4
08:45-09:00	70.1	73.4	64.2
	69.4	72.8	63.7
	69.5	72.9	63.2
09:00-09:15	69.7	72.6	63.2
	69.6	73.0	64.4
	69.1	72.2	63.4
09:15-09:30	68.2	71.6	62.1
	69.1	72.7	62.6
	68.8	71.8	63.1
09:30-09:45	68.3	71.5	63.7
	69.2	72.7	63.1
	67.8	71.2	62.5
09:45-10:00	69.2	72.1	63.5
	68.8	72.0	63.8
	68.8	72.2	63.1
10:00-10:15	69.2	72.2	63.9
	69.1	72.2	63.7
	69.4	73.0	63.5
10:15-10:30	68.7	71.9	63.4
	68.6	71.8	63.3
	68.9	72.4	63.1
10:30-10:45	68.9	72.2	64.0
	68.8	72.3	63.3
	68.7	72.2	62.9
10:45-11:00	69.0	72.1	64.3
	69.4	72.6	64.4
	68.5	71.6	63.6
11:00-11:15	69.1	72.1	64.7
	69.2	72.6	63.3
	69.8	73.2	64.3
11:15-11:30	69.2	72.3	64.9

Time Slot	Laeq, 5min	L10	L90
	69.3	72.6	64.8
	68.5	71.7	63.7
11:30-11:45	68.5	71.5	63.8
	68.7	71.7	63.2
	69.1	72.4	63.8
11:45-12:00	70.3	73.0	62.6
	68.9	72.1	63.5
	69.4	71.8	64.0
12:00-12:15	69.6	72.7	64.2
	68.2	71.4	63.3
	68.7	71.9	63.8
12:15-12:30	71.7	74.6	63.3
	69.3	72.2	64.2
	69.5	72.9	64.5
12:30-12:45	68.4	71.0	64.8
	69.6	72.8	64.5
	69.6	73.0	64.6
12:45-13:00	68.9	72.3	64.0
	69.8	73.4	64.8
	68.2	71.5	63.5
13:00-13:15	69.3	72.2	64.2
	69.5	72.6	64.4
	69.7	72.3	64.5
13:15-13:30	69.2	72.6	64.2
	69.1	72.1	63.8
	69.3	72.3	65.0
13:30-13:45	69.5	72.3	64.4
	68.0	71.3	62.9
	69.3	72.3	64.6
13:45-14:00	69.0	72.2	63.7
	69.3	72.3	63.5
	69.5	72.8	63.6
14:00-14:15	68.4	71.4	63.7
	68.7	71.5	64.2
	69.6	72.8	64.8
14:15-14:30	68.5	72.0	63.1

Time Slot	Laeq, 5min	L10	L90
	68.9	71.7	64.3
	69.4	72.9	64.2
14:30-14:45	68.6	71.2	64.3
	69.1	72.4	64.0
	69.1	72.1	64.1
14:45-15:00	68.4	71.4	63.7
	68.5	71.8	63.5
	68.5	71.5	63.6
15:00-15:15	69.6	72.3	64.6
	69.0	72.3	63.5
	68.9	72.5	63.8
15:15-15:30	70.4	73.6	64.1
	68.5	71.7	63.5
	68.7	72.4	63.0
15:30-15:45	68.3	71.3	63.5
	69.0	72.6	63.5
	68.6	71.7	63.1
15:45-16:00	68.7	71.9	63.8
	68.1	71.7	63.6
	69.0	71.9	64.1
16:00-16:15	69.1	72.3	64.5
	68.6	71.6	63.6
	69.7	72.9	63.8
16:15-16:30	69.2	72.4	63.7
	68.6	72.8	63.6
	68.5	71.4	63.5
16:30-16:45	69.2	72.4	63.6
	68.8	72.1	64.1
	70.2	73.1	65.4
16:45-17:00	69.1	72.4	63.4
	69.7	72.7	65.1
	71.0	72.8	63.8
17:00-17:15	69.4	72.5	64.7
	69.0	72.2	64.0
	68.7	71.8	63.5
17:15-17:30	69.5	73.0	64.5

Time Slot	Laeq, 5min	L10	L90
	67.8	70.7	63.4
	69.3	72.4	63.7
17:30-17:45	68.6	71.8	63.8
	69.0	72.3	63.6
	68.5	71.5	64.4
17:45-18:00	68.6	71.6	63.8
	68.3	71.3	63.8
	68.7	71.7	64.3
18:00-18:15	69.0	72.1	63.8
	68.1	70.7	63.9
	69.3	72.4	64.2
18:15-18:30	67.8	70.9	63.3
	68.1	71.2	63.5
	68.7	72.0	63.1
18:30-18:45	68.5	71.9	63.5
	67.2	70.2	61.8
	68.2	71.3	63.0
18:45-19:00	69.3	72.8	63.8
	68.3	71.7	62.8
	67.5	70.6	62.9
19:00-19:15	68.6	72.1	63.2
	68.9	72.6	63.4
	68.5	71.5	62.5
19:15-19:30	67.2	70.3	62.2
	67.8	71.0	62.4
	68.9	72.3	63.6
19:30-19:45	67.8	71.0	62.5
	68.2	71.5	63.4
	67.8	71.0	63.0
19:45-20:00	67.9	71.3	62.9
	69.1	72.5	63.4
	67.8	71.2	61.8
20:00-20:15	68.3	71.7	62.9
	69.3	72.4	63.7
	68.1	71.7	62.5
20:15-20:30	68.0	71.5	62.8

Time Slot	Laeq, 5min	L10	L90
	69.3	72.5	63.5
	68.9	71.9	63.7
20:30-20:45	67.8	71.3	62.1
	69.1	72.4	64.3
	68.7	72.4	62.9
20:45-21:00	67.8	71.2	62.6
	69.5	72.9	64.4
	68.7	72.5	62.6
21:00-21:15	67.6	71.0	63.1
	69.1	72.7	63.0
	67.7	71.3	62.5
21:15-21:30	68.6	71.4	63.5
	68.5	71.9	63.4
	68.7	71.8	63.9
21:30-21:45	69.3	72.3	63.8
	68.7	72.0	63.7
	68.6	71.9	62.8
21:45-22:00	70.6	73.6	64.3
	68.5	71.6	63.5
	68.5	71.6	63.3
22:00-22:15	68.4	72.0	62.9
	69.7	72.8	64.4
	68.5	71.7	63.0
22:15-22:30	68.6	72.2	63.4
	68.5	71.9	63.3
	69.0	72.9	62.8
22:30-22:45	68.0	70.6	63.9
	68.3	71.9	62.6
	68.3	70.7	61.4
22:45-23:00	69.7	73.3	63.1
	68.9	72.3	63.3
	67.7	71.2	62.8
Average	68.9	72.1	63.6

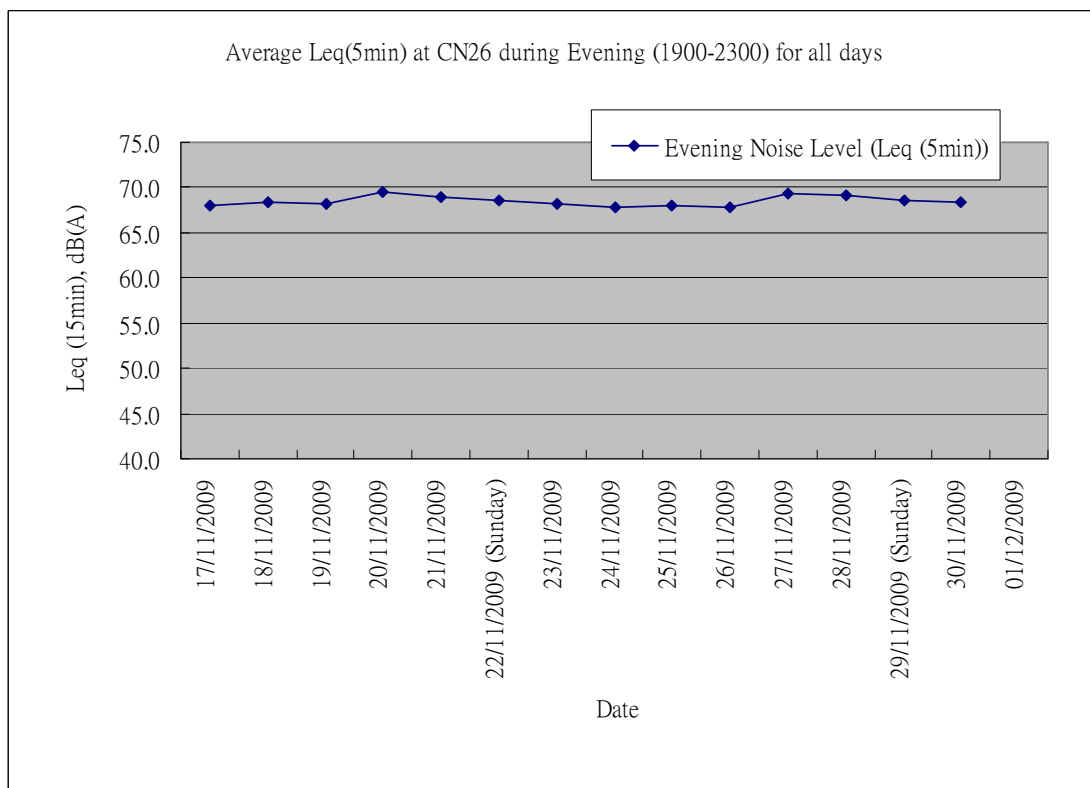
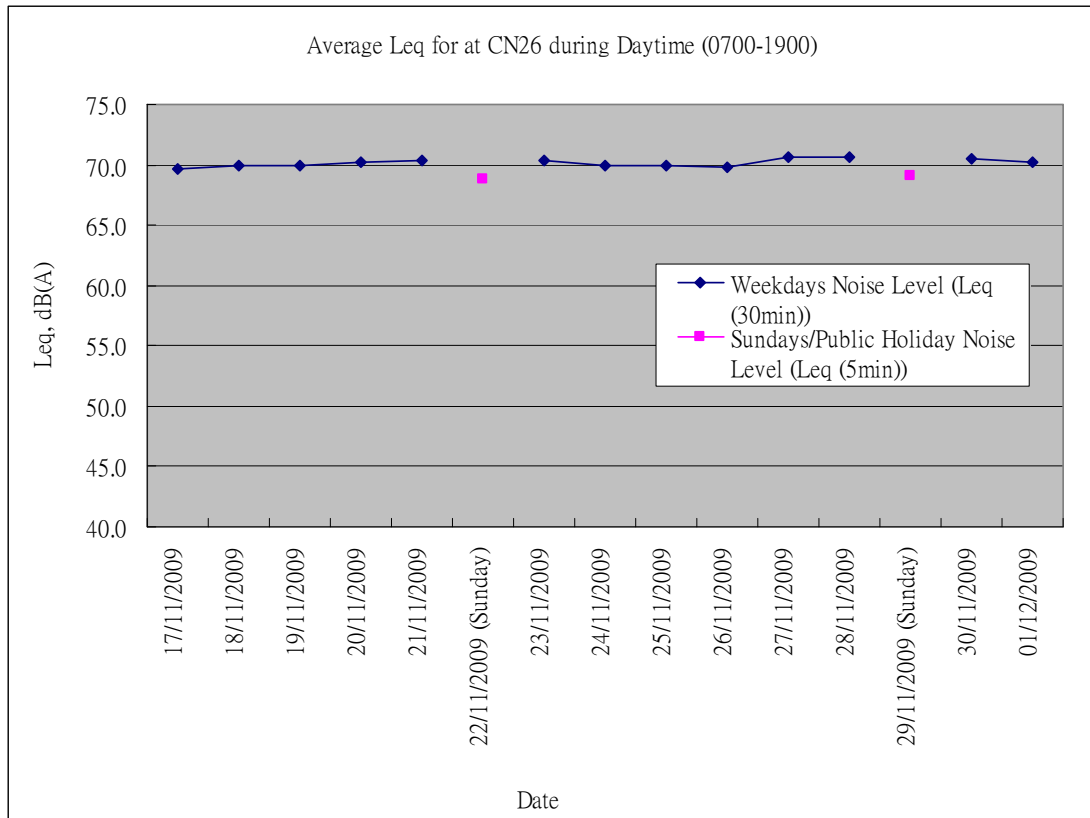
4) Night-time (for all days) Noise Level, dB(A)

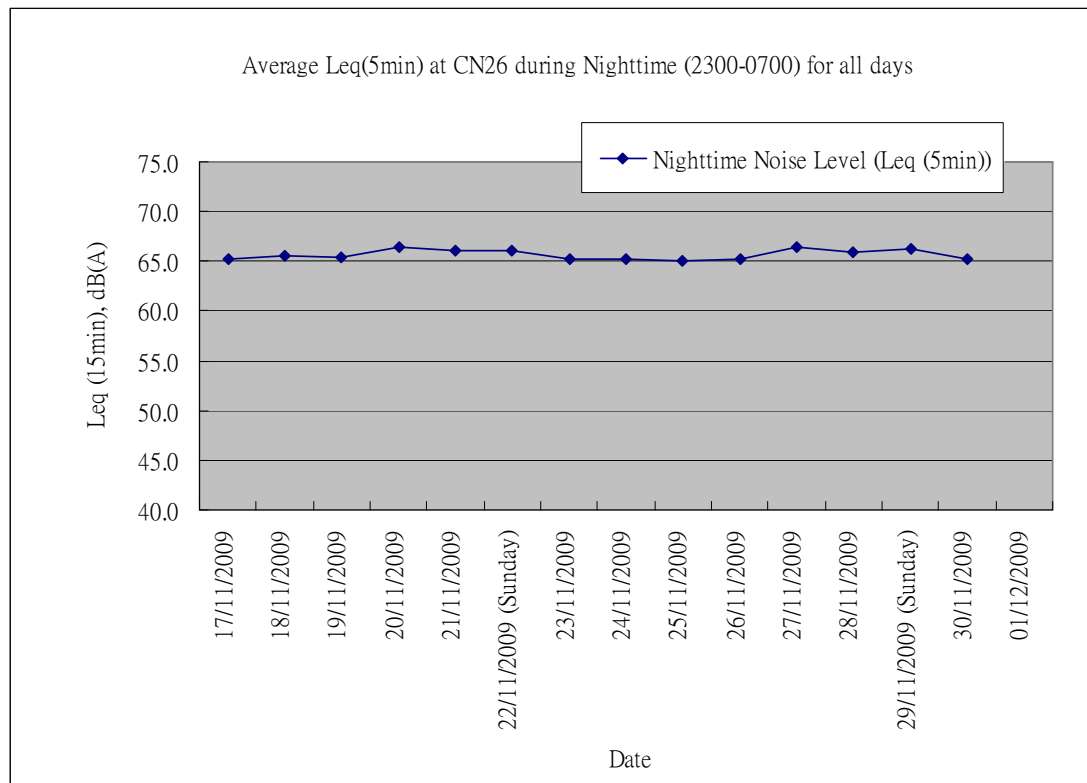
Time Slot	Laeq, 5min	L10	L90
23:00-23:15	67.9	71.2	62.8
	68.3	71.5	62.9
	68.3	71.7	62.9
23:15-23:30	68.5	71.8	63.0
	68.8	72.3	63.3
	68.3	71.7	62.8
23:30-23:45	68.8	72.2	63.4
	68.7	72.2	63.5
	68.6	72.0	63.4
23:45-00:00	68.2	71.4	63.2
	68.1	71.4	62.8
	68.2	71.6	63.1
00:00-00:15	68.0	71.3	62.8
	67.8	71.2	62.2
	67.7	71.1	62.1
00:15-00:30	67.6	70.8	61.9
	67.2	70.6	62.1
	67.4	70.7	62.0
00:30-00:45	66.8	70.5	61.3
	65.4	68.8	60.0
	65.6	68.9	59.4
00:45-01:00	64.8	68.3	58.3
	65.2	68.9	58.8
	63.4	66.9	57.5
01:00-01:15	63.3	66.7	57.4
	62.9	66.1	56.9
	63.2	66.7	57.2
01:15-01:30	63.2	66.9	56.9
	62.1	65.8	56.4
	62.3	65.6	56.6
01:30-01:45	63.0	66.7	56.6
	62.2	65.7	55.8
	62.4	65.7	56.0
01:45-02:00	62.1	65.1	56.4
	62.6	65.9	56.1
	62.5	65.7	56.8

Time Slot	Laeq, 5min	L10	L90
02:00-02:15	62.2	65.6	56.5
	62.0	65.4	56.0
	62.3	66.0	56.1
02:15-02:30	62.4	65.7	56.6
	61.1	64.3	55.7
	62.0	65.2	55.9
02:30-02:45	61.3	64.5	55.7
	60.8	64.0	55.4
	61.5	64.7	55.7
02:45-03:00	60.1	63.0	54.6
	60.5	63.8	54.6
	61.2	64.4	54.9
03:00-03:15	60.9	63.7	54.9
	61.0	64.1	55.2
	60.8	63.9	55.1
03:15-03:30	61.4	64.8	55.1
	60.8	64.0	54.8
	61.3	64.5	55.6
03:30-03:45	61.5	64.9	55.4
	61.6	65.1	55.0
	61.9	65.4	55.5
03:45-04:00	61.3	64.8	54.8
	61.6	65.2	54.7
	62.1	64.9	55.7
04:00-04:15	61.5	64.7	55.2
	61.0	64.5	54.7
	61.3	64.7	55.2
04:15-04:30	61.7	65.1	55.4
	62.4	66.2	55.8
	62.5	66.1	56.3
04:30-04:45	62.5	66.0	56.1
	62.6	66.4	56.1
	64.0	68.1	56.6
04:45-05:00	64.4	68.2	57.3
	64.1	68.0	57.8
	65.1	69.0	58.8

Time Slot	Laeq, 5min	L10	L90
05:00-05:15	65.1	68.8	58.7
	65.8	69.5	58.4
	65.3	69.1	59.4
05:15-05:30	65.9	69.7	59.5
	65.9	69.5	60.0
	66.3	69.9	60.5
05:30-05:45	66.4	70.0	60.9
	66.3	69.9	60.3
	66.8	70.3	61.0
05:45-06:00	67.2	70.8	61.4
	66.9	70.4	61.2
	67.3	70.8	61.4
06:00-06:15	68.0	71.4	62.7
	68.0	71.4	62.3
	67.6	70.8	62.6
06:15-06:30	68.3	71.7	62.9
	68.2	71.4	62.8
	68.5	71.8	63.0
06:30-06:45	68.7	71.9	63.2
	68.5	71.8	63.2
	68.7	72.0	63.6
06:45-07:00	69.2	72.4	64.2
	69.3	72.5	64.2
	69.5	72.8	64.4
Average	65.7	69.1	60.1

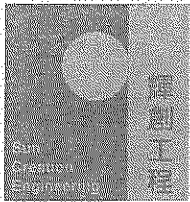
Log average was used





Appendix C

Calibration Certificates for Monitoring Equipments



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 Shaaukeiwan Road,
Hong Kong*

Send to: Winnie RO		Ref:
Received by:	Date:	
Action taken:		
By:	Date:	Action:

Date Received by ERM
IC-370
Login Ref

Date of Issue : 10 July 2009

Certified by : H C Chan

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration and Testing Laboratory of Sun Creation Engineering Limited

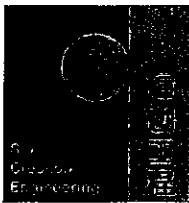
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

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 : $(23 \pm 2)^{\circ}\text{C}$
LINE VOLTAGE : ---

RELATIVE HUMIDITY : $(55 \pm 20)\%$

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

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

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

Page 1 of 2



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 :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
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

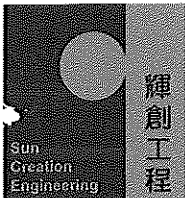
5.2 Frequency Accuracy

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



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C101749

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Calibrator

Manufacturer : ---

Model No. : ND9

Serial No. : N435849

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C101749.*

The equipment is supplied by

Co. Name : EDMS Tech Ltd.

*Address : Room 1009, 10/F., World Wide House,
19 Des Voeux Road Central, Hong Kong*

Date of Issue : 30 March 2010

Certified by :

K C Lee

The test equipment used for calibration are traceable to the National Standards as specified in this report.
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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. : C101749

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Calibrator
MANUFACTURER : ---
MODEL NO. : ND9
SERIAL NO. : N435849

TEST CONDITIONS

AMBIENT TEMPERATURE : $(23 \pm 2)^{\circ}\text{C}$
LINE VOLTAGE : ---

RELATIVE HUMIDITY : $(55 \pm 20)\%$

TEST SPECIFICATIONS

Calibration

DATE OF TEST : 30 March 2010

JOB NO. : IC10-0777

TEST RESULTS

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification. (after adjustment)
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
- Agilent Technologies, USA
- Fluke Everett Service Center, USA
- Rohde & Schwarz Laboratory, Germany

Tested by :


L L Cheung

Date : 30 March 2010

The test equipment used for calibration are traceable to the National Standards as specified in this report.
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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

Page 1 of 2

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.
CL130	Universal Counter	C093122
CL281	Multifunction Acoustic Calibrator	DC090052
TST150A	Measuring Amplifier	C101008

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)
	Before Adj.	After Adj.		
94 dB, 1 kHz	* 95.1	94.0	± 0.3	± 0.2
114 dB, 1 kHz	* 115.3	114.1		± 0.3

* Out of Mfr's Spec.

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)		Mfr's Spec.	Uncertainty of Measured Value (Hz)
	Before Adj.	After Adj.		
1	1.000	1.000	1 kHz ± 0.1 %	± 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.



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

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

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. : C093473

Calibration Report

ITEM TESTED

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

TEST CONDITIONS

AMBIENT TEMPERATURE : $(23 \pm 2)^{\circ}\text{C}$ RELATIVE HUMIDITY : $(55 \pm 20)\%$
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

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

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

Page 1 of 4



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 Spec. (dB)
Range (dB)	Mode	Weight	Response	Level (dB)	Freq. (kHz)	Before Adjustment	After Adjustment	
50 - 110	LA	A	Fast	94.00	1	93.3	94.1	± 0.7

6.1.2 Linearity

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

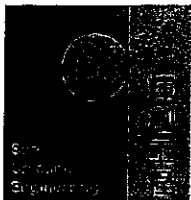
IEC 651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

6.2 Time Weighting

6.2.1 Continuous Signal

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

The test equipment used for calibration are traceable to the National Standards as specified in this report.
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Calibration Report

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT	IEC 651 Type 1
Range (dB)	Mode	Weight	Response	Level (dB)	Burst Duration	Reading (dB)	Spec. (dB)
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

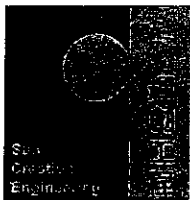
6.3.1 A-Weighting

UUT Setting				Applied Value		UUT	IEC 651 Type 1
Range (dB)	Mode	Weight	Response	Level (dB)	Freq.	Reading (dB)	Spec. (dB)
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	IEC 651 Type 1
Range (dB)	Mode	Weight	Response	Level (dB)	Freq.	Reading (dB)	Spec. (dB)
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)

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.



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

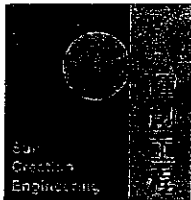
Remarks : - Mfr's Spec. : IEC 651 Type 1 & IEC 60804 Type 1

- 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.



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 : Chan Hui Ching
H C Chan*

The test equipment used for calibration are traceable to the National Standards as specified in this report.
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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

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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 : $(23 \pm 2)^{\circ}\text{C}$
LINE VOLTAGE : ---

RELATIVE HUMIDITY : $(55 \pm 20)\%$

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 15 July 2009

JOB NO. : IC09-1740

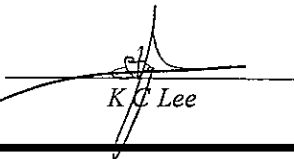
TEST RESULTS

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

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

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

Page 1 of 4



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	IEC 60651
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	Type 1 Spec. (dB)
30 - 120	L _A	A	Fast	94.00	1	94.2	± 0.7

6.1.2 Linearity

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

The test equipment used for calibration are traceable to the National Standards as specified in this report.
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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)

The test equipment used for calibration are traceable to the National Standards as specified in this report.
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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 Shauketwan Road,
Hong Kong*

Date of Issue : 23 October 2009

Certified by :

K C Lee

The test equipment used for calibration are traceable to the National Standards as specified in this report.
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Calibration and Testing Laboratory of Sun Creation Engineering Limited

Unit 47, Tai Yee Chai Wai Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2964 8986 E-mail: caland@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 : $(23 \pm 2)^{\circ}\text{C}$
LINE VOLTAGE : ---

RELATIVE HUMIDITY : $(55 \pm 20)\%$ **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

The test equipment used for calibration are traceable to the National Standards as specified in this report.
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Page 1 of 4



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	IEC 61672
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	Class 1 Spec. (dB)
30 - 120	L _A	A	Fast	94.00	1	94.2	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)
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

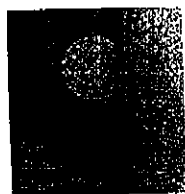
UUT Setting				Applied Value		UUT	IEC 61672
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	Class 1 Spec. (dB)
30 - 120	L _A	A	Fast	94.00	1	94.2	Ref.
			Slow			94.2	± 0.3

The test equipment used for calibration are traceable to the National Standards as specified in this report.
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Calibration and Testing Laboratory of Sun Creation Engineering Limited

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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	93.5	+1.2 ± 1.6
					4 kHz	93.3	+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)

The test equipment used for calibration are traceable to the National Standards as specified in this report.
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Tel: 2627 2606 Fax: 2741 8986 E-mail: cal@lab@suncreation.com Website: www.suncreation.com

Page 3 of 4



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.

The test equipment used for calibration are traceable to the National Standards as specified in this report.
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Calibration and Testing Laboratory of Sun Creation Engineering Limited

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Page 4 of 4

CERTIFICATE OF CALIBRATION

Certificate No. : 2KS100504-1

Page 1 of 2

Calibration of :

Description :	Sound Level Meter	,	Microphone
Manufacture :	Brüel & Kjær		
Type No. :	2250	,	4950
Serial No. :	2709428		2662404

Client :

EDMS Tech Ltd
1009, 10/F World Wide House
19 Des Douex Road, Central
Hong Kong

Calibration Conditions :

Air Temperature :	23	°C
Air Pressure :	101.9	kPa
Relative Humidity :	62	%

Test Specifications :

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC 60651 and IEC 60804 type 1, and vendor specific procedures.

The measurements has been performed with the assistance of :

Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999

The standard(s) and instrument(s) used in the calibration are traceable to international standard and are calibrated on a schedule which is adjusted to maintain the required accuracy level.

Test Result :

A list of the performed (sub) tests is stated on page 2 of this certificate. Actual Measurement are documented on worksheet.

Date of Calibration : 11 May, 2010

Calibrated By :

Certificate issued : 11 May, 2010

Approved signatory :

Dai Bin

Jacky Leung

Reproduction of the complete certificate is allowed. Parts of the certificate may only be reproduced after written permission.

CERTIFICATE OF CALIBRATION

Certificate No. : 2KS100504-1

Page 2 of 2

Results :

List of performed (sub) test with test status:

“OK” Means the result of the (sub)test is Inside the tolerances stated in the test specifications.

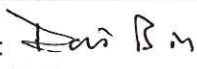
“ - ” Means the result of the (sub)test is Outside these tolerances.

Test :	Subtest :	Status :
Noise	A	OK
Noise	C	OK
Noise	Lin	OK
Frequency Weighting	A	OK
Frequency Weighting	C	OK
Frequency Weighting	Lin	OK
Level Range Control	1000 Hz	OK
Linearity Range	SPL 10dB 4000 Hz	OK
Linearity Range	SPL 1dB 1000 Hz	OK
Linearity Range	Leq	OK
Linearity Range	SEL	OK
RMS Detector	CF 3	OK
RMS Detector	CF 5	OK
RMS Detector	CF 10	OK
RMS Detector	Symmetry	OK
Time Weighting	Difference Indication	OK
Time Weighting	Single Burst FAST	OK
Time Weighting	Single Burst SLOW	OK
Time Weighting	Single Burst IMPULSE	OK
Time Weighting	Repetitive Burst	OK
Time Weighting	Peak	OK
Time Averaging		OK
Pulse Range		OK
Overload	SPL	OK
Overload	SEL	OK
Acoustic Response	A	OK
Acoustic Response	Lin	OK

Calibration Equipment :

Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999

Description :	Make & Model :	Serial No. :	Last Cal. Date :	Traceable to:
Digital Multi-meter	Datron 1281	27361	30 Sept, 2009	HKSL (HOKLAS)
Sine/Noise Generator	B&K 1049	1314978	Test	B&K Conformance
Test Waveform Generator	B&K 5918	1482949	Test	B&K Conformance
Acoustical Calibrator	B&K 4226	1843103	14 Aug 2009	NPL via B&K (DANAK)

Calibrated By : 
Date : 11 May, 2010

Checked By : 
Date : 11 May, 2010

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

<u>SERIAL NUMBER:</u>	<u>4243</u>	
<u>CALIBRATION RATIO:</u>	<u>1</u>	
<u>AVG. PDR CONCENTRATION:</u>	<u>1.29</u>	<u>mg/m3</u>
<u>MASTER AVG CONCENTRATION:</u>	<u>1.03</u>	<u>mg/m3</u>
<u>PDR BACKGROUND CONCENTRATION:</u>	<u>0.239</u>	<u>mg/m3</u>

<u>TEMPERATURE:</u>	<u>72</u>	<u>F</u>
<u>RH:</u>	<u>39</u>	<u>%</u>

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

TECHNICIAN: R.A.

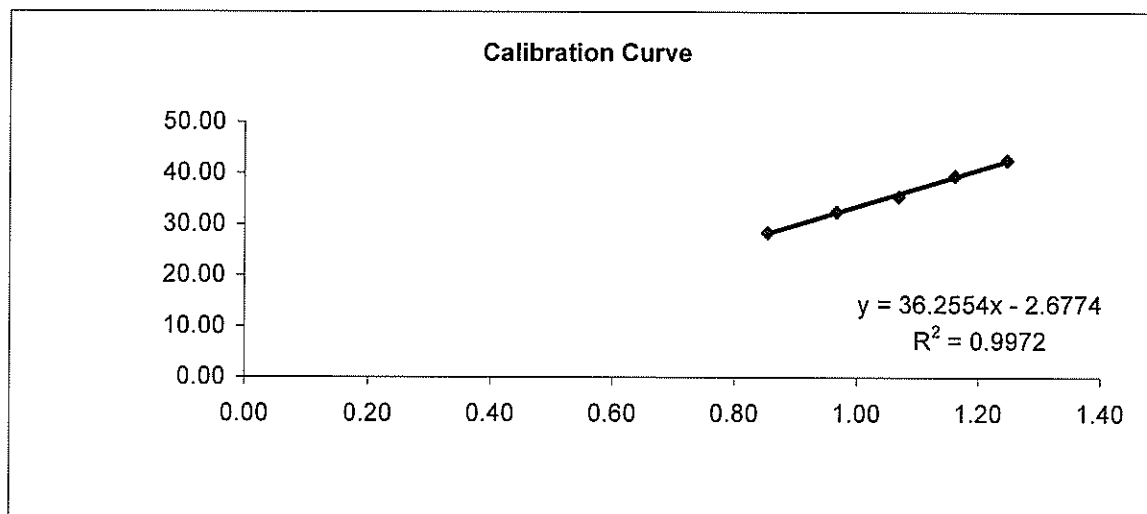
DATE: 26/8/2008

Ove Arup Partners (Hong Kong) Limited
High Volume Air Sampler Calibration Worksheet

Calibration date	3-Dec-09	Barometric pressure	765 mm Hg
Next Calibration date	1-Jun-10	Tempature (°C)	18 °C
Sampler location	St.Andrew Primary School	Tempature (K)	291 K
Sampler model	TE-5170	P _{std}	760 mm Hg
Sampler serial number	0524	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

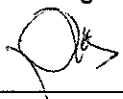
Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	2.80	28.00	0.85	28.43
7	3.60	32.00	0.97	32.49
10	4.40	35.00	1.07	35.53
13	5.20	39.00	1.16	39.60
18	6.00	42.00	1.25	42.64



Linear Regression

Sampler slope (m) : **36.2554**
 Sampler intercept (b) : **-2.6774**
 Correlation coefficient (R²) : **0.9972**

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

Performed by: 

Checked by: 

Approved by: 

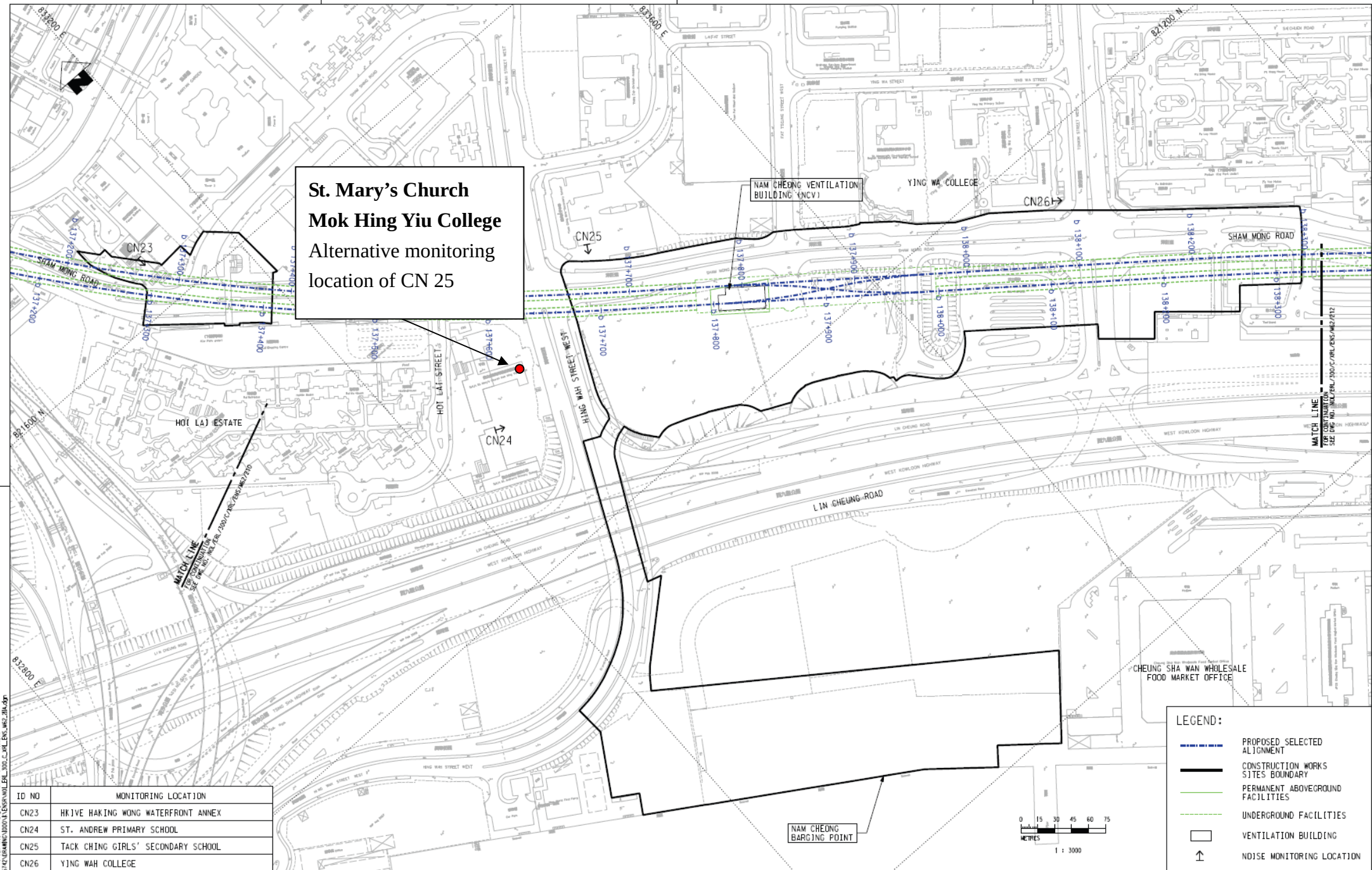
Date: 3/12/09

Date: 3/12/09

Date: 18/12/09

Appendix D

Figures



ID NO		MONITORING LOCATION	DRAWN		YJP	MTR		EXPRESS RAIL LINK		TITLE	
CN23		HKIVE HAKING WONG WATERFRONT ANNEX	DESIGNED		TWF	ORIGINATOR		ENSR AECOM		Baseline Monitoring Report - Noise Monitoring Locations	
CN24		ST. ANDREW PRIMARY SCHOOL	CHECKED		KCC	DATE		18/ APR. / 2009		Figure 3	
CN25		TACK CHING GIRLS' SECONDARY SCHOOL	APPROVED		PL	SCALE		1 : 3000 (A3)			
CN26		YING WAH COLLEGE									
REV	DESCRIPTION		BY	DATE	APPROVED	REV	DESCRIPTION		BY	DATE	APPROVED