

## Appendix 4.1 Background Noise Survey

### Noise Measurement Points

N1 Near NSR1 - Squatter house at the north of Yuen Long STW [1]



N3 Near NSR3 - Squatter house at the east of Yuen Long STW [1]



N2 Near NSR2 - Squatter house at the west of Yuen Long STW [1]



Remarks: [1] Due to access problems, background noise measurements are conducted near the entrances of the NSRs.

Measure Pts.

BackgroundNoiseSurvey20181114.xlsx

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### Appendix 4.1 Background Noise Survey

#### Measurement Result N1

Measurement Start Time	Noise Levels at Noise Measurement Points, dB(A)				
	N1				
	LAeq	LA10	LA90	LAMax	LAMin
21/Mar/2017 10:30	55.1	57.5	51.0	69.4	43.2
21/Mar/2017 11:00	56.2	58.0	51.5	75.1	43.6
21/Mar/2017 11:30	53.0	55.0	48.0	63.2	42.8
21/Mar/2017 12:00	53.2	54.0	48.0	71.0	42.9
21/Mar/2017 12:30	53.6	55.5	49.5	66.4	44.4
21/Mar/2017 13:00	54.6	57.0	50.5	67.4	44.1
21/Mar/2017 13:30	55.2	57.5	51.0	72.4	44.4
21/Mar/2017 14:00	55.1	57.5	51.0	67.4	44.5
21/Mar/2017 14:30	54.5	56.5	49.5	71.0	44.9
21/Mar/2017 15:00	53.7	55.5	49.0	69.6	41.4
21/Mar/2017 15:30	52.4	53.5	48.5	61.9	45.3
21/Mar/2017 16:00	55.9	58.0	48.0	70.6	44.1
21/Mar/2017 16:30	56.9	60.0	49.0	72.0	44.2
21/Mar/2017 17:00	57.7	60.5	49.0	74.4	44.6
21/Mar/2017 17:30	59.1	59.5	48.5	75.7	44.2
21/Mar/2017 18:00	53.8	53.5	48.0	74.5	44.1
21/Mar/2017 18:30	52.4	53.0	48.0	66.7	44.9
21/Mar/2017 19:00	55.4	53.5	48.0	89.3	45.6
21/Mar/2017 19:30	52.1	53.0	48.5	59.9	46.3
21/Mar/2017 20:00	48.0	51.0	44.5	72.4	43.5
21/Mar/2017 20:30	46.9	48.0	45.0	67.3	43.2
21/Mar/2017 21:00	56.7	49.5	46.0	91.3	44.8
21/Mar/2017 21:30	47.4	48.0	45.5	62.7	44.1
21/Mar/2017 22:00	51.8	53.0	47.5	59.8	44.4
21/Mar/2017 22:30	52.3	53.5	49.0	59.6	46.7
21/Mar/2017 23:00	52.4	53.5	49.0	58.7	46.9
21/Mar/2017 23:30	52.2	53.0	48.5	61.3	46.6
22/Mar/2017 00:00	52.1	53.0	48.5	58.4	46.4
22/Mar/2017 00:30	52.1	53.0	48.5	55.8	46.7
22/Mar/2017 01:00	52.2	53.0	49.0	58.7	46.4
22/Mar/2017 01:30	52.2	53.5	49.0	61.5	46.7
22/Mar/2017 02:00	52.2	53.5	49.0	55.2	46.4
22/Mar/2017 02:30	52.3	53.5	49.0	56.7	46.9
22/Mar/2017 03:00	52.2	53.5	49.0	55.5	46.7
22/Mar/2017 03:30	52.3	53.5	49.0	55.5	46.7
22/Mar/2017 04:00	52.5	53.5	49.5	57.4	46.9
22/Mar/2017 04:30	52.3	53.5	49.0	58.9	46.6
22/Mar/2017 05:00	52.3	53.5	49.0	61.5	46.7
22/Mar/2017 05:30	53.3	53.5	49.5	74.9	46.8
22/Mar/2017 06:00	58.0	55.5	50.0	77.1	46.8
22/Mar/2017 06:30	54.7	56.5	50.0	73.4	46.4
22/Mar/2017 07:00	55.6	58.0	51.0	68.3	47.1
22/Mar/2017 07:30	55.4	57.5	50.0	72.4	44.9
22/Mar/2017 08:00	54.8	56.5	49.5	74.8	43.5
22/Mar/2017 08:30	57.9	60.5	52.0	74.3	44.6
22/Mar/2017 09:00	58.9	59.0	51.0	80.6	45.3
22/Mar/2017 09:30	60.0	63.0	52.5	75.1	45.8
22/Mar/2017 10:00	58.3	61.0	50.5	75.4	45.3
2/Apr/2017 00:00	48.2	46.0	43.0	72.9	42.3
2/Apr/2017 00:30	43.7	45.0	42.0	52.6	41.0
2/Apr/2017 01:00	43.1	44.0	42.0	48.6	41.1
2/Apr/2017 01:30	44.0	44.5	42.5	53.7	41.7
2/Apr/2017 02:00	43.8	44.5	43.0	50.8	41.8
2/Apr/2017 02:30	43.6	44.5	42.0	56.8	41.1
2/Apr/2017 03:00	43.3	44.0	42.5	46.7	41.2
2/Apr/2017 03:30	43.1	43.5	42.0	60.2	41.2
2/Apr/2017 04:00	42.6	43.0	41.5	52.2	40.7
2/Apr/2017 04:30	43.8	44.0	42.0	61.3	40.8
2/Apr/2017 05:00	43.4	44.5	42.0	54.2	41.1
2/Apr/2017 05:30	47.2	49.0	44.5	57.3	42.1
2/Apr/2017 06:00	61.6	66.5	45.5	76.7	43.1
2/Apr/2017 06:30	57.7	58.5	46.0	74.5	42.6
2/Apr/2017 07:00	57.2	55.5	42.5	75.1	40.1
2/Apr/2017 07:30	54.2	56.5	43.5	70.5	40.2
2/Apr/2017 08:00	54.4	57.0	43.0	72.4	37.8
2/Apr/2017 08:30	53.9	56.5	46.0	72.3	39.0
2/Apr/2017 09:00	57.5	60.0	46.5	72.7	37.2
2/Apr/2017 09:30	55.3	58.0	45.5	79.0	37.9
2/Apr/2017 10:00	53.8	56.5	47.5	66.8	38.9
2/Apr/2017 10:30	51.1	54.0	44.0	72.2	38.1
2/Apr/2017 11:00	52.2	55.0	45.5	64.2	39.8
2/Apr/2017 11:30	54.3	57.0	48.0	76.9	40.8
2/Apr/2017 12:00	53.3	56.5	46.0	69.0	38.4
2/Apr/2017 12:30	52.8	56.0	46.0	69.7	40.5
2/Apr/2017 13:00	52.6	55.5	45.5	67.1	39.2
2/Apr/2017 13:30	51.8	55.0	45.0	69.1	38.3
2/Apr/2017 14:00	53.5	57.0	46.0	70.1	37.2
2/Apr/2017 14:30	54.2	57.5	46.5	68.8	38.2
2/Apr/2017 15:00	50.2	53.0	43.0	68.4	38.6
2/Apr/2017 15:30	52.8	56.0	45.5	65.7	39.8
2/Apr/2017 16:00	55.5	59.0	47.0	71.0	40.7
2/Apr/2017 16:30	55.3	54.0	46.0	76.9	40.9
2/Apr/2017 17:00	56.6	55.0	41.5	78.4	37.6
2/Apr/2017 17:30	58.3	58.5	40.0	80.2	37.9
2/Apr/2017 18:00	67.4	69.0	42.0	90.6	37.8
2/Apr/2017 18:30	62.9	65.5	43.0	84.0	40.0
2/Apr/2017 19:00	50.8	49.5	41.5	81.4	39.8
2/Apr/2017 19:30	43.7	44.5	41.5	64.8	39.8
2/Apr/2017 20:00	64.3	56.5	42.5	94.7	40.7
2/Apr/2017 20:30	44.9	45.0	43.5	62.3	41.5
2/Apr/2017 21:00	44.4	45.0	43.5	56.7	42.2
2/Apr/2017 21:30	45.9	45.5	43.5	65.7	42.3
2/Apr/2017 22:00	45.5	46.5	44.5	54.0	43.1
2/Apr/2017 22:30	45.8	46.5	44.5	60.3	43.2
2/Apr/2017 23:00	45.8	46.5	44.5	51.0	43.5
2/Apr/2017 23:30	46.9	47.5	45.5	72.7	44.1

Day time Minimum	50	53	40	62	37
Evening time Minimum	44	45	42	54	40
Night time Minimum	43	43	42	47	41
Day time Maximum	67	69	53	91	47
Evening time Maximum	64	57	49	95	47
Night time Maximum	62	67	50	77	47

Remarks: Free field noise measurements  
Equipment Serial No.: 2300927

#### Measurement Result N2

Measurement Start Time	Noise Levels at Noise Measurement Points, dB(A)				
	N1				
	LAeq	LA10	LA90	LAMax	LAMin
5/Aug/2018 00:00	53.3	54.0	47.5	67.0	44.6
5/Aug/2018 00:30	52.3	53.5	47.0	64.8	44.6
5/Aug/2018 01:00	52.3	53.5	47.0	56.8	44.7
5/Aug/2018 01:30	52.2	53.5	46.5	56.6	44.2
5/Aug/2018 02:00	52.2	53.5	46.5	56.1	44.2
5/Aug/2018 02:30	52.2	53.5	47.0	56.5	44.0
5/Aug/2018 03:00	52.2	53.5	47.0	56.6	44.0
5/Aug/2018 03:30	52.3	53.5	47.0	62.6	44.3
5/Aug/2018 04:00	52.2	53.5	47.0	56.2	44.5
5/Aug/2018 04:30	52.1	53.5	46.5	56.8	44.2
5/Aug/2018 05:00	52.1	53.5	46.5	56.0	44.0
5/Aug/2018 05:30	52.2	53.5	47.0	59.7	43.8
5/Aug/2018 06:00	52.1	53.5	46.5	56.7	43.9
5/Aug/2018 06:30	54.1	58.0	47.0	62.8	43.9
5/Aug/2018 07:00	58.0	60.5	52.0	71.1	44.4
5/Aug/2018 07:30	53.1	54.5	48.0	64.1	43.5
5/Aug/2018 08:00	52.8	54.0	47.0	71.5	43.8
5/Aug/2018 08:30	54.3	55.5	49.5	75.2	44.8
5/Aug/2018 09:00	58.5	62.0	53.0	65.7	47.8
5/Aug/2018 09:30	57.4	59.5	53.0	65.3	50.1
5/Aug/2018 10:00	58.6	60.5	56.5	61.9	54.6
5/Aug/2018 10:30	57.9	59.5	54.0	64.8	47.7
5/Aug/2018 11:00	52.7	54.0	47.5	63.2	44.1
5/Aug/2018 11:30	52.7	54.0	47.5	63.0	44.1
5/Aug/2018 12:00	57.4	58.0	53.5	73.4	52.4
5/Aug/2018 12:30	53.8	55.5	48.5	72.6	44.9
5/Aug/2018 13:00	53.0	54.0	48.5	67.8	45.5
5/Aug/2018 13:30	54.1	54.5	49.0	79.0	45.3
5/Aug/2018 14:00	54.5	54.5	48.5	75.0	45.3
5/Aug/2018 14:30	65.9	66.5	49.5	97.9	45.5
5/Aug/2018 15:00	56.3	59.0	51.0	72.4	45.5
5/Aug/2018 15:30	57.7	60.0	54.5	75.1	45.9
5/Aug/2018 16:00	54.3	56.0	49.5	68.9	45.2
5/Aug/2018 16:30	53.0	54.0	48.5	65.6	45.0
5/Aug/2018 17:00	53.0	54.0	48.5	64.2	44.5
5/Aug/2018 17:30	53.3	54.5	48.5	67.7	44.6
5/Aug/2018 18:00	53.2	54.5	48.5	71.7	45.0
5/Aug/2018 18:30	53.8	55.0	49.5	70.3	45.3
30/Sep/2018 19:00	52.8	54.0	46.5	66.3	44.2
30/Sep/2018 19:30	53.1	54.0	47.0	71.8	44.5
30/Sep/2018 20:00	52.6	54.0	47.0	61.3	44.6
30/Sep/2018 20:30	52.5	54.0	47.0	60.2	44.6
30/Sep/2018 21:00	52.6	54.0	47.0	62.3	44.3
30/Sep/2018 21:30	52.4	54.0	47.0	56.8	44.3
30/Sep/2018 22:00	52.7	54.0	47.0	70.7	44.1
30/Sep/2018 22:30	52.4	54.0	47.0	60.2	44.2
30/Sep/2018 23:00	52.4	54.0	47.0	56.6	44.2
30/Sep/2018 23:30	52.4	54.0	47.0	56.9	44.3
5/Sep/2018 07:30	46.9	49.5	42.5	69.0	41.0
5/Sep/2018 08:00	48.1	49.0	42.5	70.0	41.0
5/Sep/2018 08:30	49.9	52.0	44.0	69.3	42.0
5/Sep/2018 09:00	50.0	52.0	47.0	71.5	45.5
5/Sep/2018 09:30	48.3	49.5	46.5	61.1	45.7
5/Sep/2018 10:00	49.1	50.5	47.0	67.8	46.2
5/Sep/2018 10:30	49.0	49.0	47.0	73.2	46.1
5/Sep/2018 11:00	50.3	51.0	47.0	68.7	46.1
5/Sep/2018 11:30	47.3	48.0	44.5	62.9	42.8
5/Sep/2018 12:00	46.2	47.0	43.5	66.6	41.8
5/Sep/2018 12:30	48.3	55.0	42.0	67.4	41.1
5/Sep/2018 13:00	47.1	49.5	43.5	66.8	41.8
5/Sep/2018 13:30	48.6	51.0	43.5	68.9	42.4
5/Sep/2018 14:00	45.7	47.0	43.0	63.5	42.1
5/Sep/2018 14:30	46.7	48.5	42.5	73.4	41.6
5/Sep/2018 15:00	48.4	50.5	44.0	66.4	42.6
5/Sep/2018 15:30	51.7	50.0	43.5	80.6	42.2
5/Sep/2018 16:00	51.3	52.5	43.0	76.0	41.8
5/Sep/2018 16:30	51.8	51.5	42.5	75.7	41.2
5/Sep/2018 17:00	47.5	48.0	43.0	65.4	41.6
5/Sep/2018 17:30	50.1	52.0	47.5	61.4	47.0
5/Sep/2018 18:00	53.0	53.5	46.0	75.2	43.3
5/Sep/2018 18:30					

## Appendix 4.1 Background Noise Survey

### List of Noise Measurement Locations

ID	Noise Sensitive Receiver	Type	Measurement Location
N1	NSR 1 - Squatter house at the north of Yuen Long STW	Residential	The nearest open area to the squatter house
N2	NSR 2 - Squatter house at the west of Yuen Long STW		Near the entrance gate of the squatter house
N3	NSR 3 - Squatter house at the east of Yuen Long STW		Beside Nam Sang Wai Rd near the entrance gate of the squatter house

### Noise Measurement Parameters and Duration

Time Period	Parameters	Duration
Normal Working Day	L <sub>eq</sub> (30 min), L <sub>max</sub> , L <sub>min</sub> , L <sub>10</sub> and L <sub>90</sub>	Continuous 24 hours
Sunday / Public Holiday		

### Noise Measurement Results

Measurement Location	Description	Minimum LAeq, dB(A)			Measurement Method
		Day	Evening	Night	
N1	Squatter house at the north of Yuen Long STW	53	47	46	Free-field <sup>[1]</sup>
N2	Squatter house at the west of Yuen Long STW	49	47	43	
N3	Squatter house at the east of Yuen Long STW	55	57	53	

### Assumed Fixed Plant Noise Criteria

NSR	Description	Area Sensitive Rating	ANL, dB(A)			ANL-5, dB(A)			Measurement Location	Minimum LAeq, dB(A)			Fixed Plant Noise Criteria, dB(A)		
			Day	Evening	Night	Day	Evening	Night		Day	Evening	Night	Day	Evening	Night
NSR1	Squatter house at the north of Yuen Long STW	A <sup>[2]</sup>	60	60	50	55	55	45	N1	53	47	46	53	47	45
NSR2	Squatter house at the west of Yuen Long STW	C <sup>[3]</sup>	70	70	60	65	65	55	N2	49	47	43	49	47	43
NSR3	Squatter house at the east of Yuen Long STW	B <sup>[2]</sup>	65	65	55	60	60	50	N3	55	57	53	55	57	50

#### Remarks:

- [1] Façade corrections of 3 dB(A) have been added for free-field measurements.
- [2] The NSR is located in Rural area and is not affected by any influencing factor.
- [3] The NSR is situated within 100m of a designated industrial area.
- [4] The NSR is located between 100m and 250m from industrial area.

## **Appendix 4.1 Background Noise Survey**

### Note on measurement date:

Background noise measurement for N1 has been conducted in March – April 2017, while measurement for N2 and N3 were conducted in August – September 2018.

With reference to information from gazette Outline Zoning Plan (OZP) No. S/YL-LFS/9 - Lau Fau Shan & Tsim Bei Tsui and the findings of the site visit during August – September 2018, there is no major development and no land use changes for the Conservation Area at the north of the existing Yuen Long Sewage Treatment Works and west of Shan Pui River, where N1 is located. Since there is no change to the noise environment in the period of March 2017 to September 2018, the background noise measurement results in 2017 is considered still valid.



## CERTIFICATE OF CALIBRATION

Certificate No.: 16CA0704 03-01 Page 1 of 2

### Item tested

Description:	Sound Level Meter (Type 1)	Microphone
Manufacturer:	B & K	B & K
Type/Model No.:	2238	4188
Serial/Equipment No.:	2800927 / N.009.06	2791211
Adaptors used:	-	-

### Item submitted by

Customer Name: AECOM ASIA CO., LTD.  
Address of Customer: -  
Request No.: -  
Date of receipt: 04-Jul-2016

Date of test: 07-Jul-2016

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	18-Jun-2017	CIGISMEC
Signal generator	DS 360	33873	18-Apr-2017	CEPREI
Signal generator	DS 360	61227	18-Apr-2017	CEPREI

### Ambient conditions

Temperature: 22 ± 1 °C  
Relative humidity: 60 ± 10 %  
Air pressure: 1000 ± 5 hPa

### Test specifications

- The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsiveness of the Sound Level Meter.

### Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

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

Actual Measurement data are documented on worksheets.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 09-Jul-2016

Company Chop:



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



## CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 16CA0704 03-01 Page 2 of 2

### 1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	A	Pass	0.3	
	C	Pass	0.3	
Time weightings	Lin	Pass	0.3	
	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100µs rectangular pulse	Pass	0.3	
	R.M.S. accuracy	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
	1 ms burst duty factor 1/10 <sup>3</sup> at 4kHz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 <sup>4</sup> at 4kHz	Pass	0.3	
	Single burst 10 ms at 4 kHz	Pass	0.4	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
	SPL	Pass	0.3	
Overload indication	Leq	Pass	0.4	

### 2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

### 3, Response to associated sound calibrator

N/A

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

Calibrated by:

Date: 07-Jul-2016

Fung Chi Yip

Checked by:

Date: 09-Jul-2016

Lam Tze Wai

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



Test Data for Sound Level Meter

Sound level meter type: 2238 Serial No. 2800927 / N.009.06 Date 07-Jul-2016  
Microphone type: 4188 Serial No. 2791211  
Report: 16CA0704 03-01

SELF GENERATED NOISE TEST

The noise test is performed in the most sensitive range of the SLM with the microphone replaced by an equivalent impedance.

Noise level in A weighting 13.4 dB  
Noise level in C weighting 17.5 dB  
Noise level in Lin 22.3 dB

LINEARITY TEST

The linearity is tested relative to the reference sound pressure level using a continuous sinusoidal signal of frequency 4 kHz. The measurement is made on the reference range for indications at 5 dB intervals starting from the 94 dB reference sound pressure level. And until within 5 dB of the upper and lower limits of the reference range, the measurements shall be made at 1 dB intervals. (SLM set to LEQ/SPL)

Table with 6 columns: Reference/Expected level, Actual level (non-integrated, integrated), Tolerance, Deviation (non-integrated, integrated). Rows show data from 94.0 dB down to 50.0 dB.

Measurements for an indication of the reference SPL on all other ranges which include it

Table with 5 columns: Other ranges, Expected level, Actual level, Tolerance, Deviation. Row for 60-140 dB range.



Test Data for Sound Level Meter

Sound level meter type: 2238 Serial No. 2800927 / N.009.06 Date 07-Jul-2016  
Microphone type: 4188 Serial No. 2791211  
Report: 16CA0704 03-01

Table with 5 columns: Range, Reference/Expected level, Actual level, Tolerance, Deviation. Rows for ranges 50-130, 40-120, 30-110, 20-100.

Measurements on all level ranges for indications 2 dB below the upper limit and 2 dB above the lower limit

Table with 5 columns: Ranges, Reference/Expected level, Actual level, Tolerance, Deviation. Rows for various dB ranges from 60-140 down to 0-80.

FREQUENCY WEIGHTING TEST

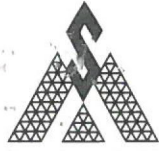
The frequency response of the weighting networks are tested at octave intervals over the frequency ranges 31.5 Hz to 12500 Hz. The signal level at 1000 Hz is set to give an indication of the reference SPL.

Frequency weighting A:

Table with 6 columns: Frequency, Ref. level, Expected level, Actual level, Tolerance, Deviation. Rows for frequency weighting A from 1000.0 Hz to 12590.0 Hz.

Frequency weighting C:

Table with 6 columns: Frequency, Ref. level, Expected level, Actual level, Tolerance, Deviation. Rows for frequency weighting C from 1000.0 Hz to 125.9 Hz.



Test Data for Sound Level Meter

Sound level meter type: 2238 Serial No. 2800927 / N.009.06 Date 07-Jul-2016  
Microphone type: 4188 Serial No. 2791211

Report: 16CA0704 03-01

251.2	94.0	94.0	93.9	1.0	1.0	-0.1
501.2	94.0	94.0	94.0	1.0	1.0	0.0
1995.0	94.0	93.8	93.8	1.0	1.0	0.0
3981.0	94.0	93.2	93.1	1.0	1.0	-0.1
7943.0	94.0	91.0	90.9	1.5	3.0	-0.1
12590.0	94.0	87.8	87.7	3.0	6.0	-0.1

Frequency weighting Lin:

Frequency Hz	Ref. level dB	Expected level dB	Actual level dB	Tolerance(dB)		Deviation dB
				+	-	
1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	94.0	93.9	1.5	1.5	-0.1
63.1	94.0	94.0	93.9	1.5	1.5	-0.1
125.9	94.0	94.0	93.9	1.0	1.0	-0.1
251.2	94.0	94.0	93.9	1.0	1.0	-0.1
501.2	94.0	94.0	93.9	1.0	1.0	-0.1
1995.0	94.0	94.0	93.9	1.0	1.0	-0.1
3981.0	94.0	94.0	94.0	1.0	1.0	0.0
7943.0	94.0	94.0	94.1	1.5	3.0	0.1
12590.0	94.0	94.0	94.2	3.0	6.0	0.2

TIME WEIGHTING FAST TEST

Time weighting F is tested on the reference range with a single sinusoidal burst of duration 200 ms at a frequency 2000 Hz and an amplitude which produces an indication 4 dB below the upper limit of the primary indicator range when the signal is continuous. (Weight A, Maximum hold)

Ref. level dB	Expected level dB	Actual level dB	Tolerance(dB)		Deviation dB
			+	-	
109.0	108.0	108.0	1.0	1.0	0.0

TIME WEIGHTING SLOW TEST

Time weighting S is tested on the reference range with a single sinusoidal burst of duration 500 ms at a frequency 2000 Hz and an amplitude which produces an indication 4 dB below the upper limit of the primary indicator range when the signal is continuous. (Weight A, Maximum hold)

Ref. level dB	Expected level dB	Actual level dB	Tolerance(dB)		Deviation dB
			+	-	
109.0	104.9	104.9	1.0	1.0	0.0

PEAK RESPONSE TEST

The onset time of the peak detector is tested on the reference range by comparing the response to a 100 us rectangular test pulse with the response to a 10 ms reference pulse of the same amplitude. The amplitude of the 10 ms reference pulse is such as to produce an indication 1 dB below the upper limit of the primary indicator range.

Positive polarities: (Weighting Z, set the generator signal to single, Lzpmx)

Ref. level dB	Response to 10 ms		Response to 100 us dB	Tolerance +/- dB	Deviation dB
	dB	dB			
112.0	112.0	112.0	112.0	2.0	0.0

Negative polarities:

Ref. level dB	Response to 10 ms		Response to 100 us dB	Tolerance +/- dB	Deviation dB
	dB	dB			
112.0	112.0	112.0	112.0	2.0	0.0



Test Data for Sound Level Meter

Sound level meter type: 2238 Serial No. 2800927 / N.009.06 Date 07-Jul-2016  
Microphone type: 4188 Serial No. 2791211

Report: 16CA0704 03-01

RMS ACCURACY TEST

The RMS detector accuracy is tested on the reference range for a crest factor of 3.

Test frequency: 2000 Hz  
Amplitude: 2 dB below the upper limit of the primary indicator range.  
Burst repetition frequency: 40 Hz  
Tone burst signal: 11 cycles of a sine wave of frequency 2000 Hz. (Set to INT)

Time weighting	Ref. Level	Expected level	Tone burst signal	Tolerance	Deviation
	dB	dB	indication(dB)	+/- dB	dB
Slow	111.0+6.6	111.0	110.9	0.5	-0.1

TIME WEIGHTING IMPULSE TEST

Time weighting I is tested on the reference range (Set the SLM to LAImax)

Test frequency: 2000 Hz  
Amplitude: The upper limit of the primary indicator range.

Single sinusoidal burst of duration 5 ms:

Ref. Level dB	Single burst indication		Tolerance +/- dB	Deviation dB
	Expected (dB)	Actual (dB)		
113.0	104.2	104.1	2.0	-0.1

Repeated at 100 Hz

Ref. Level dB	Repeated burst indication		Tolerance +/- dB	Deviation dB
	Expected (dB)	Actual (dB)		
113.0	110.3	110.1	1.0	-0.2

TIME AVERAGING TEST

This test compares the SLM reading for continuous sine signals with readings obtained from a sine tone burst sequence having the same RMS level. The test level is 30 dB below the upper limit of the linearity range and repeated for Type 1 SLM with 40 dB below the upper limit of the linearity.

Frequency of tone burst: 4000 Hz

Duration of tone burst: 1 ms

Repetition Time msec	Level of tone burst dB	Expected Leq dB	Actual Leq dB	Tolerance +/- dB	Deviation dB	Remarks
10000	73.0	73.0	72.6	1.0	-0.4	6min. integ.

PULSE RANGE AND SOUND EXPOSURE LEVEL TEST

The test tone burst signal is superimposed on a baseline signal corresponding to the lower limit of reference range

Test frequency: 4000 Hz

Integration time: 10 sec

The integrating sound level meter set to Leq:

Duration msec	Rms level of tone burst (dB)	Expected dB	Actual dB	Tolerance +/- dB	Deviation dB

The integrating sound level meter set to SEL:

Duration msec	Rms level of tone burst (dB)	Expected dB	Actual dB	Tolerance +/- dB	Deviation dB



Test Data for Sound Level Meter

Page 5 of 5

Sound level meter type: 2238 Serial No. 2800927 / N.009.06 Date 07-Jul-2016  
Microphone type: 4188 Serial No. 2791211  
Report: 16CA0704 03-01

OVERLOAD INDICATION TEST

For SLM capable of operating in a non-integrating mode.

Test frequency: 2000 Hz  
Amplitude: 2 dB below the upper limit of the primary indicator range.  
Burst repetition frequency: 40 Hz  
Tone burst signal: 11 cycles of a sine wave of frequency 2000 Hz.

Level	Level reduced by	Further reduced	Difference	Tolerance	Deviation
at overload (dB)	1 dB	3 dB	dB	dB	dB
124.8	123.8	120.8	3.0	1.0	0.0

For integrating SLM, with the instrument indicating Leq.

For integrating SLM, with the instrument indicating Leq and set to the reference range. The test signal as following:  
The test tone burst signal is superimposed on a baseline signal corresponding to the lower limit of reference range

Test frequency: 4000 Hz  
Integration time: 10 sec  
Single burst duration: 1 msec

Rms level	Level reduced by	Expected level	Actual level	Tolerance	Deviation
at overload (dB)	1 dB	dB	dB	dB	dB
130.5	129.5	89.5	89.4	2.2	-0.1

ACOUSTIC TEST

The acoustic test of the complete SLM is tested at the frequency 125 Hz and 8000 Hz using a B&K type 4226 Multifunction Acoustic Calibrator. The test is performed in A weighting.

Frequency Hz	Expected level dB	Actual level Measured (dB)	Tolerance (dB)		Deviation dB
			+	-	
1000	94.0	94.0	0.0	0.0	0.0
125	77.9	78.0	1.0	1.0	0.1
8000	92.9	93.1	1.5	3.0	0.2

-----END-----



CERTIFICATE OF CALIBRATION

Certificate No.: 18CA0406 02-01A Page 1 of 2

Item tested

Description: Sound Level Meter (Type 1) Microphone  
Manufacturer: B & K B & K  
Type/Model No.: 2238 4188  
Serial/Equipment No.: 2285692 2250455  
Adaptors used: -

Item submitted by

Customer Name: AECOM ASIA CO., LTD.  
Address of Customer: -  
Request No.: -  
Date of receipt: 06-Apr-2018

Date of test: 10-Apr-2018

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	08-Sep-2018	CIGISMEC
Signal generator	DS 360	33873	25-Apr-2018	CEPREI

Ambient conditions

Temperature: 21 ± 1 °C  
Relative humidity: 50 ± 10 %  
Air pressure: 1005 ± 5 hPa

Test specifications

- The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responses of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

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

Actual Measurement data are documented on worksheets.

Approved Signatory:

Feng Junqi

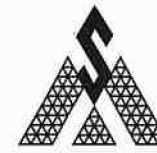
Date: 13-Apr-2018

Company Chop:



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





## CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 18CA0406 02-01A Page 2 of 2

### 1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100µs rectangular pulse	Pass	0.3	
	Crest factor of 3	Pass	0.3	
R.M.S. accuracy	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time weighting 1	1 ms burst duty factor 1/10 <sup>3</sup> at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 <sup>4</sup> at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	SPL	Pass	0.3	
	Leq	Pass	0.4	

### 2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

### 3, Response to associated sound calibrator

N/A

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

### 4, Remark: This calibration certificate supersedes the last certificate 18CA0406 02-01.

- End -

Calibrated by:

Date: 10-Apr-2018

Checked by:

Date: 13-Apr-2018

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

Test Data for Sound Level Meter

Page 1 of 5

Sound level meter type: 2238 Serial No. 2285692 Date 10-Apr-2018  
Microphone type: 4188 Serial No. 2250455 Report: 18CA0406 02-01A

### SELF GENERATED NOISE TEST

The noise test is performed in the most sensitive range of the SLM with the microphone replaced by an equivalent impedance.

Noise level in A weighting	13.9	dB
Noise level in C weighting	17.5	dB
Noise level in Lin	22.6	dB

### LINEARITY TEST

The linearity is tested relative to the reference sound pressure level using a continuous sinusoidal signal of frequency 4 kHz. The measurement is made on the reference range for indications at 5 dB intervals starting from the 94 dB reference sound pressure level. And until within 5 dB of the upper and lower limits of the reference range, the measurements shall be made at 1 dB intervals. (SLM set to LEQ/SPL)

Reference/Expected level	Actual level		Tolerance	Deviation	
	non-integrated	integrated		non-integrated	integrated
dB	dB	dB	+/- dB	dB	dB
94.0	94.0	94.0	0.7	0.0	0.0
99.0	99.0	99.0	0.7	0.0	0.0
104.0	104.0	104.0	0.7	0.0	0.0
109.0	109.0	109.0	0.7	0.0	0.0
114.0	114.0	114.0	0.7	0.0	0.0
119.0	118.9	118.9	0.7	-0.1	-0.1
124.0	123.9	123.9	0.7	-0.1	-0.1
125.0	124.9	124.9	0.7	-0.1	-0.1
126.0	125.8	125.8	0.7	-0.2	-0.2
127.0	126.8	126.8	0.7	-0.2	-0.2
128.0	127.8	127.8	0.7	-0.2	-0.2
129.0	128.8	128.8	0.7	-0.2	-0.2
130.0	129.8	129.8	0.7	-0.2	-0.2
89.0	89.0	89.0	0.7	0.0	0.0
84.0	84.0	84.0	0.7	0.0	0.0
79.0	79.0	79.0	0.7	0.0	0.0
74.0	74.0	74.0	0.7	0.0	0.0
69.0	69.0	69.0	0.7	0.0	0.0
64.0	64.0	64.0	0.7	0.0	0.0
59.0	59.0	59.0	0.7	0.0	0.0
54.0	54.1	54.1	0.7	0.1	0.1
53.0	53.1	53.1	0.7	0.1	0.1
52.0	52.1	52.1	0.7	0.1	0.1
51.0	51.1	51.1	0.7	0.1	0.1
50.0	50.2	50.2	0.7	0.2	0.2

Measurements for an indication of the reference SPL on all other ranges which include it

Other ranges	Expected level	Actual level	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
60-140	94.0	94.0	0.7	0.0



Test Data for Sound Level Meter

Sound level meter type: 2238 Serial No. 2285692 Date 10-Apr-2018  
Microphone type: 4188 Serial No. 2250455  
Report: 18CA0406 02-01A

50-130	94.0	94.0	0.7	0.0
40-120	94.0	94.0	0.7	0.0
30-110	94.0	93.9	0.7	-0.1
20-100	94.0	93.9	0.7	-0.1

Measurements on all level ranges for indications 2 dB below the upper limit and 2 dB above the lower limit

Ranges	Reference/Expected level	Actual level	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
60-140	62.0	62.0	0.7	0.0
	138.0	137.8	0.7	-0.2
50-130	52.0	52.1	0.7	0.1
	128.0	127.8	0.7	-0.2
40-120	42.0	42.0	0.7	0.0
	118.0	117.8	0.7	-0.2
30-110	32.0	32.0	0.7	0.0
	108.0	107.8	0.7	-0.2
20-100	30.0	30.1	0.7	0.1
	98.0	97.8	0.7	-0.2
10-90	30.0	30.1	0.7	0.1
	88.0	87.8	0.7	-0.2
0-80	30.0	30.3	0.7	0.3
	78.0	77.8	0.7	-0.2

FREQUENCY WEIGHTING TEST

The frequency response of the weighting networks are tested at octave intervals over the frequency ranges 31.5 Hz to 12500 Hz. The signal level at 1000 Hz is set to give an indication of the reference SPL.

Frequency weighting A:

Frequency	Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
				+	-	
Hz	dB	dB	dB	+	-	dB
1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	54.6	54.7	1.5	1.5	0.1
63.1	94.0	67.8	67.8	1.5	1.5	0.0
125.9	94.0	77.9	77.9	1.0	1.0	0.0
251.2	94.0	85.4	85.3	1.0	1.0	-0.1
501.2	94.0	90.8	90.7	1.0	1.0	-0.1
1995.0	94.0	95.2	95.2	1.0	1.0	0.0
3981.0	94.0	95.0	95.0	1.0	1.0	0.0
7943.0	94.0	92.9	92.9	1.5	3.0	0.0
12590.0	94.0	89.7	89.6	3.0	6.0	-0.1

Frequency weighting C:

Frequency	Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
				+	-	
Hz	dB	dB	dB	+	-	dB
1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	91.0	91.0	1.5	1.5	0.0
63.1	94.0	93.2	93.1	1.5	1.5	-0.1
125.9	94.0	93.8	93.8	1.0	1.0	0.0



Test Data for Sound Level Meter

Sound level meter type: 2238 Serial No. 2285692 Date 10-Apr-2018  
Microphone type: 4188 Serial No. 2250455  
Report: 18CA0406 02-01A

251.2	94.0	94.0	93.9	1.0	1.0	-0.1
501.2	94.0	94.0	94.0	1.0	1.0	0.0
1995.0	94.0	93.8	93.8	1.0	1.0	0.0
3981.0	94.0	93.2	93.1	1.0	1.0	-0.1
7943.0	94.0	91.0	90.9	1.5	3.0	-0.1
12590.0	94.0	87.8	87.7	3.0	6.0	-0.1

Frequency weighting Lin:

Frequency	Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
				+	-	
Hz	dB	dB	dB	+	-	dB
1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	94.0	94.0	1.5	1.5	0.0
63.1	94.0	94.0	93.9	1.5	1.5	-0.1
125.9	94.0	94.0	93.9	1.0	1.0	-0.1
251.2	94.0	94.0	93.9	1.0	1.0	-0.1
501.2	94.0	94.0	93.9	1.0	1.0	-0.1
1995.0	94.0	94.0	94.0	1.0	1.0	0.0
3981.0	94.0	94.0	94.0	1.0	1.0	0.0
7943.0	94.0	94.0	94.2	1.5	3.0	0.2
12590.0	94.0	94.0	94.2	3.0	6.0	0.2

Note: No corrections for the frequency response of the microphone, instrument case and windshield are made to the sound level meter.

TIME WEIGHTING FAST TEST

Time weighting F is tested on the reference range with a single sinusoidal burst of duration 200 ms at a frequency 2000 Hz and an amplitude which produces an indication 4 dB below the upper limit of the primary indicator range when the signal is continuous. (Weight A, Maximum hold)

Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
			+	-	
dB	dB	dB	+	-	dB
109.0	108.0	108.0	1.0	1.0	0.0

TIME WEIGHTING SLOW TEST

Time weighting S is tested on the reference range with a single sinusoidal burst of duration 500 ms at a frequency 2000 Hz and an amplitude which produces an indication 4 dB below the upper limit of the primary indicator range when the signal is continuous. (Weight A, Maximum hold)

Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
			+	-	
dB	dB	dB	+	-	dB
109.0	104.9	104.9	1.0	1.0	0.0

PEAK RESPONSE TEST

The onset time of the peak detector is tested on the reference range by comparing the response to a 100 us rectangular test pulse with the response to a 10 ms reference pulse of the same amplitude. The amplitude of the 10 ms reference pulse is such as to produce an indication 1 dB below the upper limit of the primary indicator range.

Positive polarities: (Weighting Z, set the generator signal to single, Lzpmax)

Ref. level	Response to 10 ms	Response to 100 us	Tolerance	Deviation
112.0	112.0	112.0	2.0	0.0

Negative polarities:

Ref. level	Response to 10 ms	Response to 100 us	Tolerance	Deviation
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Test Data for Sound Level Meter

Sound level meter type: 2238 Serial No. 2285692 Date 10-Apr-2018  
Microphone type: 4188 Serial No. 2250455  
Report: 18CA0406 02-01A

dB	dB	dB	+/- dB	dB
112.0	112.0	112.0	2.0	0.0

RMS ACCURACY TEST

The RMS detector accuracy is tested on the reference range for a crest factor of 3.

Test frequency: 2000 Hz  
Amplitude: 2 dB below the upper limit of the primary indicator range.  
Burst repetition frequency: 40 Hz  
Tone burst signal: 11 cycles of a sine wave of frequency 2000 Hz. (Set to INT)

Time weighting	Ref. Level dB	Expected level dB	Tone burst signal indication(dB)	Tolerance +/- dB	Deviation dB
Slow	111.0+6.6	111.0	110.6	0.5	-0.4

TIME WEIGHTING IMPULSE TEST

Time weighting I is tested on the reference range (Set the SLM to LAImax)

Test frequency: 2000 Hz  
Amplitude: The upper limit of the primary indicator range.

Single sinusoidal burst of duration 5 ms:

Ref. Level dB	Single burst indication		Tolerance +/- dB	Deviation dB
	Expected (dB)	Actual (dB)		
113.0	104.2	104.1	2.0	-0.1

Repeated at 100 Hz

Ref. Level dB	Repeated burst indication		Tolerance +/- dB	Deviation dB
	Expected (dB)	Actual (dB)		
113.0	110.3	110.2	1.0	-0.1

TIME AVERAGING TEST

This test compares the SLM reading for continuous sine signals with readings obtained from a sine tone burst sequence having the same RMS level. The test level is 30 dB below the upper limit of the linearity range and repeated for Type 1 SLM with 40 dB below the upper limit of the linearity.

Frequency of tone burst: 4000 Hz  
Duration of tone burst: 1 ms

Repetition Time msec	Level of tone burst dB	Expected Leq dB	Actual Leq dB	Tolerance +/- dB	Deviation dB	Remarks
1000	83.0	83.0	82.5	1.0	-0.5	60s integ.
10000	73.0	73.0	72.5	1.0	-0.5	6min. integ.

PULSE RANGE AND SOUND EXPOSURE LEVEL TEST

The test tone burst signal is superimposed on a baseline signal corresponding to the lower limit of reference range

Test frequency: 4000 Hz  
Integration time: 10 sec

The integrating sound level meter set to Leq:

Duration msec	Rms level of tone burst (dB)	Expected dB	Actual dB	Tolerance +/- dB	Deviation dB
10	116.0	86.0	85.9	1.7	-0.1

The integrating sound level meter set to SEL:

Duration	Rms level of	Expected	Actual	Tolerance	Deviation
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Test Data for Sound Level Meter

Sound level meter type: 2238 Serial No. 2285692 Date 10-Apr-2018  
Microphone type: 4188 Serial No. 2250455  
Report: 18CA0406 02-01A

msec	tone burst (dB)	dB	dB	+/- dB	dB
10.0	116.0	96.0	95.9	1.7	-0.1

OVERLOAD INDICATION TEST

For SLM capable of operating in a non-integrating mode.

Test frequency: 2000 Hz  
Amplitude: 2 dB below the upper limit of the primary indicator range.  
Burst repetition frequency: 40 Hz  
Tone burst signal: 11 cycles of a sine wave of frequency 2000 Hz.

Level at overload (dB)	Level reduced by 1 dB	Further reduced 3 dB	Difference dB	Tolerance dB	Deviation dB
125.2	124.2	121.2	3.0	1.0	0.0

For integrating SLM, with the instrument indicating Leq.

For integrating SLM, with the instrument indicating Leq and set to the reference range. The test signal as following:

The test tone burst signal is superimposed on a baseline signal corresponding to the lower limit of reference range

Test frequency: 4000 Hz  
Integration time: 10 sec  
Single burst duration: 1 msec

Rms level at overload (dB)	Level reduced by 1 dB	Expected level dB	Actual level dB	Tolerance dB	Deviation dB
130.6	129.6	89.6	89.5	2.2	-0.1

ACOUSTIC TEST

The acoustic test of the complete SLM is tested at the frequency 125 Hz and 8000 Hz using a B&K type 4226 Multifunction Acoustic Calibrator. The test is performed in A weighting.

Frequency Hz	Expected level dB	Actual level Measured (dB)	Tolerance (dB)		Deviation dB
			+	-	
1000	94.0	94.0	0.0	0.0	0.0
125	77.9	78.0	1.0	1.0	0.1
8000	92.9	93.2	1.5	3.0	0.3

-----END-----