

## Methodology of Fixed Plant Noise Measurement Setup

Noise surveys were carried out in August 2011 to investigate the noise level of identified existing fixed plant noise sources. The measurement locations are shown in **Appendix 4.1c** and **4.1d**.

The noise measurements were undertaken using Type 1 sound level meters, namely Rion NL-18 and Rion NL-31. During each measurement, the sound level meter was checked using an acoustic calibrator generating a sound pressure level of 94.0 dB(A) at 1kHz immediately before and after the noise measurement. The measurements were accepted as valid only if the calibration levels before and after the noise measurements were agreed to within 1.0 dB(A). Moreover, the sound level meters and acoustic calibrators are calibrated in accredited laboratories yearly to ensure reliable performance.

The recorded equivalent continuous noise level ( $L_{eq}$ ) was adopted to identify the sound power level (SWL, dB(A)) of existing fixed plant noise source with taking into account of distance attenuation and facade correction. The following formula was used for calculating the predicted sound power level:

$$\text{Predicted Sound Power Level} = \text{Measured Sound Pressure Level} + \text{Distance Attenuation} - \text{Facade Correction}$$

The distance attenuation was calculated by the formula:

$$20\text{Log}(D) + 8 \text{ dB(A)}$$

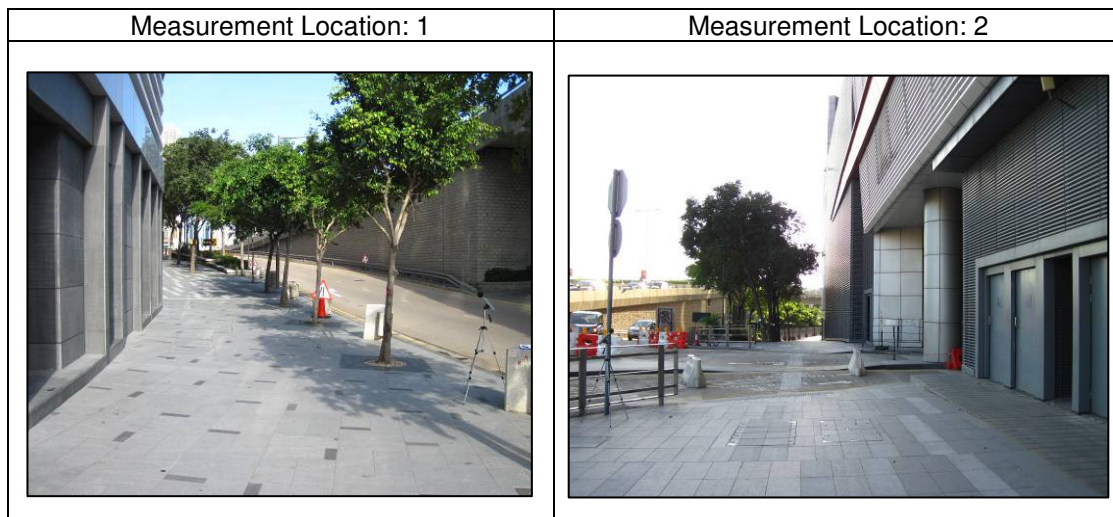
Where:







D is the slant distance from the microphone of the sound level meter to the source.

The facade correction of 3dB(A) was only adopted in the case where facade measurement was taken during the recording.

Detail measurement results and calculations of sound power levels are shown in **Appendix 4.1b**.

Photos of the measurement setup are shown below:



<p>Measurement Location: 3</p> 	<p>Measurement Location: 4</p> 
<p>Measurement Location: 5</p> 	<p>Measurement Location: 6</p> 
<p>Measurement Location: 7</p> 	<p>Measurement Location: 8</p> 

<p style="text-align: center;">Measurement Location: 9</p> 	<p style="text-align: center;">Measurement Location: 10</p> 
<p style="text-align: center;">Measurement Location: 11</p> 	<p style="text-align: center;">Measurement Location: 12</p> 
<p style="text-align: center;">Measurement Location: 13</p> 	

Note: Facade measurements were conducted at measurement location 7, 8 and 9. There was a solid site hoarding located behind the sound level meter and provided reflective noise during the measurements.