

Festival Republic Limited



on behalf of MCD Productions



Longitude


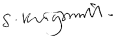

14th to 16th July 2017

Marlay Park

Sound Measurement Report

July 2017



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1. Introduction

- 1.1 Aria Acoustics Limited (Aria) was appointed by Festival Republic Limited (FR) on behalf of MCD Productions to provide sound management for the Longitude Festival held in Marlay Park, Dublin, ROI between Friday 14th and Sunday 16th July 2017.
- 1.2 Live and recorded music was to be featured as part of a multi-stage event, with live music between approximately 13:30 and 23:00 each day. There was recorded music played on the stage from the time the event opens to the public.
- 1.3 The condition relating to noise levels from the event is as follows;

'48. The music level should not exceed 72dB (a) L_{Aeq} , over a fifteen minute period, at 1m from the façade of any noise sensitive premises for events being held.'
- 1.4 This report contains the details of all on and off-site sound monitoring and measurements carried out at these concerts and soundchecks associated with these concerts. The locations of the off-site measurements are shown in Figure 1 and a site plan is shown in Figure 2
- 1.5 A glossary of acoustic terms is provided in Appendix A.

2. Details of sound measurement instruments

- 2.1 Front of house noise measurements were made with a NTI Audio XL2 Sound Level Meter (SLM) set-up to record slow time-weighted noise metrics.
- 2.2 For the external noise measurements a Rion NL52 was used. The SLM was set-up to record slow time-weighted noise metrics.
- 2.3 All instrumentation was checked for calibration both prior to and immediately following the noise measurements with a Rion NC-74 calibrator (serial number 3436005) to ensure that no significant drift had occurred over the survey period. All instrumentation was within the manufacturers' periods of calibration. Calibration certificates are available on request.

3. Sound level measurement data

Friday 14th July

Chart 3.1: Main Stage - Front of house sound levels Main Stage 14th July

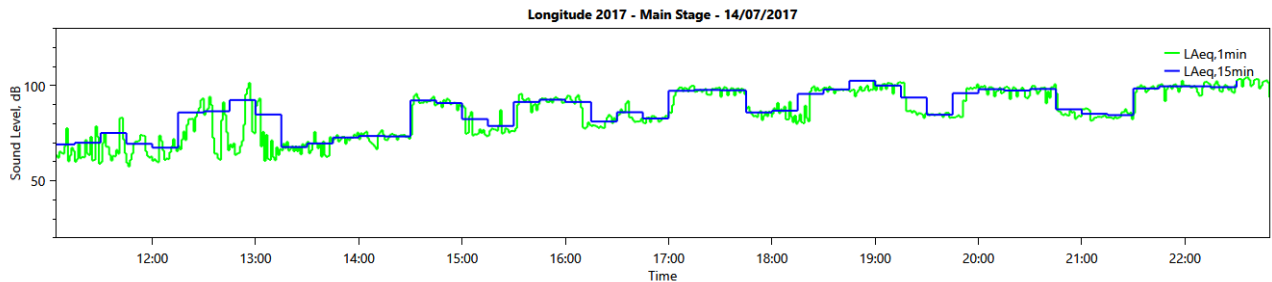


Table 3.1: Off-site measurement data 14th July

Location	Start Time	Duration (hh:mm:ss)	L _{Aeq,T} dB	Comments
Grange Wood	12:36	00:04:35	58	No music. Road traffic (RT), pedestrians.
Grange Wood	14:33	00:07:00	68	Main stage and Whelan's Tent audible. RT
Heather Lawn	14:45	00:05:00	65	Main stage and Whelan's Tent audible. RT
Pine Valley	14:58	00:04:06	63	Multiple stages audible. RT, dogs barking. Measurement stopped early due to lawn mower.
Heather Lawn	15:33	00:05:00	59	Main stage audible. Heineken tent audible without Main stage. RT.
Grange Wood	15:47	00:06:00	65	Main stage and Whelan's tent audible. Crowd noise. RT. Local RT paused out.
Marlay Lawn	15:57	00:10:01	47	Main stage audible. Wind in trees, alarm, siren, birds. Local RT paused out.
Grange Wood	18:20	00:01:45	64	Heineken tent audible. Megaphone at entrance. RT.
Grange Wood	18:25	00:15:00	68	Main stage audible. RT. Birds. Local RT paused out.
Grange Wood	18:42	00:01:00	66	Main stage. RT, birds.
Heather Lawn	18:50	00:15:00	62	Main stage audible, Heineken tent audible without Main stage. RT. Very light rain. Local RT paused
Pine Valley	19:21	00:15:00	57	Heineken tent audible. RT, bird song, dog barking. Light rain. Local RT paused out.

Location	Start Time	Duration (hh:mm:ss)	L _{Aeq,T} dB	Comments
Pine Valley	20:10	00:15:00	65	Main stage audible, Heineken tent audible without Main stage. RT. RT, bird song. Local RT paused out.
Grange Wood	20:37	00:05:00	60	Main stage audible. Metal road barriers being erected. RT.
Heather Lawn	21:31	00:15:00	66	Main stage audible. RT, police helicopter. Local RT paused out.
Grange Wood	21:52	00:15:00	67	Main stage audible. Bass beat occasionally audible from Heineken Tent. RT. Local RT paused out.
Grange Wood	22:22	00:15:00	65	Main stage audible. Bass beat occasionally audible from Heineken Tent. RT. Local RT paused out.
Heather Lawn	22:41	00:05:00	65	Main stage audible. Bass beat occasionally audible from Heineken Tent. RT. People. Local RT paused

Saturday 15th July

Chart 3.2: Main Stage - Front of house sound levels Main Stage 15th July

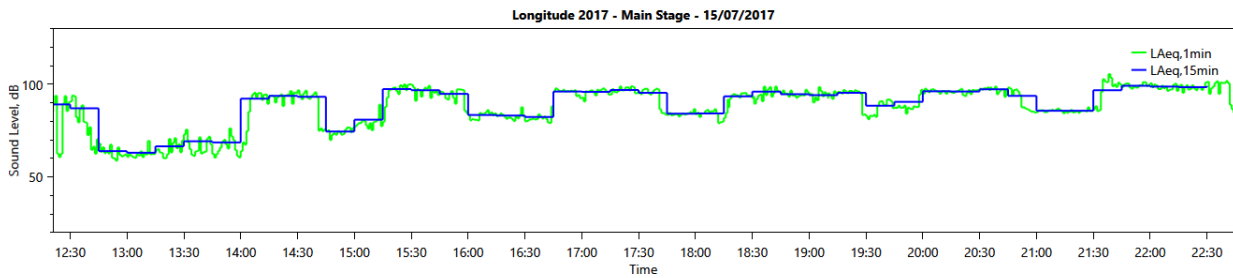


Table 3.2: Off-site measurement data 15th July

Location	Start Time	Duration (hh:mm:ss)	L _{Aeq,T} dB	Comments
Grange Wood	14:05	00:15:00	66	Main stage audible. Wind in trees, RT, bird song. Local RT paused out.
Grange Wood	15:21	00:15:00	70	Main stage and Heineken Stage audible. Wind in trees, bird song hammering from local resident
Heather Grove	15:48	00:09:00	67	Main stage audible. Wind in trees, RT. Measurement stopped when Main stage act
Pine Valley	16:15	00:05:12	62	Main stage off. Multiple stages audible. Lots of noise from wind in trees.
Pine Valley	16:46	00:05:00	65	Main stage audible. Lots of noise from wind in trees. RT. Local RT paused out.
Grange Wood	17:03	00:05:00	69	Main stage audible. Lots of noise from wind in trees. RT. Local RT paused out.
Grange Wood	17:13	00:04:00	70	Main stage audible. RT. Local RT paused out. Measurement stopped due to residents coming to
Grange Wood	17:17	00:05:00	69	Main stage and Heineken Stage audible. Wind in trees, RT, people.. Local RT paused out.
Heather Lawn	18:48	00:15:00	69	Main stage audible, other stages occasionally audible. RT.
Grange Wood	19:15	00:11:05	68	Main stage audible. Wind in trees. RT, bird song. Local RT paused out.
Highfield Court	19:59	00:10:00	66	Main stage audible. Lots of noise from the wind in trees. RT. Local RT paused out.
Grange Wood	20:21	00:10:00	69	Main stage audible, other stages occasionally audible. RT. Wind in trees.
Heather Lawn	20:42	00:10:00	68	Main stage audible, other stages occasionally audible. Crowd noise, RT. Wind in trees.

Location	Start Time	Duration (hh:mm:ss)	L _{Aeq,T} dB	Comments
Heather Lawn	20:55	00:05:00	65	Main stage off. Multiple stages audible. Wind in trees.
Grange Wood	21:07	00:05:00	62	Main stage & Heineken Stage off. Other stages audible. RT. Local RT paused out.
Heather Lawn	21:15	00:05:00	62	Multiple stages (no main). RT, wind in trees.
Grange Wood	21:39	00:14:17	71	Main stage audible. Wind in trees. RT. Very light rain. Local RT paused.
Wood Park, off Ballinteer Av	21:50	-	57	Level measured and reported by Local Authority.
Grange Wood	22:01	00:15:00	71	Main stage audible. Wind in trees. Very light rain.
Heather Lawn	22:28	00:15:00	70	Main stage audible. Wind in trees. Very light rain.

Sunday 16th July

Chart 3.3: Main Stage - Front of house sound levels Main Stage 16th July

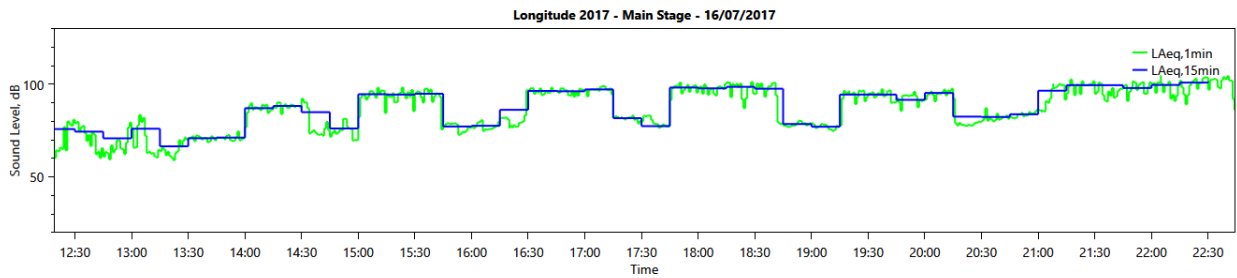


Table 3.3: Off-site measurement data 16th July

Location	Start Time	Duration (hh:mm:ss)	L _{Aeq,T} dB	Comments
Grange Wood	14:09	00:05:00	62	Main stage audible. Megaphone announcements at entrance, RT. Local RT paused out.
Heather Lawn	14:24	00:05:00	61	Main stage audible. Other stages audible at times. RT.
Pine Valley	15:12	00:05:00	64	Main stage audible. RT, dogs barking. Local RT paused out.
Grange Wood	15:24	00:05:00	67	Main stage audible. RT. Local RT paused out.
Heather Grove	17:01	00:13:00	68	Main stage audible. Other stages audible at times. RT, wind in trees, people.
Grange Wood	17:48	00:15:00	66	Main stage audible. Megaphone announcements at entrance, RT, bird song, people. Local RT paused
Pine Valley	18:18	00:15:00	68	Main stage audible. RT, dogs barking. Local RT paused out.
Grange Wood	21:05	00:15:00	66	Main stage audible. Crowd noise/singing.
Heather Lawn	21:10	-	64	Level measured and reported by Local Authority.
Heather Lawn	21:35	00:15:00	66	Main stage audible. Crowd noise/singing. Bird song.
Grange Wood	21:59	00:04:57	70	Main stage audible. Crowd noise/singing. RT.

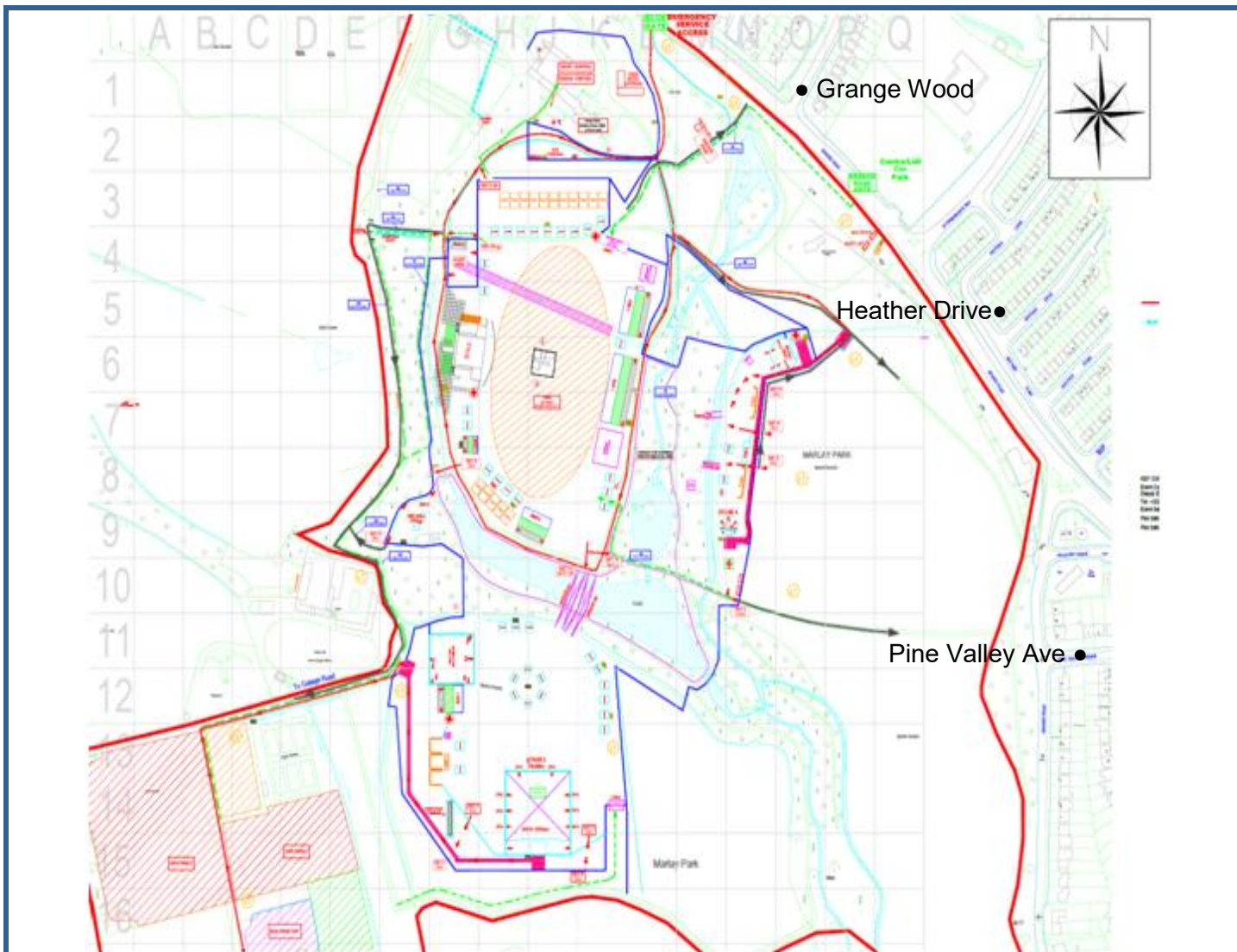
4. Noise complaint record

4.1 The complaints received during the event are recorded in the table below. Some callers did not leave an address. In these cases the 'Location' column has been left blank. As has been noted above, the measurements taken during the event did not exceed level of $L_{Aeq, 15 \text{ mins}}$ 72 dB stipulated in the licence.

Table 4.1: Complaint record

Date	Time	Location
Friday 14 th July 2017	15:50	Marlay Lawn
Friday 14 th July 2017	22:36	45 Heather Lawn
Saturday 15 th July 2017	15:50	Marlay Lawn
Saturday 15 th July 2017	22:36	6 Heather Grove
Saturday 15 th July 2017	14:15	Broadford Rise
Saturday 15 th July 2017	15:32	Marlay Grange
Saturday 15 th July 2017	15:32	Grange Road
Saturday 15 th July 2017	16:34	Elm Way
Saturday 15 th July 2017	17:31	Marlay Grange
Saturday 15 th July 2017	17:46	Wood Park
Saturday 15 th July 2017	20:35	Marlay Wood
Saturday 15 th July 2017	20:44 & 21:20	Marlay Lawn
Saturday 15 th July 2017	00:24	6 Heather Grove
Sunday 16 th July 2017	16:10	Heather Grove
Sunday 16 th July 2017	18:16	Across from the park
Sunday 16 th July 2017	21:12	Broadford
Sunday 16 th July 2017	21:43	No address given
Sunday 16 th July 2017	22:29	Pine Valley

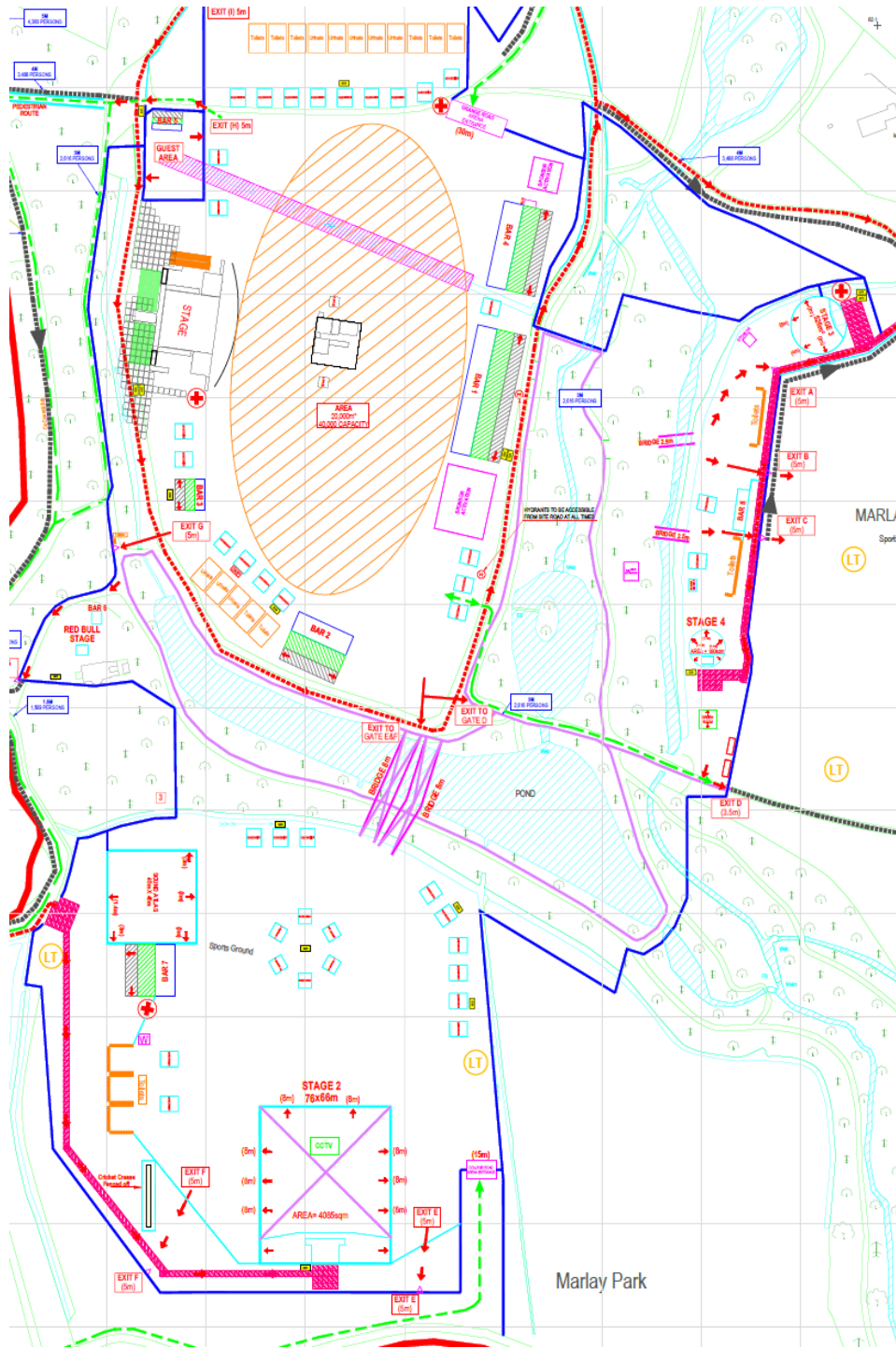
Figures



Date July 2017

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Figure 1 : Site Plan and Representative noise sensitive receptors (not to scale)



Date: July 2017

Figure 2 : Arena site plan (not to scale)

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Appendices

Appendix A

Glossary of noise terminology

Glossary

Noise is defined as sound unwanted at the point of reception. The range of audible sound is from 0 dB to 140 dB. The frequency response of the ear is usually taken to be about 18 Hz (number of oscillations per second) to 18000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than the lower and higher frequencies and because of this, the low and high frequency components of a sound are reduced in importance by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most widely used and which correlates best with subjective response to noise is the dB(A) weighting. This is an internationally accepted standard for noise measurements.

For variable noise sources such as traffic, a difference of 3 dB(A) is just distinguishable. In addition, a doubling of a noise source would increase the overall noise by 3 dB(A). For example, if one item of machinery results in noise levels of 30 dB(A) at 10 m, then two identical items of machinery adjacent to one another would result in noise levels of 33 dB(A) at 10 m. The 'loudness' of a noise is a purely subjective parameter but it is generally accepted that an increase/decrease of 10 dB(A) corresponds to a doubling/halving in perceived loudness.

External noise levels are rarely steady but rise and fall according to activities within an area. In an attempt to produce a figure that relates this variable noise level to subjective response, a number of noise indices have been developed. These include:

L_{Amax} noise level: This is the maximum noise level recorded over the measurement period.

L_{Aeq} noise level: This is the 'equivalent continuous A-weighted sound pressure level, in decibels' and is defined in British Standard 7445 (BS 7445) [] as the 'value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval, T, has the same mean square sound pressure as a sound under consideration whose level varies with time'.

It is a unit commonly used to describe construction noise and noise from industrial premises and is the most suitable unit for the description of other forms of environmental noise. In more straightforward terms, it is a measure of energy within the varying noise. It is also the unit best suited to assessing community response.

Music Noise Level (MNL) : the L_{Aeq} of music noise measured at a particular location.

L_{A10} noise level: This is the noise level that is exceeded for 10% of the measurement period and gives an indication of the noisier levels. It is a unit that has been used over many years for the measurement and assessment of road traffic noise.

L_{A90} noise level: This is the noise level that is exceeded for 90% of the measurement period and gives an indication of the noise level during quieter periods. It is often referred to as the background noise level and is used in the assessment of disturbance from industrial noise.

Hz (Hertz): The tonal quality of a sound is described and measured in terms of the frequency content and is commonly expressed as octave or third octave bands, the latter being the division of the octave bands into three for finer analysis, across the frequency spectrum. The smaller the octave band or third octave band centre frequency number defined in terms of Hz, the lower the sound. For example 63 Hz is lower than 500

Hz and is perceived as a deeper sound. The attenuation due to air absorption and natural barriers increases with frequency i.e. low frequencies are always the most difficult to control.

