



Sydney Cricket Ground Trust

**NOISE MONITORING, ONE DAY
INTERNATIONAL CRICKET- AUSTRALIA
v PAKISTAN**

22 JANUARY 2017

January 2017

Report Prepared by:

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Executive Summary

Monitoring of noise levels at sensitive receptors in the area surrounding Sydney Cricket Ground was undertaken during the Australia v Pakistan One Day International Cricket match held on 22 January 2017 to determine compliance with the following noise criteria defined in the site's Noise Management Plan (NMP):

'When measured at the specified monitoring locations, the L_{Amax} of noise emanating from any sound amplification equipment must not exceed 60 dB (A) during any sporting events.

This noise limit applies to wind speeds up to 5m/s, above which wind generated noise on the microphone limits measurement accuracy. During periods of wind greater than 5m/s this noise limit does not apply.

Noise levels measured when wind speed exceed 5 m/s (at microphone height) should not be used to measure compliance with noise limits, as wind generated noise may influence measurement accuracy. During periods of wind greater than 5 m/s the Trust must continue to take all reasonable and feasible actions to minimise noise.'

Noise levels were measured for the duration of the amplified activities associated with the event 14:20 pm to 22:15 pm at the three positions required by the Noise Management Plan. During the monitoring, notes were also made regarding the sources of noise in the area and the source of any potential exceedences of the noise criteria.

Throughout the monitoring, noise levels were recorded at each location every two minutes. During each two minute period notes were also made regarding the sources of noise in the area and the source of any potential exceedences of the noise criteria. The noise levels recorded represent the highest RMS noise level recorded during the two minute period.

During the cricket match it was identified that noise levels from the event PA system were within the criteria defined in the site's NMP throughout the noise monitoring. At Positions 1 and 3 the match was audible at times, but no exceedances were recorded. At Position 2, amplified sound was inaudible due to the high volume of road traffic near the monitoring position.

No noise complaints were received by the Trust or by Event Noise Management staff during the event.

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1 INTRODUCTION

1.1 SCOPE OF ASSESSMENT

Sydney Cricket Ground Trust (SCGT) commissioned Event Noise Management to conduct event noise monitoring during the Australia v Pakistan One Day International Cricket match held on 22 January 2017 as part of the requirements under the Noise Management Plan (NMP) for the facility¹.

This report presents a summary of the results of the monitoring and a comparison with the noise criteria for the event as defined in the NMP.

1.2 EVENT DETAILS

The sporting event was held at Sydney Cricket Ground (SCG) on Sunday 22 January 2017. 14:20 pm and 22:00 pm, with amplified music and announcements and advertising continuing at a low level until approximately 22:15 pm.

1.3 EVENT NOISE CRITERIA

Noise limits for sporting events held at the SCG are provided in the site's NMP as follows:

'When measured at the specified monitoring locations, the L_{Amax} of noise emanating from any sound amplification equipment must not exceed 60 dB (A) during any sporting events.'

This noise limit applies to wind speeds up to 5m/s, above which wind generated noise on the microphone limits measurement accuracy. During periods of wind greater than 5m/s this noise limit does not apply.

Noise levels measured when wind speed exceed 5m/s (at microphone height) should not be used to measure compliance with noise limits, as wind generated noise may influence measurement accuracy. During periods of wind greater than 5 m/s the Trust must continue to take all reasonable and feasible actions to minimise noise.'

Section 6.2.1 of the NMP details the monitoring positions that must be considered as follows:

'Monitoring Locations

For both sporting events and concerts attended monitoring locations will be as set out below.

For activities taking place at the SCG:

- *At a point within one (1) metre of the boundary nearest to the SCG, at the corner of Poate Road and Poate Lane, Centennial Park;*
- *At a point within one (1) metre of the boundary nearest to the SCG, at the corner of*

¹ Sydney Cricket Ground and Allianz Stadium, Noise Management Plan (NMP), prepared by ERM for Sydney Cricket and Sports Ground Trust (SCGT), April 2015

Leinster and Regent Streets, Paddington; and

- *At a point within one (1) metre of the boundary nearest to the SCG, at the corner of Robertson Road and Martin Road (northern intersection), Moore Park.*

2 MONITORING METHODOLOGY

2.1 MONITORING POSITIONS

Monitoring during the match were undertaken at two fixed monitoring positions as required by the NMP. Table 2.1 presents a summary of the monitoring locations assessed during the event, with the monitoring positions identified on Figure 1.

TABLE 2.1: SUMMARY OF MONITORING POSITIONS

Position	Description
1	Fixed monitoring position located within 1 m of the front boundary at the corner of Poate Road and Poate Lane
2	Fixed monitoring position located within 1 m of the front boundary at the corner of Leinster and Regent Streets
3	Fixed monitoring position located within 1 m of the front boundary at the corner of Robertson Road and Martin Road (northern intersection)

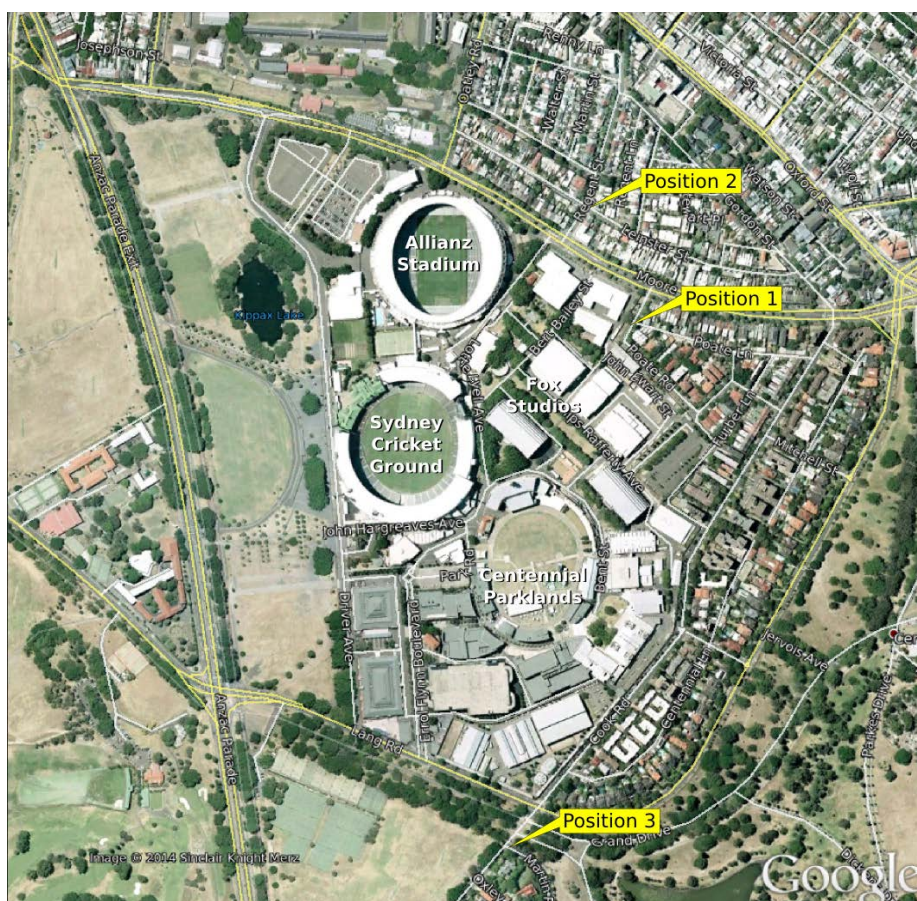


Figure 1: Noise Monitoring Positions (External Fixed Locations)

2.2 OPERATORS

During the monitoring, Event Noise Monitoring personnel were located at each position identified

in Figure 1. The monitoring exercise was undertaken by the following personnel:

- Position 1: Roger Treagus: BA, MA Env. Stud, MAAS.
- Position 2: Jamie Muscat: BEng(Audio).
- Position 3: Samuel Wong: BEng(Chem), MAAS.

2.3 MONITORING EQUIPMENT

Table 2.2 presents a summary of the equipment used to complete the monitoring. The monitoring instruments utilised conform to *Australian Standard 1259 "Acoustics - Sound Level Meters" (1990)* as Type 1 precision sound level meters and have an accuracy suitable for both field and laboratory use.

The sound level meters and calibrator used for the monitoring have been checked, adjusted and aligned to conform to the Type 1 specifications and issued with a conformance certificate (NATA).

TABLE 2.2: SUMMARY OF MONITORING EQUIPMENT

Position	Instrument Model	Instrument Serial	Instrument Calibration Due Date	Calibrator Model	Calibrator Serial	Calibrator Calibration Due Date
1	Nor 140	1404664	8/7/17	Pulsar 105	62686	17/11/17
2	Nor 140	1404663	6/7/17	Pulsar 105	62686	17/11/17
3	B&K 2250L	2741104	23/10/17	Pulsar 105	62686	17/11/17

Field calibrations of each of the instruments were also undertaken prior to and immediately after the monitoring was completed. Less than 0.5 dB drift occurred over the measurement periods. All instruments were fitted with a windshield and monitoring was completed at a height of 1.5 m above ground level.

2.4 WEATHER CONDITIONS DURING THE EVENT

Table 2.3 presents a summary of the meteorological data from Sydney Olympic Park obtained from the Bureau of Meteorology during the event.

TABLE 2.3: SUMMARY OF METEOROLOGICAL DATA

Time	Temp (deg C)	Relative Humidity (%)	Wind Direction	Wind Speed (km/h)	Wind Gust (km/h)	Rainfall Since 9 am (mm)
22:30	22.8	73	NNE	9	19	0
22:00	23	72	NE	11	19	0
21:30	23.1	70	NE	11	20	0
21:00	23.2	67	NE	11	22	0
20:30	23.5	65	NE	13	28	0

Time	Temp (deg C)	Relative Humidity (%)	Wind Direction	Wind Speed (km/h)	Wind Gust (km/h)	Rainfall Since 9 am (mm)
20:00	23.8	63	NE	15	28	0
19:30	24.2	61	ENE	15	26	0
19:00	24.7	60	E	17	28	0
18:30	25.2	54	NE	17	24	0
18:00	25.8	53	NE	17	26	0
17:30	26.3	49	ENE	17	26	0
17:00	26.1	50	E	19	33	0
16:30	26.7	49	ENE	15	28	0
16:00	27.2	49	ENE	17	28	0
15:30	27.5	52	E	17	28	0
15:00	27.1	51	E	19	32	0
14:30	26.5	51	E	15	22	0
14:00	26.3	52	E	11	22	0

2.5 METEOROLOGICAL INFLUENCES ON MONITORING

During the monitoring period, wind conditions were moderate in speed and ranged from easterly to north-easterly. These conditions directed noise away from the nearest houses and monitoring positions, which were located to the south and north-east of the venue.

3 RESULTS OF MONITORING

3.1 METHODOLOGY

Noise monitoring was completed continuously at each location with the maximum noise level recorded for every two minute period. During the monitoring, notes were also made regarding the sources of noise in the area and the source of any potential exceedances of the noise criteria. The noise levels represent the highest RMS noise level recorded during the two minute period. Hence, even where exceedances are identified, it is possible such exceedances are due to noise sources unrelated to amplified event noise (e.g. road traffic).

3.2 MONITORING RESULTS

The measured noise levels and associated notes that were recorded during the monitoring are presented in Appendix B. During the cricket match it was identified that noise levels from the event were within the criteria defined in the site's NMP throughout the noise monitoring.

At Position 1 and 3, amplified sound from the event PA was audible at times, but noise levels were less than 51 dB(A) at Position 1 and less than 57 dB(A) at Position 3 (within the 60 dB(A) criteria). At Position 2, amplified sound was inaudible due to the high volume of road traffic near the monitoring position.

It is noted that all recorded L_{Amax} noise levels were greater than the noise criteria set in the NMP. However, these noise levels do not represent non-compliance with the NMP as the L_{Amax} levels recorded were attributable to extraneous noise sources and not the PA system. These sources included passing vehicles, aircraft overhead and pedestrians.

3.3 EVENT HOTLINE

During the event no noise complaint related calls were received on the event hotline established by the Sydney Cricket Ground Trust. No complaints were received by Event Noise Management staff for investigation.

4 CONCLUSIONS

Noise monitoring of amplified noise from Sydney Cricket Ground during Australia v Pakistan One Day International Cricket match held on 22 January 2017 was completed at three positions as required by the site's Noise Management Plan. Noise levels were measured for the duration of the amplified activities associated with the event from 2:20 pm to 10:15 pm.

During the cricket match it was identified that noise levels from the event were within the criteria defined in the site's NMP throughout the noise monitoring. At Positions 1 and 3 the match was audible at times, but no exceedances were recorded. At Position 2, amplified sound was inaudible due to the high volume of road traffic near the monitoring position.

No noise complaints were received by the Trust or by Event Noise Management staff during the event.

APPENDIX A

ACOUSTIC GLOSSARY

APPENDIX A: GLOSSARY OF ACOUSTIC TERMINOLOGY

A-Weighting	A response provided by an electronic circuit which modifies sound in such a way that the resulting level is similar to that perceived by the human ear.
dB (decibel)	This is the scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and the reference pressure (0.00002N/m ²).
dB(A)	This is a measure of the overall noise level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
dB(C)	This is a standard weighting of the audible frequencies, commonly used for the measurement of Peak Sound Pressure level.
Facade Noise Level	Refers to a sound pressure level determined at a point close to an acoustically reflective surface (in addition to the ground). Typically a distance of 1 metre is used.
Free Field	Refers to a sound pressure level determined at a point away from reflective surfaces other than the ground with no significant contribution due to sound from other reflective surfaces; generally as measured outside and away from buildings.
Hertz (Hz)	A measure of the frequency of sound. It measures the number of pressure peaks per second passing a point when a pure tone is present.
L_{Aeq} Equivalent Continuous Sound Level	This is the equivalent steady sound level in dB(A) containing the same acoustic energy as the actual fluctuating sound level over the given period. For a steady sound with small fluctuations, its value is close to the average sound pressure level.
L_{A90,T}	This is the dB(A) level exceeded 90% of the time, T.
L_{A10,T}	This is the dB(A) level exceeded 10% of the time, T.
L_{Amax}	is the maximum A-weighted sound pressure level recorded over the period stated.
L_{Cmax}	is the maximum C-weighted sound pressure level recorded over the period stated.

APPENDIX B

DETAILED MONITORING DATA (FIXED POSITIONS)



EVENT NOISE MANAGEMENT

Project Number:	4838	Date:	22/1/17
Project Description:	Cricket ODI Australia vs Pakistan		
Monitoring Location:	Position 1		
Operator:	Roger Treagus		
Weather Description:	Easterly to north-easterly		
Instrument:	Nor140	Calibrator Model:	Pulsar 105
Instrument Serial:	1404664	Calibrator Serial:	62686
Instrument NATA Calibration Date:	8/7/17	Calibrator NATA Calibration Date:	17/11/17
Pre-calibration:	93.9	Post calibration:	94.0

Time	L _{Amax} dB(A)	Description of Noise and/or Changes to Weather
14:30	75	Traffic
14:32	-	Traffic, aircraft
14:34	67.9	Traffic
14:36	72	Traffic
14:38	70.6	Traffic
14:42	72.9	Traffic, no event noise
14:44	-	Traffic, no event noise
14:46	-	Traffic, no event noise
14:48	77.9	Traffic, no event noise
14:50	78.3	Traffic, no event noise
14:52	73.9	Traffic, no event noise
14:54	-	Traffic, no event noise
14:56	76.9	Traffic, no event noise
14:58		Traffic, no event noise
15:00	71.8	Traffic, no event noise

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
15:02	65.5	Traffic, no event noise
15:04	67.3	Traffic, no event noise
15:06	-	Traffic, no event noise
15:08	71.1	Traffic, no event noise
15:10	69.1	Traffic, no event noise
15:12	61.0	Traffic, no event noise
15:14	72.1	Traffic, no event noise
15:16	68.9	Traffic, no event noise
15:18	76.1	Traffic, no event noise
15:20	71.4	Traffic, no event noise
15:22	78.5	Instrument fixed
15:24	66.8	Traffic, no event noise
15:26	76.3	Traffic, no event noise
15:28	75.7	Traffic, no event noise
15:30	78.0	Event PA system audible <50 dB(A), traffic dominant
15:32	66.8	Event PA system 48 dB(A) max, traffic dominant
15:34	70.0	Event PA system 48 dB(A), all noise from traffic on Moore Park Road and Poate Road
15:36	68.5	No event noise audible, traffic dominant
15:38	62.2	No event noise audible, traffic dominant
15:40	73.2	No event noise audible, traffic dominant
15:42	77.3	No event noise audible, traffic dominant
15:44	74.8	No event noise audible, traffic dominant
15:46	69.8	No event noise audible, traffic dominant

Time	L _{Amax} dB(A)	Description of Noise and/or Changes to Weather
15:48	67.7	No event noise audible, traffic dominant
15:50	70.3	No event noise audible, traffic dominant
15:52	66.6	No event noise audible, traffic dominant
15:54	69.9	No event noise audible, traffic dominant
15:56	68.9	No event noise audible, traffic dominant
15:58	65.3	No event noise audible, traffic dominant
16:00	74.1	No event noise audible, traffic dominant
16:02	69.8	No event noise audible, traffic dominant
16:04	72.2	No event noise audible, traffic dominant
16:06	66.8	No event noise audible, traffic dominant
16:08	77.2	No event noise audible, traffic dominant
16:10	64.4	No event noise audible, traffic dominant
16:12	72.2	No event noise audible, traffic dominant
16:14	62.9	No event noise audible, traffic dominant
16:16	71.6	No event noise audible, traffic dominant
16:18	78.5	No event noise audible, traffic dominant
16:20	68.7	No event noise audible, traffic dominant
16:22	66.7	No event noise audible, traffic dominant
16:24	71.0	No event noise audible, traffic dominant
16:26	73.7	Occasional crowd noise otherwise no event noise, source – local traffic
16:28	76.0	Occasional crowd noise otherwise no event noise, source – local traffic
16:30	64.9	Occasional crowd noise otherwise no event noise, source – local traffic
16:32	78.3	Occasional crowd noise otherwise no event noise, source – local traffic

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
16:34	69.0	Occasional crowd noise otherwise no event noise, source – local traffic
16:36	65.0	Occasional crowd noise otherwise no event noise, source – local traffic
16:38	68.4	PA audible 48 dB(A) max, source – local traffic
16:40	67.3	No event noise, source – local traffic
16:42	65.9	No event noise, source – local traffic
16:44	67.3	No event noise, source – local traffic
16:46	64.4	No event noise, source – local traffic
16:48	71.3	No event noise, source – local traffic
16:50	71.6	No event noise, source – local traffic
16:52	67.6	No event noise, source – local traffic
16:54	56.6	No event noise, source – local traffic
16:56	74.9	No event noise, source – local traffic
16:58	67.7	No event noise, source – local traffic
17:00	65.8	No event noise, source – local traffic
17:02	80.7	No event noise, source – local traffic
17:04	68.9	No event noise, source – local traffic
17:06	63.2	No event noise, source – local traffic
17:08	69.9	No event noise, source – local traffic
17:10	65.5	No event noise, source – local traffic
17:12	74.5	No event noise, source – local traffic
17:14	61.3	No event noise, source – local traffic
17:16	75.2	No event noise, source – local traffic
17:18	83.9	No event noise, source – local traffic
17:20	63.2	Occasional crowd noise otherwise no event noise, local traffic dominant

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
17:22	77.1	Occasional crowd noise otherwise no event noise, local traffic dominant
17:24	76.7	Occasional crowd noise otherwise no event noise, local traffic dominant
17:26	55.7	No event noise, local traffic dominant
17:28	74.4	No event noise, local traffic dominant
17:30	77.3	No event noise, local traffic dominant
17:32	87.0	No event noise, local traffic dominant
17:34	67.2	No event noise, local traffic dominant
17:36	76.0	No event noise, local traffic dominant
17:38	68.2	No event noise, local traffic dominant
17:40	73.4	No event noise, local traffic dominant
17:42	75.2	No event noise, local traffic dominant
17:44	75.2	No event noise, local traffic dominant
17:46	76.1	No event noise, local traffic dominant
17:48	67.5	No event noise
17:50	72.6	PA announcement <48 dB(A) max, local traffic dominant
17:52	69.8	No event noise, local traffic dominant
17:54	83.7	No event noise, local traffic dominant
17:56	63.7	No event noise, local traffic dominant
17:58	77.4	No event noise, aircraft
18:00	77.4	No event noise, local traffic dominant
18:02	74.8	No event noise, local traffic dominant
18:04	61.5	Crowd noise, local traffic
18:06	74.0	Crowd noise, local traffic
18:08	76.0	Crowd noise, local traffic

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
18:10	80.3	PA announcement 48 dB(A) max, local traffic
18:12	75.3	No event noise, aircraft
18:14	65.4	No event noise, traffic
18:16	74.1	No event noise, traffic
18:18	70.5	No event noise, traffic
18:20	76.1	No event noise, traffic
18:22	75.8	No event noise, traffic
18:24	64.9	No event noise, traffic
18:26	67.0	PA announcements 48 dB(A) max, traffic
18:28	70.7	PA announcements 48 dB(A) max, traffic
18:30	67.6	PA announcements 48 dB(A) max, traffic
18:32	67.8	PA announcements 48 dB(A) max, traffic
18:34	67.5	PA announcements 48 dB(A) max, traffic
18:36	74.3	PA announcements 50 dB(A) max, traffic
18:38	63.8	PA announcements 50 dB(A) max, traffic
18:40	77.8	Traffic
18:42	73.9	No event noise, traffic
18:44	70.0	No event noise, traffic
18:46	70.5	No event noise, traffic
18:48	71.7	No event noise, traffic
18:50	83.5	No event noise, traffic
18:52	65.1	No event noise, traffic
18:54	74.5	No event noise, traffic
18:56	75.5	No event noise, traffic

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
18:58	66.2	No event noise, traffic
19:00	66.6	No event noise, traffic, aircraft
19:02	69.7	No event noise, traffic
19:04	75.2	No event noise, traffic
19:06	69.4	No event noise, traffic
19:08	65.0	Crowd noise, traffic
19:10	67.2	Crowd noise, traffic
19:12	73.7	No event noise, traffic
19:14	73.6	Crowd noise, traffic
19:16	68.7	No event noise, traffic
19:18	63.8	No event noise, traffic, aircraft
19:20	79.3	Crowd noise, traffic
19:22	76.0	Traffic, aircraft
19:24	83.3	No event noise, traffic
19:26	65.6	No event noise, traffic
19:28	70.2	No event noise, traffic
19:30	69.0	No event noise, traffic
19:32	68.0	No event noise, traffic
19:34	64.9	No event noise, traffic
19:36	55.5	No event noise, traffic
19:38	-	No event noise, traffic
19:40	-	Crowd noise, traffic
19:42	-	Crowd noise, traffic
19:44	-	No event noise, traffic

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
19:46	-	No event noise, traffic
19:48	-	PA announcement 49 dB(A) max, traffic
19:50	-	Traffic
19:52	71.7	Change batteries
19:54	68.2	No event noise, traffic, aircraft
19:56	66	No event noise, traffic
19:58	63.9	No event noise, traffic
20:00	67.2	No event noise, traffic
20:02	63.3	No event noise, traffic
20:04	67.9	No event noise, traffic
20:06	64.7	No event noise, traffic
20:08	71.5	No event noise, traffic
20:10	82.3	No event noise, traffic
20:12	66.1	No event noise, traffic
20:14	66.1	No event noise, traffic
20:16	64.7	No event noise, traffic
20:18	55.5	No event noise, traffic
20:20	73.8	No event noise, traffic
20:22	68.6	No event noise, traffic
20:24	74.1	No event noise, traffic
20:26	58.7	No event noise, traffic
20:28	63.7	No event noise, traffic
20:30	70.2	No event noise, traffic
20:32	81.1	No event noise, traffic

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
20:34	68.8	No event noise, traffic
20:36	67.3	No event noise, traffic
20:38	74.9	Crowd noise, traffic
20:40	73.4	Crowd noise, traffic, aircraft
20:42	67.8	No event noise, traffic
20:44	70.5	No event noise, traffic
20:46	62.4	PA announcement 47 dB(A) max, traffic
20:48	68.3	No event noise, traffic
20:50	67.8	No event noise, traffic
20:52	70.2	No event noise, traffic
20:54	64.2	No event noise, traffic
20:56	61.7	No event noise, traffic, crickets/insects
20:58	71.5	Crowd noise, traffic, insects
21:00	64.2	Crowd noise, traffic, insects
21:02	65.3	PA 48 dB(A) Max, traffic and insects
21:04	81.5	PA 48 dB(A) Max, traffic and insects
21:06	71.6	PA 48 dB(A) Max and crowd, traffic and insects
21:08	70.2	Crowd noise, traffic, insects
21:10	75.4	No event noise, traffic and insects, aircraft
21:12	75.1	No event noise, traffic and insects, aircraft
21:14	64.8	No event noise, traffic
21:16	68.8	No event noise, traffic
21:18	81.9	No event noise, traffic
21:20	60.2	No event noise, traffic

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
21:22	67.8	No event noise, traffic
21:24	62.6	No event noise, traffic
21:26	70.4	No event noise, traffic
21:28	58	No event noise, traffic
21:30	63.5	No event noise, traffic
21:32	78.1	Crowd noise, faint PA, traffic
21:34	59.9	Crowd noise, faint PA, traffic
21:36	66.3	No event noise, traffic
21:38	56.3	No event noise, traffic
21:40	65.3	No event noise, traffic
21:42	74	No event noise, traffic
21:44	70.8	No event noise, traffic
21:46	74.1	No event noise, traffic
21:48	61.1	No event noise, traffic
21:50	63.6	No event noise, traffic
21:52	75.8	No event noise, traffic
21:54	70.4	No event noise, traffic
21:56	75.1	No event noise, traffic, aircraft
21:58	63.8	Faint PA, traffic
22:00	68.4	No event noise, traffic
22:02	62.1	No event noise, traffic
22:04	65.7	Faint PA, traffic
22:06	69.8	Faint PA, traffic
22:08	72.8	Faint PA, traffic

Time	L_{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
22:10	67.7	No event noise, traffic
22:12	68.7	No event noise, traffic
22:14	62.3	No event noise, traffic
22:16	-	22:15 PA ceased.

Project Number:	4838	Date:	22/1/17
Project Description:	Cricket ODI Australia vs Pakistan		
Monitoring Location:	Position 2		
Operator:	Jamie Muscat		
Weather Description:	Easterly to north-easterly		
Instrument:	Nor140	Calibrator Model:	Pulsar 105
Instrument Serial:	1404663	Calibrator Serial:	62686
Instrument NATA Calibration Date:	6/7/17	Calibrator NATA Calibration Date:	17/11/17
Pre-calibration:	93.8	Post calibration:	93.8

Time	L_{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
14:26	84.4	Clip board snap, traffic
14:28	76.4	Traffic, talking, airplane
14:30	71.0	Traffic, car door closing
14:32	70.9	Traffic, car revving
14:34	85.8	Car horn/revving
14:36	71.1	Car horn, traffic
14:42	71.1	Traffic
14:44	68.3	Traffic
14:46	68.3	Traffic
14:48	72.0	Traffic, people talking
14:50	78.6	Traffic, motorbike, truck
14:52	74.2	Plane, traffic
14:54	74.2	Traffic
14:56	69.6	Traffic
14:58	77.5	Traffic
15:00	78.0	Traffic

Time	L _{Amax} dB(A)	Description of Noise and/or Changes to Weather
15:02	78.0	Traffic
15:04	79.3	Traffic
15:06	70.7	Traffic
15:08	-	Changing batteries
15:10	-	Changing batteries
15:12	79.2	Traffic
15:14	73.9	Traffic
15:16	71.7	Traffic
15:18	92.8	Traffic, car revving past
15:20	76.0	Traffic
15:22	77.0	Traffic, plane
15:24	64.1	Traffic
15:26	70.1	Traffic
15:28	77.0	Traffic, talking
15:30	74.1	Traffic, talking
15:32	87.6	Dog barking, traffic
15:34	70.7	Traffic
15:36	69.5	Traffic
15:38	69.7	Traffic
15:40	69.3	Traffic
15:42	70.9	Traffic
15:44	73.8	Motorbike revving, traffic
15:46	69.9	Traffic
15:48	83.9	Traffic, motorbike

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
15:50	79.0	Motorbike
15:52	71.2	Motorbike, traffic
15:54	68.2	Traffic
15:56	68.8	Traffic
15:58	69.6	Traffic
16:00	74.4	Traffic
16:02	75.2	Traffic
16:04	81.4	Traffic, motorbike
16:06	79.4	Motorbike, traffic
16:08	74.7	Traffic
16:10	76.6	Traffic
16:12	80.6	Traffic
16:14	76.9	Traffic
16:16	75.3	Traffic
16:18	73.1	Traffic
16:20	77.3	Traffic, motorbike
16:22	77.3	Traffic, motorbike
16:24	74.3	Bus, traffic
16:26	76.9	Traffic, truck
16:28	80.2	Plane, traffic
16:30	78.1	Traffic, truck
16:32	80.3	Traffic, trucks
16:34	74.0	Traffic

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
16:36	71.0	Traffic
16:38	75.0	Traffic, motorbikes
16:40	72.1	Traffic
16:42	82.4	Traffic, motorbike
16:44	69.9	Traffic
16:46	85.9	Traffic, talking
16:48	72.8	Traffic
16:50	70.7	Traffic
16:52	70.0	Traffic
16:54	75.6	Traffic
16:56	72.3	Traffic
16:58	69.3	Traffic
17:00	79.0	Traffic
17:02	61.8	Traffic
17:04	88.3	Traffic, ambulance
17:06	73.1	Traffic
17:08	73.8	Traffic
17:10	74.9	Traffic
17:12	79.0	Traffic, motorbike
17:14	78.4	Traffic
17:16	70.1	Traffic
17:18	77.3	Traffic
17:20	78.2	Traffic, talking
17:22	74.8	Car revving, traffic

Time	L _{Amax} dB(A)	Description of Noise and/or Changes to Weather
17:24	77.1	Clapping in pub, traffic
17:26	76.1	Traffic
17:28	66.5	Traffic
17:30	71.6	Traffic
17:32	74.1	Traffic
17:34	83.8	Car horn
17:36	73.8	Traffic
17:38	69.6	Traffic
17:40	82.0	Traffic, talking
17:42	81.2	Car horn, traffic
17:44	80.0	Talking, traffic
17:46	73.0	Traffic
17:48	69.7	Traffic
17:50	69.8	Traffic
17:52	70.6	Traffic, plane
17:54	79.4	Motorbike, traffic
17:56	68.3	Traffic
17:58	107.0	People talking, traffic
18:00	80.1	Motorbike, traffic
18:02	80.1	Plane, motorbike and traffic
18:04	74.3	Traffic
18:06	72.7	Traffic
18:08	70.8	Traffic
18:10	85.4	Motorbike, traffic

Time	L _{Amax} dB(A)	Description of Noise and/or Changes to Weather
18:12	72.2	Traffic, motorbike
18:14	77.1	Traffic
18:16	74.0	Plane, traffic
18:18	70.8	Traffic, van door
18:20	80.7	Traffic, talking
18:22	80.7	Traffic, talking
18:24	79.0	Traffic, talking
18:26	75.3	Traffic
18:28	75.3	Traffic
18:30	79.4	Traffic, talking
18:32	77.4	Traffic, children screaming
18:34	74.8	Traffic
18:36	77.9	Traffic, trucks
18:38	75.6	Traffic
18:40	73.9	Traffic, bus
18:42	76.4	Traffic, motorbikes, taling
18:44	93.1	Traffic, trailer bouncing, talking
18:46	74.1	Traffic
18:48	85.7	Traffic, talking
18:50	83.4	Traffic, talking
18:52	82.6	Traffic, motorbikes
18:54	87.5	Traffic, talking
18:56	101.7	Traffic, talking
18:58	80.5	Traffic, talking

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
19:00	78.8	Traffic, trucks, motorbike
19:02	66.8	Traffic
19:04	75.0	Traffic, plane
19:06	75.0	Traffic, motorbike
19:08	68.9	Traffic
19:10	76.8	Traffic, truck
19:12	70.8	Traffic
19:14	78.5	Traffic, car door slam
19:16	75.9	Traffic, motorbike
19:18	74.3	Traffic
19:20	75.4	Traffic
19:22	71.7	Traffic
19:24	74.9	Traffic, motorbike
19:26	74.6	Traffic, motorbike
19:28	74.8	Traffic, motorbike
19:30	68.7	Traffic
19:32	75.0	Traffic, gate closing
19:34	69.8	Traffic
19:36	68.4	Traffic
19:38	73.5	Traffic, motorbike
19:40	70.0	Traffic
19:42	72.3	Traffic
19:44	75.3	Traffic, motorbike
19:46	67.5	Traffic

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
19:48	70.2	Traffic
19:50	80.7	Traffic, motorbike
19:52	97.0	Traffic, whistle
19:54	74.0	Traffic
19:56	77.7	Traffic, motorbike
19:58	79.1	Traffic, motorbike
20:00	84.3	Traffic, brakes
20:02	73.4	Traffic
20:04	71.0	Traffic
20:06	71.8	Traffic
20:08	69.5	Traffic
20:10	69.7	Traffic
20:12	86.3	Traffic, motorbike
20:14	68.1	Traffic
20:16	74.5	Traffic, motorbike, kegs being moved
20:18	68.2	Traffic
20:20	69.1	Traffic
20:22	75.2	Traffic, plane
20:24	75.8	Traffic, motorbike
20:26	74.0	Traffic, motorbike
20:28	69.4	Traffic
20:30	79.3	Traffic, motorbike
20:32	70.4	Traffic, talking
20:34	80.4	Traffic, motorbike

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
20:36	77.3	Traffic, motorbikes
20:38	72.3	Traffic
20:40	75.0	Traffic, motorbike
20:42	71.2	Traffic
20:44	74.9	Traffic
20:46	71.5	Traffic
20:48	78.8	Traffic, brakes
20:50	84.9	Traffic, talking
20:52	75.3	Traffic
20:54	70.0	Traffic, motorbike
20:56	70.7	Traffic
20:58	68.7	Traffic
21:00	72.4	Traffic, motorbike
21:02	70.2	Traffic, motorbike
21:04	74.7	Traffic, motorbike
21:06	67.6	Traffic
21:08	80.4	Traffic, motorbike
21:10	74.9	Traffic, motorbike
21:12	69.0	Traffic
21:14	72.0	Traffic
21:16	74.9	Traffic
21:18	73.5	Traffic, whistle
21:20	75.6	Traffic
21:22	70.7	Traffic, motorbike

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
21:24	67.6	Traffic
21:26	68.0	Traffic
21:28	74.5	Traffic, trucks
21:30	71.2	Traffic
21:32	71.1	Traffic
21:34	68.4	Traffic, motorbike
21:36	72.8	Traffic, horns
21:38	68.2	Traffic
21:40	89.1	Traffic, motorbike, talking
21:42	69.6	Traffic
21:44	69.6	Traffic
21:46	73.9	Traffic, talking
21:48	92.0	Traffic
21:50	115.2	Traffic, talking, loud people
21:52	73.0	Traffic
21:54	73.0	Traffic
21:56	81.1	Traffic, talking
21:58	74.5	Traffic, plane
22:00	75.6	Traffic, talking
22:02	68.0	Traffic, motorbike, carhorn
22:04	72.8	Traffic, carhorn, motorbike
22:06	79.5	Traffic, talking
22:08	82.1	Traffic, motorbike, talking
22:10	70.7	Traffic, talking



Time	L_{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
22:12	111.5	Traffic, people talking
22:14	74.9	Traffic, people talking
22:16	-	22:15 PA ceased.

Project Number:	4838	Date:	22/1/17
Project Description:	Cricket ODI Australia vs Pakistan		
Monitoring Location:	Position 3 - Robertson and Martin Road		
Operator:	Samuel Wong		
Weather Description:	Easterly to north-easterly		
Instrument:	B&K 2250 Lite	Calibrator Model:	Pulasr 105
Instrument Serial:	2741104	Calibrator Serial:	62686
Instrument NATA Calibration Date:	23/10/17	Calibrator NATA Calibration Date:	17/11/17
Pre-calibration:	94.0	Post calibration:	94.0

Time	L_{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
14:26	-	Traffic, PA not audible
14:28	-	Traffic, PA not audible
14:30	77.6	Traffic
14:32	64.2	Traffic
14:34	75.8	Traffic
14:36	71.0	Traffic
14:38	93.6	Motorbike
14:40	78.7	Car horn
14:42	71.3	Traffic
14:44	72.4	Traffic
14:46	77.8	Traffic
14:48	70.3	People talking near by
14:50	74.2	Airplane
14:52	63.5	Traffic
14:54	68.9	Traffic
14:56	64.9	Ttraffic

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
14:58	75.8	Aircraft
15:00	65.9	Motorbike
15:02	70.1	Traffic
15:04	74.1	Traffic
15:06	67.5	Traffic
15:08	75.4	Traffic
15:10	66.9	Traffic
15:12	67.4	Traffic
15:14	74.3	Talking nearby
15:16	82.9	Talking nearby
15:18	73.6	Aircraft
15:20	75.7	Aircraft
15:22	77.8	Aircraft
15:24	79.7	People talking nearby
15:26	75.7	Motorbike
15:28	77.?	Aircraft
15:30	62.5	Traffic
15:32	67.4	Traffic
15:34	69.8	Traffic
15:36	64.6	Traffic
15:38	64.7	Traffic
15:40	66.6	Traffic
15:42	64.8	Traffic
15:44	66.6	Traffic

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
15:46	63.7	Traffic
15:48	64.8	Traffic
15:50	66.3	Traffic, some PA music just audible for a few seconds, SPLs were below traffic noise levels
15:52	66.9	Traffic
15:54	61.0	Traffic
15:56	66.4	Traffic
15:58	64.0	Traffic
16:00	76.1	Traffic, people talking nearby
16:02	80.0	People talking nearby
16:04	73.9	Car parking nearby
16:06	80.4	Airplane
16:08	75.1	Airplane
16:10	68.8	Traffic
16:12	67.0	Traffic
16:14	73.4	Traffic
16:16	67.5	Traffic, music audible for a few seconds, less than 58 dB(A)
16:18	75.7	Airplane
16:20	68.0	Traffic
16:22	63.9	Traffic
16:24	68.4	Traffic
16:26	75.8	Airplane
16:28	69.7	Crowd cheer audible, traffic causing max.
16:30	69.3	Traffic

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
16:32	76.7	Aircraft
16:34	71.4	Traffic
16:36	67.3	Traffic
16:38	68.3	Traffic, cheering from local cricket playground
16:40	68.9	Traffic
16:42	71.8	Traffic, birds overhead
16:44	63.4	Traffic
16:46	72.5	Traffic
16:48	67.5	Traffic causing max, PA music barely audible near end of measurement
16:50	75.2	Traffic causing max, short crowd cheer
16:52	73.0	Truck passby
16:54	73.5	Traffic
16:56	67.1	Traffic
16:58	64.9	Traffic
17:00	74.4	Traffic
17:02	71.8	Traffic
17:04	66.1	Traffic
17:06	64.1	Traffic
17:08	63.6	Traffic
17:10	69.0	Crowd roar, traffic
17:12	76.0	Airplane
17:14	67.9	Traffic
17:16	76.1	Airplane

Time	L _{Amax} dB(A)	Description of Noise and/or Changes to Weather
17:18	67.4	Traffic
17:20	75.4	Motorbike
17:22	75.8	Airplane
17:24	65.1	Traffic
17:26	65.2	Traffic
17:28	64.3	Crowd roar, traffic
17:30	74.1	Airplane
17:32	69.9	Person walking by
17:34	68.1	Traffic
17:36	64.1	Traffic
17:38	60.9	Crowd, traffic causing max
17:40	62.0	Traffic
17:42	73.2	Airplane
17:44	75.7	Airplane
17:46	66.9	Traffic
17:48	74.1	Motorbike, crowd chanting towards end of measure
17:50	65.6	Traffic, helicopter
17:52	65.5	Traffic
17:54	64.2	Traffic
17:56	71.2	Airplane
17:58	73.6	Airplane
18:00	77.9	Airplane
18:02	62.8	Traffic
18:04	65.7	Traffic

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
18:06	64.2	Traffic
18:08	62.9	Traffic
18:10	70.9	Motorbike, PA just audible, less than 55 dB(A)
18:12	74.6	Airplane
18:14	76.6	PA just audible, less than 55 dB(A), max due to airplane
18:16	70.3	Airplane
18:18	60.6	Max due to traffic, PA just audible at times, less than 52 dB(A)
18:20	74.4	Airplane
18:22	75.1	Max due to airplane, PA just audible once, less than 52 dB(A)
18:24	65.3	Max due to traffic, PA just audible, less than 54 dB(A)
18:26	65.6	Traffic
18:28	68.1	Traffic
18:30	70.1	Max due to traffic, PA just audible at times
18:32	66.4	Traffic
18:34	76.9	Max due to airplane, PA just audible on one occasion, less than 55 dB(A)
18:36	63.8	Traffic
18:38	65.3	Max due to traffic, PA up to 54 dB(A)
18:40	75.6	Airplane
18:42	66.2	Traffic
18:44	79.4	People talking nearby
18:46	75.5	Max due to airplane, PA music just audible at times, less than 54 dB(A)
18:48	62.9	Traffic
18:50	64.5	Traffic

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
18:52	74.8	Airplane
18:54	76.5	Airplane
18:56	72.7	Airplane
18:58	63.7	Traffic
19:00	65.1	Traffic
19:02	78.7	Clapping sound nearby, traffic
19:04	76.6	Airplane
19:06	68.9	Birds
19:08	65.2	Traffic
19:10	69.9	Traffic
19:12	75.7	Noisy car trailer
19:14	76.3	Birds
19:16	62.7	Traffic
19:18	74.2	Squeaky car brakes
19:20	75.1	People talking nearby
19:22	74.4	Traffic
19:24	67.6	Traffic
19:26	69.6	Traffic
19:28	65.7	Traffic
19:30	64.4	Traffic
19:32	66.0	Traffic
19:34	83.5	Motor bike
19:36	73.5	Max due to motor bike, PA just audible less than 53 dB(A)
19:38	64.9	Traffic

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
19:40	68.8	Birds
19:42	79.9	Max due to motorbike, PA just audible less than 55 dB(A)
19:44	65.7	Traffic
19:46	65.7	Traffic
19:48	71.9	Birds
19:50	63.7	Max due to, PA announcer up to 55 dB(A)
19:52	72.5	Airplane
19:54	62.5	Birds
19:56	68.3	Car boot slam
19:58	63.7	Traffic
20:00	66.9	Traffic
20:02	85.5	Motorbike
20:04	64.6	Traffic
20:06	68.4	Traffic
20:08	72.7	Airplane
20:10	63.9	Traffic
20:12	62.7	Traffic
20:14	69.8	Traffic
20:16	69.0	Traffic
20:18	62.5	Traffic
20:20	74.8	Airplane
20:22	64.3	Max due to traffic, PA audible once, less than 53 dB(A)
20:24	76.1	Airplane
20:26	67.9	People talking nearby

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
20:28	61.8	Traffic
20:30	67.4	Traffic
20:32	67.0	Traffic
20:34	62.9	Car horn
20:36	76.0	Squeaky brakes
20:38	69.7	Traffic
20:40	73.0	Max due to airplane, Crowd roar 64.6 dB(A)
20:42	60.9	Traffic
20:44	62.3	Traffic
20:46	72.7	Traffic
20:48	60.1	Max due to traffic, crowd and PA less than 57 dB(A)
20:50	64.4	Traffic
20:52	75.0	Traffic
20:54	61.4	Traffic
20:56	60.7	Traffic
20:58	67.4	Traffic
21:00	69.7	Traffic
21:02	65.6	Max due to traffic, PA audible less than 56 dB(A)
21:04	62.5	Traffic
21:06	61.0	Max due to traffic, PA chant up to 53 dB(A)
21:08	64.9	Crowd roar
21:10	86.4	People talking nearby
21:12	76.1	Airplane
21:14	71.6	Traffic, people talking

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
21:16	68.8	Traffic
21:18	74.6	Traffic
21:20	61.2	Traffic
21:22	67.8	Traffic
21:24	63.2	Traffic
21:26	62.1	Traffic
21:28	71.4	Traffic
21:30	74.7	Traffic
21:32	61.1	Traffic
21:34	64.0	Traffic
21:36	64.7	Traffic
21:38	64.5	Traffic
21:40	59.8	Traffic
21:42	79.3	People talking nearby
21:44	69.6	Traffic
21:46	66.8	Traffic
21:48	72.6	Max due to car horn, PA music just audible at times
21:50	63.3	Traffic, PA audible once less than 53 dB(A)
21:52	60.8	Crowd roar
21:54	62.4	Traffic
21:56	72.7	Airplane
21:58	67.2	Traffic
22:00	62.6	Traffic

Time	L_{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
22:02	61.8	Traffic
22:04	65.0	Traffic
22:06	67.0	Traffic
22:08	67.4	Car horn
22:10	65.9	Traffic
22:12	60.6	Traffic
22:14	74.3	People shouting
22:16	-	22:15 PA ceased.