



Sydney Cricket Ground Trust

**NOISE MONITORING, NRL - SYDNEY
ROOSTERS VS SOUTH SYDNEY
RABBITHOHS**

4 SEPTEMBER 2015

September 2015

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Executive Summary

Monitoring of noise levels at sensitive receptors in the area surrounding Allianz Stadium was undertaken during the Sydney Roosters v South Sydney Rabbitohs NRL match held on 4 September 2015 to determine compliance with the following noise criteria defined in the site's Noise Management Plan (NMP) and EPA Variation of Prevention Notice (2 December 2013):

'(a) 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 5 m/s, above which wind generated noise on the microphone limits measurement accuracy. During period of winds greater than 5 m/s this noise limit does not apply.

i) Noise levels measured when wind speed exceeds 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.'

Noise levels were measured for the duration of the amplified activities associated with the event 5:00 pm to 10:04 pm at the two 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 measured continuously and the maximum 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 NRL match at Allianz Stadium, it was identified that noise levels from the event were less than the criteria defined in the site's NMP. When noise levels were within 3 dB(A) of the noise criteria at Position 1 the PA operators were promptly informed that they were approaching the noise criteria and requested to reduce the volume (in accordance with the NMP requirements). Once the PA operator was contacted by Event Noise Management staff they responded promptly by reducing the levels.

At Position 1 the match was audible at times, however generally noise from the match was masked by traffic and other ambient noise.

At Position 2 the match was audible at times, however noise levels were well below the criteria and noise from the match was usually masked by traffic and other ambient noise.

No complaints were forwarded to Event Noise Management staff for investigation.

During the event, L_{Amax} noise levels were higher than the 60 dB(A) criteria for the majority of the time due to traffic noise and patrons external to the venue. These sources of noise are not directly attributable to the sound amplification system and therefore do not represent an exceedance of the criteria.

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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 Sydney Roosters v South Sydney Rabbitohs NRL match held on 4 September 2015 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 and EPA Variation of Prevention Notice (2 December 2013).

1.2 EVENT DETAILS

The sporting event was held at Allianz Stadium on Friday 4 September 2015. The gates opened at 5:15 pm and the game concluded at approximately 9:44 pm, with amplified music, announcements and advertising continuing at a low level until approximately 9:52 pm.

1.3 EVENT NOISE CRITERIA

Noise limits for sporting events held at Allianz Stadium are provided in the EPA Variation of Prevention Notice (2 December 2013):

'(a) 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 5 m/s, above which wind generated noise on the microphone limits measurement accuracy. During period of winds greater than 5 m/s this noise limit does not apply.

i) Noise levels measured when wind speed exceeds 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.'

Section 15.4 of the NMP details the monitoring positions that must be considered as follows:

'Description Of Location

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

a) For activities taking place at the SFS:

- *At a point within one (1) metre of the boundary nearest to the SFS at 234 Moore Park Road, Paddington*

¹ Sydney Cricket and Sports Ground Trust (SCGT) Noise Management Plan for Sydney Cricket and Sports Ground Trust (April 2011)

- *At a point within one (1) metre of the boundary nearest to the SFS of 10 Alexander Street, Paddington.*

2 MONITORING METHODOLOGY

2.1 MONITORING POSITIONS

Monitoring during the match was 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 of 234 Moore Park Road
2	Fixed monitoring position located within 1 m of the front boundary of 10 Alexander Street



Figure 1: Noise Monitoring Positions (External Fixed Locations)

2.2 OPERATORS

During the monitoring undertaken on 4 September 2015, Event Noise Monitoring personnel were located at each position identified in Figure 1. The monitoring exercise was undertaken by the following personnel:

- Position 1: Beau Weyers: BEng(Mech), MAAS, RPEQ.
- Position 2: Roger Treagus: BA, MA Env. Stud, 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 within the last 24 months 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	1405306	9/07/17	Svan SV03A	358	6/01/16
2	Nor 140	1404663	6/07/17	Svan SV03A	358	6/01/16

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

During the monitoring period wind speeds on the site were generally light-moderate south-easterly at the commencement tending toward calm conditions throughout the event with a short period of light south-westerly. The temperature was generally cool with isolated brief showers and drizzle, and occasionally overcast conditions.

2.5 METEOROLOGICAL INFLUENCES ON MONITORING

The early evening light SE and SW winds during the main match would have tendered to carry noise from Allianz Stadium toward the residential areas, and may have increased noise levels at the monitoring positions, relative to calm or alternative wind conditions.

3 RESULTS OF MONITORING

3.1 METHODOLOGY

Noise monitoring was completed at each location throughout the monitoring period with the maximum noise levels 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 that for the majority of the two minute period receptor noise levels (from amplified activities within the Allianz Stadium) were compliant with the NMP criteria.

3.2 MONITORING RESULTS

Noise monitoring during the Sydney Roosters v South Sydney Rabbitohs NRL Match held on 4 September 2015 at Allianz Stadium was conducted between 5:00 pm and 10:04 pm at monitoring positions 1 and 2. The measured noise levels and associated notes that were recorded during this period are presented in Appendix B. No periods were measured to exceed the criteria.

The noise monitoring identified a few periods with noise levels approaching the noise criteria at Position 2 during the monitoring period. On each of these occasions the PA operators were promptly informed they were approaching the noise criteria and requested to reduce the volume (in accordance with the NMP requirements). Once the PA operator was contacted by Event Noise Management staff they responded by reducing the levels and a greater margin of compliance was achieved.

Typically during periods where noise levels approached the criteria, measured L_{Amax} noise levels from traffic noise were significantly greater than that of the amplified noise from Allianz Stadium during the same 2-minute period.

At Position 1 the match was audible at times, however generally noise from the match was masked by traffic and other ambient noise.

At Position 2 the match was audible at times, however well below the criteria and generally noise from the match was masked by traffic and other ambient noise.

All recorded L_{Amax} noise levels were greater than the noise criteria set in the NMP for noise emanating from sound amplification equipment. However, these noise levels do not represent non-compliance with the NMP as the L_{Amax} levels recorded were attributable to extraneous ambient noise sources and not the Allianz Stadium PA system. These sources included passing vehicles, aircraft overhead and event patrons outside the venue.

3.3 CONCERT HOTLINE

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

4 CONCLUSIONS

Monitoring of amplified noise from Allianz Stadium during the Sydney Roosters v South Sydney Rabbitohs NRL match held on 4 September 2015 was completed at two positions as required by the site's Noise Management Plan and EPA Variation of Prevention Notice (2 December 2013).

Noise levels were measured for the duration of the amplified activities associated with the event from 5:00 pm to 10:04 pm. Throughout the monitoring, noise levels were measured continuously, with the maximum levels for every two minute period recorded. 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 during the two minute period.

During the NRL match it was identified that noise levels from the event were less than the criteria defined in the site's NMP for the durations.

When noise levels were within 3 dB(A) of the noise criteria at Position 1 the PA operators were promptly informed that they were approaching the noise criteria and requested to reduce the volume (in accordance with the NMP requirements). Once the PA operator was contacted by Event Noise Management staff they responded promptly by reducing the levels.

At Position 1 the match was audible at times, however generally noise from the match was masked by traffic and other ambient noise.

At Position 2 the match was audible at times, however noise levels were well below the criteria and generally noise from the match was masked by traffic and other ambient noise.

No complaints were forwarded to Event Noise Management staff for investigation.

During the event, L_{Amax} noise levels were higher than the 60 dB(A) criteria for the majority of the time due to traffic noise and patrons external to the venue. These sources of noise are not directly attributable to the sound amplification system and therefore do not represent an exceedance of the criteria.

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:	4291	Date:	FRI 04/09/2015
Project Description:	Allianz Stadium – Roosters v Rabbitohs (Rugby League)		
Monitoring Location:	1 - SFS at 234 Moore Park Road, Paddington		
Operator:	Beau Weyers		
Instrument:	Nor140	Calibrator Model:	Svan03A
Instrument Serial:	1405306	Calibrator Serial:	358
Instrument NATA Calibration Date:	09/07/17	Calibrator NATA Calibration Date:	06/01/16
Pre-calibration:	94.0	Post calibration:	94.0

Weather:	Clear Sky, Cooling, light SE'ly Breeze		
Time	L_{max} dB(A)	L_{max} dB(C)	Description of Noise
16:56:00	81.9	88.3	Traffic, resident sweeping, water dripping
16:58:00	82.5	86.2	Traffic, bus
17:00:00	81	83.7	Traffic, resident talking near Microphone
17:02:00	81.3	91.3	Traffic
17:04:00	80.3	87.2	Traffic, bus, motorbike
17:06:00	88.6	95.8	Traffic
17:08:00	79.3	90.9	Traffic
17:10:00	78.7	92.5	Traffic, motorbike
17:12:00	83.6	98	Traffic
17:14:00	80.4	98.3	Traffic, bus
17:16:00	85.9	89.5	Traffic, sometimes intermittent, old scooter maximum
17:18:00	78.9	92.6	Traffic dominant. Some music just audible on red light
17:20:00	80.3	88.3	Traffic, clearly audible announcements during red lights 58-60 dB(A) (inclusive of ambient noise) – PA Operator informed to reduce levels to ensure compliance.
17:22:00	85.4	92.6	Traffic, noted reduction in amplified levels
17:24:00	75.4	89.3	Traffic, announcements 55-57 dB(A)
17:26:00	74.1	89.2	Traffic, helicopter
17:28:00	73.1	85.4	Traffic

Weather:	Clear Sky, Cooling, light SE'ly Breeze		
Time	L _{max} dB(A)	L _{max} dB(C)	Description of Noise
17:30:00	76.3	85.1	Traffic, minor game commences
17:32:00	81.4	99.2	Traffic, pedestrian talking
17:34:00	90.1	98.6	Traffic, motorbike
17:36:00	74.3	85.4	Traffic, announcement 56 dB(A)
17:38:00	79.8	90.6	Traffic
17:40:00	77.3	85.5	Traffic
17:42:00	82.2	96	Traffic, low volume music from venue ~53 dB(A)
17:44:00	80.2	91.7	Traffic
17:46:00	98.6	106.1	Traffic, motorbike
17:48:00	73.9	92.1	Traffic
17:50:00	78.9	89.8	Traffic
17:52:00	75.2	88.9	Traffic
17:54:00	77.2	85.4	Traffic
17:56:00	82.4	88.9	Traffic, just audible whistle (referee)
17:58:00	76.4	89.6	Traffic
18:00:00	76.8	86.9	Traffic, ambient levels 55-58 dB(A)
18:02:00	74.8	93.6	Traffic, bassy music from stationary car
18:04:00	75.3	87.4	Traffic
18:06:00	72	86	Traffic
18:08:00	81.4	92.1	Traffic, just audible announcement
18:10:00	75.2	90.5	Traffic
18:12:00	80.2	91.3	Traffic, announcer just audible
18:14:00	101.9	103.7	Traffic
18:16:00	79.8	89.3	Traffic, pedestrian talking directly to mic
18:18:00	78.2	87.6	Traffic, some bass perceptible from stadium <58 dB(A) ambient levels
18:20:00	80.2	88.7	Traffic, weather calmer, some W'ly light breezes
18:22:00	84	91.9	Traffic, motorbike/scooter
18:24:00	79.1	87.8	Traffic, long car horn

Weather:	Clear Sky, Cooling, light SE'ly Breeze		
Time	L _{max} dB(A)	L _{max} dB(C)	Description of Noise
18:26:00	79.4	93.9	Traffic
18:28:00	77.9	85.5	Traffic
18:30:00	83.8	96.1	Traffic
18:32:00	84.4	100.9	Traffic, low frequency car exhaust
18:34:00	76	84.1	Traffic
18:36:00	80.2	87.9	Traffic
18:38:00	98.2	98.8	Traffic, pedestrian yelling into mic
18:40:00	79.3	84.5	Traffic, resident talking nearby
18:42:00	76.1	87.2	Traffic, buses, motorbikes, pedestrians (talking)
18:44:00	80.9	88.2	Traffic
18:46:00	73.9	85.3	Traffic
18:48:00	98.4	100.5	Traffic, loud motorbike
18:50:00	81.5	92.3	Traffic
18:52:00	79.1	94.3	Traffic, sudden drum beat (not from venue) 2 seconds then stopped
18:54:00	78.6	89.2	Traffic
18:56:00	76.9	90.2	Traffic, cheer of crowd <60 dB(A)
18:58:00	79.7	91.5	Traffic
19:00:00	81.4	89.1	Traffic
19:02:00	80.3	93.3	Traffic
19:04:00	78.6	89.5	Traffic
19:06:00	81.1	95.5	Traffic
19:08:00	84.1	101.3	Traffic, siren ~63 dB(A)
19:10:00	76.7	89	Traffic, just audible announcements
19:12:00	75.3	87.9	Traffic, some bass perceptible significantly below traffic noise
19:14:00	77.3	86.3	Traffic, announcements to 58 dB(A)
19:16:00	77.9	97.9	Traffic, car doors/ boot slamming
19:18:00	84.1	92.8	Traffic, some low frequency audible – requested reduction 20-80Hz by 3dB to avoid increased levels later in event

Weather:	Clear Sky, Cooling, light SE'ly Breeze		
Time	L _{max} dB(A)	L _{max} dB(C)	Description of Noise
19:20:00	76.8	89.2	Traffic
19:22:00	75.8	89.5	Traffic
19:24:00	80	91.8	Traffic, car horn
19:26:00	81.4	91.6	Traffic, informed DJ operating in 'The Precinct'
19:28:00	78.1	84.6	Traffic, crowd cheers (players taking the field)
19:30:00	79.8	89	Traffic, wind shifted to Westerly
19:32:00	79.6	88.2	Traffic, short burst of bassy music 58 dB(A). PA operator informed to reduce to maintain compliance.
19:34:00	77.7	96.1	Traffic
19:36:00	82.4	95.7	Traffic, motorbike
19:38:00	77	92.7	Traffic, crowd
19:40:00	81.2	82.7	Traffic, announcements ~57 dB(A)
19:42:00	78.6	82.9	Traffic, patrons talking nearby 68 dB(A)
19:44:00	80.2	89.4	Traffic, bass from 'The Precinct' audible
19:46:00	83	93.2	Traffic
19:48:00	76.2	89.1	Traffic, Kick off crowd cheer
19:50:00	77.5	90.9	Traffic, running commentating 57-59 dB(A). PA operator informed of increasing levels, and recommended to reduce.
19:52:00	75.7	94.3	Traffic
19:54:00	76.9	82.6	Traffic, crowd 73.1dBA
19:56:00	82.9	88.6	Traffic, some perceptible bass <ambient
19:58:00	77.7	82.2	Traffic
20:00:00	73.9	81.3	Traffic
20:02:00	80.6	90	Traffic, vehicle idle nearby
20:04:00	90.1	102.4	Traffic, crowd cheer, truck horn max
20:06:00	77	89	Traffic
20:08:00	84.9	90.3	Traffic, crowd cheer
20:10:00	76.7	87.1	Traffic, audible bass, muffled announcer ~56 dB(A)
20:12:00	85.2	85.3	Traffic, crowd cheer 84.7 dB(A)

Weather:	Clear Sky, Cooling, light SE'ly Breeze		
Time	L _{max} dB(A)	L _{max} dB(C)	Description of Noise
20:14:00	79.6	82.2	Traffic
20:16:00	76.2	83.6	Traffic
20:18:00	73.6	87.1	Traffic
20:20:00	82.3	82.9	Traffic, some audible bass, crowd cheer
20:22:00	74	82.3	Traffic, pizza delivery scooter
20:24:00	75.1	82.5	Traffic
20:26:00	74.1	80.5	Traffic
20:28:00	74.1	82.3	Traffic, crowd cheer
20:30:00	76	81	Traffic
20:32:00	75.7	84.4	Traffic, resident talking near microphone
20:34:00	96.1	102.4	Traffic, performance vehicle taking off
20:36:00	76	90.6	Traffic, rain developing, crowd cheer
20:38:00	79.3	84.4	Traffic
20:40:00	76.1	85.1	Traffic, half time siren and crowd cheer
20:42:00	79.9	95.8	Traffic, pre-recorded commercials 56dBA
20:44:00	77.6	86.9	Traffic, announcer <ambient 61dBA
20:46:00	73.4	91.4	Traffic, announcer consistent 56-58dBA
20:48:00	76.1	88.7	Traffic,announcer consistent 56-58dBA
20:50:00	76.9	93.7	Traffic, bassy music 59 dB(A), informed PA operator. 5 seconds after requested to reduce music finished, announcer <60 dB(A) indistinguishable from ambient noise.
20:52:00	89.2	90	Traffic
20:54:00	90	92.6	Traffic defining max, bassy music up to 59 dB(A). PA operator requested to reduce to avoid exceedance.
20:56:00	80.1	96.3	Traffic, run on music
20:58:00	77.4	79.6	Traffic, second half commences
21:00:00	74	90	Traffic
21:02:00	79.6	86.7	Traffic
21:04:00	76	85.1	Traffic, crowd cheer 71.3 dB(A)

Weather:	Clear Sky, Cooling, light SE'ly Breeze		
Time	L _{max} dB(A)	L _{max} dB(C)	Description of Noise
21:06:00	74.3	82.9	Traffic
21:08:00	82.8	103.7	Traffic, old ute engine
21:10:00	74.1	89	Traffic, crowd cheers
21:12:00	76.6	85.9	Traffic, bass perceptible on drum roll, requested a reduction to levels.
21:14:00	75	86.4	Traffic
21:16:00	82.2	88.5	Traffic, motorbike
21:18:00	73.9	81.4	Traffic
21:20:00	74.9	90.8	Traffic, crowd cheers
21:22:00	78.3	83.5	Traffic, drum roll audible but below traffic
21:24:00	73.3	78.6	Traffic
21:26:00	85.3	84.2	Traffic, crowd cheer
21:28:00	81.1	92.4	Traffic, loud crowd cheer 81.1 dB(A)
21:30:00	72.7	87.3	Traffic
21:32:00	79.1	92.3	Traffic, patrons starting to leave venue
21:34:00	83	83.8	Traffic, crowd cheer
21:36:00	82.1	83.6	Traffic, patron talking near microphone
21:38:00	82	87.9	Traffic, cheers/whistles
21:40:00	80	97.8	Traffic
21:42:00	79.1	85	Traffic, cheer, bus, siren
21:44:00	69.2	75.1	Traffic dominant, announcements just audible
21:46:00	-	-	Traffic, flat battery in instrument.
21:48:00	-	-	Traffic, patrons talking near microphone
21:50:00	-	-	Traffic, car horns
21:52:00	-	-	Traffic, patrons
21:54:00	-	-	Traffic, patrons – battery replaced
21:56:00	90.3	91.8	Traffic, patrons yelling at microphone
21:58:00	90.2	89.3	Traffic
22:00:00	86.9	93	Traffic



Weather:	Clear Sky, Cooling, light SE'ly Breeze		
Time	L _{max} dB(A)	L _{max} dB(C)	Description of Noise
22:02:00	94.5	96.6	Traffic
22:04:00	84.7	91	Traffic



EVENT NOISE MANAGEMENT

Project Number:	4291	Date:	FRI 04/09/2015
Project Description:	Allianz Stadium – Roosters v Rabbitohs (Rugby League)		
Monitoring Location:	2 – SFS at 10 Alexander Street, Paddington		
Operator:	Roger Treagus		
Instrument:	Nor140 (10)	Calibrator Model:	Svan 03A
Instrument Serial:	1404663	Calibrator Serial:	358
Instrument NATA Calibration Date:	6/7/17	Calibrator NATA Calibration Date:	6/1/16
Pre-calibration:	94.1	Post calibration:	94.2

Weather:			
Time	L_{max} dB(A)	L_{max} dB(C)	Description of Noise
17:18:00	70.2	78.2	Traffic dominant
17:20:00	73.4	79.3	Announcements and music, traffic dominant
17:22:00	60.9	71.5	Traffic dominant
17:24:00	66.1	75.1	Traffic dominant
17:26:00	67	75.1	Traffic dominant
17:28:00	59.4	73.9	Traffic dominant
17:30:00	63.7	75.6	Traffic dominant
17:32:00	64	68.8	Traffic dominant
17:34:00	67.5	75.3	Traffic dominant
17:36:00	71	76	Traffic dominant, announcements
17:38:00	59.8	79.7	Traffic dominant
17:40:00	64.7	67.1	Traffic dominant
17:42:00	69.3	82.4	Traffic dominant, announcements 49 dB(A)
17:44:00	67.2	76.4	Traffic dominant, announcements 49 dB(A)
17:46:00	68	77.8	Traffic dominant
17:48:00	63.4	76.5	Traffic dominant, announcement
17:50:00	66.6	75.5	Traffic dominant
17:52:00	63.8	72.5	Traffic dominant, announcement 49.6 dB(A)
17:54:00	65.9	73	Traffic dominant

Weather:			
Time	L_{max} dB(A)	L_{max} dB(C)	Description of Noise
17:56:00	71.4	75.2	Traffic dominant
17:58:00	68.9	77.1	Traffic dominant
18:00:00	74.6	86	Traffic dominant
18:02:00	69.9	79.1	Traffic dominant, announcements < 50 dB(A)
18:04:00	72.8	84.6	Traffic dominant
18:06:00	64.9	80.7	Traffic dominant
18:08:00	67.7	83.4	Traffic dominant
18:10:00	58	73.1	Traffic dominant
18:12:00	64.1	80.8	Traffic dominant
18:14:00	75.7	82.4	Traffic dominant, announcements 49.4 dB(A)
18:16:00	74.1	76.3	Traffic dominant
18:18:00	54.6	71.4	Traffic dominant
18:20:00	66.1	84.7	Traffic dominant
18:22:00	57.3	76.5	Traffic dominant
18:24:00	69.4	82	Traffic dominant
18:26:00	64.5	77.6	Traffic dominant
18:28:00	63.9	73.6	Traffic dominant
18:30:00	65.2	73.5	Traffic dominant
18:32:00	68.4	82.3	Traffic dominant
18:34:00	68	73.6	Traffic dominant
18:36:00	68.8	84.4	Traffic dominant
18:38:00	77	96.5	Traffic dominant
18:40:00	87.4	87.3	Traffic dominant
18:42:00	63	68	Traffic dominant
18:44:00	58.3	73.9	Traffic dominant
18:46:00	72.8	79.6	Traffic dominant
18:48:00	65.2	75.9	Traffic dominant
18:50:00	65.7	72.5	Traffic dominant
18:52:00	67.8	85	Traffic dominant

Weather:			
Time	L _{max} dB(A)	L _{max} dB(C)	Description of Noise
18:54:00	65.4	68.7	Traffic dominant
18:56:00	62.6	75.1	Traffic dominant
18:58:00	66.9	78.3	Traffic dominant
19:00:00	62.6	73	Traffic dominant
19:02:00	66.8	74.8	Traffic dominant
19:04:00	65.5	83.5	Traffic dominant
19:06:00	67.5	77.4	Traffic dominant
19:08:00	69.2	85.8	Traffic dominant
19:10:00	67.1	85.8	Traffic dominant
19:12:00	66.5	81.3	Traffic dominant
19:14:00	79.5	82.7	Traffic dominant, announcement 49 dB(A)
19:16:00	70.7	80.6	Traffic dominant, announcement 49 dB(A)
19:18:00	63.8	82.2	Traffic dominant
19:20:00	66.5	80.7	Traffic dominant
19:22:00	64.1	81	Traffic dominant
19:24:00	68.8	78.1	Traffic dominant
19:26:00	70.2	87.8	Traffic dominant
19:28:00	73.2	89.4	Traffic dominant
19:30:00	73.5	96.8	Traffic dominant
19:32:00	72.5	81.4	Traffic dominant
19:34:00	68.1	84.8	Traffic dominant
19:36:00	69.3	86.6	Traffic dominant
19:38:00	64.1	71.5	Traffic dominant, announcement 49.0 dB(A)
19:40:00	67.3	77.8	Traffic dominant, announcement 51.5 dB(A)
19:42:00	71.1	78.8	Traffic dominant, announcement
19:44:00	69.4	78.2	Traffic dominant, announcement 49.5 dB(A)
19:46:00	57.4	77.8	Traffic dominant
19:48:00	69.8	77.6	Traffic dominant
19:50:00	66.9	78.9	Traffic dominant

Weather:			
Time	L _{max} dB(A)	L _{max} dB(C)	Description of Noise
19:52:00	69.7	81	Traffic dominant
19:54:00	63.4	73.5	Traffic dominant
19:56:00	66.5	76.6	Traffic dominant, crowd noise
19:58:00	68.9	76.2	Traffic dominant, crowd noise
20:00:00	64.4	81	Traffic dominant, crowd noise
20:02:00	64.4	71	Traffic dominant, crowd noise
20:04:00	67.8	68.2	Traffic dominant
20:06:00	61.7	81	Traffic dominant
20:08:00	68.4	86.9	Traffic dominant
20:10:00	66.5	73.9	Traffic dominant
20:12:00	70.3	74.4	Traffic dominant
20:14:00	68.2	76	Traffic dominant, crowd to 63.9 dB(A)
20:16:00	62.3	74.9	Traffic dominant
20:18:00	64.4	70.5	Traffic
20:20:00	66.6	67	Crowds and traffic
20:22:00	56.4	71.6	announcements
20:24:00	67.1	71.9	Traffic dominant
20:26:00	69.3	76.2	Traffic dominant
20:28:00	68.7	75.8	Traffic dominant
20:30:00	63.5	69.6	Traffic dominant
20:32:00	64.9	75.5	Traffic dominant
20:34:00	57.6	80.6	Traffic dominant
20:36:00	57	68.3	Traffic dominant
20:38:00	71.7	78.5	Traffic dominant
20:40:00	61.6	76.2	Traffic dominant
20:42:00	65.9	76.3	Traffic dominant
20:44:00	57.6	67.9	Traffic dominant, half time music <41.0 dB(A)
20:46:00	64	71.2	Traffic dominant, announcements
20:48:00	60.5	68.8	Traffic dominant

Weather:			
Time	L _{max} dB(A)	L _{max} dB(C)	Description of Noise
20:50:00	66.8	71.5	Traffic dominant
20:52:00	60.7	83.3	Traffic dominant
20:54:00	59.2	67.4	Traffic dominant
20:56:00	59.6	72.8	Traffic dominant
20:58:00	66.1	68.3	Traffic dominant
21:00:00	64.3	82.2	Traffic dominant
21:02:00	64.4	70.4	Traffic dominant
21:04:00	62	70.1	Traffic dominant
21:06:00	66.1	66.7	Traffic, crowd noise
21:08:00	69.7	75	Traffic dominant
21:10:00	59.6	72.6	Traffic dominant
21:12:00	72	79	Traffic dominant
21:14:00	65.2	79.1	Traffic dominant
21:16:00	60.5	72.5	Traffic dominant
21:18:00	63.2	67.8	Traffic dominant, crowd
21:20:00	71.3	80.7	Traffic dominant
21:22:00	68.8	74.5	Traffic dominant
21:24:00	53	65.6	Traffic dominant
21:26:00	62.3	62.7	Traffic dominant
21:28:00	67.6	80.1	Traffic dominant, announcement 49 dB(A), crowd 59 dB(A)
21:30:00	64	75.2	Traffic dominant, crowd
21:32:00	68.2	75.3	Traffic dominant
21:34:00	65.7	80.7	Traffic dominant
21:36:00	85.8	95.8	Traffic dominant
21:38:00	68.9	75.2	Traffic dominant, crowd noise 58 dB(A)
21:40:00	62.2	75.9	Traffic dominant
21:42:00	63.9	70.9	Traffic dominant, recorded music started in adjacent residence
21:44:00	58.7	72.9	Traffic dominant

Weather:			
Time	L_{max} dB(A)	L_{max} dB(C)	Description of Noise
21:46:00	60	67.5	Traffic dominant
21:48:00	72.8	76.2	Traffic dominant
21:50:00	60.3	76	Traffic dominant, pedestrians
21:52:00	71.7	84.2	Traffic dominant, announcement 52 dB(A)
21:54:00	65.5	86.9	Traffic dominant
21:56:00	87.9	90.1	Traffic dominant
21:58:00	80.8	83.8	Traffic dominant
22:00:00	86.5	92.9	Traffic dominant
22:02:00	81	83.3	Traffic dominant
22:04:00	80.2	90.9	Traffic dominant
22:06:00	107	126.9	Traffic dominant
22:08:00	77.7	84.7	Traffic dominant