



Sydney Cricket Ground Trust

**NOISE MONITORING, SUPER RUGBY:
NSW WARATAHS VS OTAGO
HIGHLANDERS**

19 MAY 2018

May 2018

Report Prepared by:

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Executive Summary

Monitoring of noise levels at sensitive receptors in the area surrounding Allianz Stadium was undertaken during the Super Rugby NSW Waratahs vs Otago Highlanders 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 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 between 6:00 pm to 22:00 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 event, the acoustic environment was defined by road traffic noise along Moore Park Road. For the majority of the time, the actual amplified sound levels were difficult to distinguish from the road traffic noise levels, and were noted to be generally below the traffic levels. During periods of low traffic, the noise monitoring and site observations confirmed that amplified sound was below the 60 dB(A) limit for the majority of the time. However, on 3 occasions at Position 1 (along Moore Park Road), noise levels from PA announcements were above the limit by up to 5 dB. In each of these instances, the designated sound engineer was informed following each of the exceedences for rectification. No complaints were forwarded to Event Noise Management staff for investigation.

It is noted that an AFL match was being held at the Sydney Cricket Ground concurrently. Amplified sound from the AFL match was inaudible from Positions 1 and 2 for the duration of the match.

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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 Super Rugby NSW Waratahs vs Otago Highlanders match held on 19 May 2018 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 Allianz Stadium on Saturday 19 May 2018. The gates opened at 5:40 pm and the game concluded at approximately 9:40 pm, with amplified music, announcements and advertising occurring at various times between these periods.

1.3 EVENT NOISE CRITERIA

Noise limits for sporting events held at Allianz Stadium 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 Allianz Stadium:

- *At a point within one (1) metre of the boundary nearest to Allianz Stadium at 234 Moore Park Road, Paddington*
- *At a point within one (1) metre of the boundary nearest to Allianz Stadium of 10 Alexander Street, Paddington.*

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

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, Event Noise Monitoring personnel were located at each position identified in Figure 1. The monitoring study was undertaken by the following personnel:

- Position 1: Samuel Wong: BEng(Chem), MAAS.
- 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	1404819	27/6/19	SvanTek SV03A	358	21/11/18
2	Nor 140	1405552	17/7/19			21/11/18

Field calibrations of each of the instruments were also undertaken prior to and immediately after the monitoring was completed. Less than 0.5dB 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 conditions were calm and no rain occurred.

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 exceedences of the noise criteria. The noise levels represent the highest RMS noise level recorded during the two minute period. Hence, even where exceedences are identified, it is possible such exceedences 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 event are presented in Appendix B.

At Position 1, amplified sound from the venue was audible at various times. Amplified sound included ground PA announcements, box score announcements, advertising and background music. At Position 2, amplified sound was audible when in operation but below 56 dB(A) at all times (which is within the 60 dB(A) limit).

During the event, the acoustic environment was defined by road traffic noise along Moore Park Road and crowd noise (intermittently). For the majority of the time, the amplified sound levels were difficult to distinguish from the road traffic noise levels, and were noted to be generally below traffic levels. During periods of low traffic, the noise monitoring and site observations confirmed that amplified sound was below the 60 dB(A) limit for the majority of the time. However, on 3 occasions at Position 1, noise levels from PA announcements were above the limit:

- 7:46 pm – 64 dB(A);
- 8:40 pm – 63-65 dB(A);
- 9:20 pm – 65 dB(A).

The designated sound engineer was informed following each of the exceedences for rectification. Background music and advertising noise levels at Position 1 were noted to be below the noise limit at all times (typically around 58 dB(A)).

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 crowd noise, passing vehicles, pedestrians, and event patrons outside the venue.

It is noted that an AFL match was being held at the Sydney Cricket Ground concurrently. Amplified sound from the AFL match was inaudible from Positions 1 and 2 for the duration of the match.

No complaints were received by the Sydney Cricket Ground Trust and Event Noise Management staff for investigation.

4 CONCLUSIONS

Monitoring of amplified noise from Allianz Stadium during the Super Rugby NSW Waratahs vs Otago Highlanders was completed at two positions as required by the site's Noise Management Plan (NMP).

Noise levels were measured for the duration of the amplified activities associated with the event from 6:00 pm to 22:00 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 event, the acoustic environment was defined by road traffic noise along Moore Park Road. For the majority of the time, the actual amplified sound levels were difficult to distinguish from the road traffic noise levels, and were noted to be generally below the traffic levels. During periods of low traffic, the noise monitoring and site observations confirmed that amplified sound was below the 60 dB(A) limit for the majority of the time. However, on 3 occasions at Position 1 (along Moore Park Road), noise levels from PA announcements were above the limit by up to 5 dB. In each of these instances, the designated sound engineer was informed following each of the exceedences for rectification. No complaints were forwarded to Event Noise Management staff for investigation.

It is noted that an AFL match was being held at the Sydney Cricket Ground concurrently. Amplified sound from the AFL match was inaudible from Positions 1 and 2 for the duration of the match.

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:	5386	Date:	19 May 2018
Project Description:	Noise Monitoring – Super Rugby NSW Waratahs v Otago Highlanders		
Monitoring Location:	Position 1 – 234 Moore Park Road		
Operator:	Samuel Wong		
Weather Description:	Calm and dry		
Instrument:	Nor140	Calibrator Model:	SvanTek SV03A
Instrument Serial:	1404819	Calibrator Serial:	358
Instrument NATA Calibration Date:	27/6/17	Calibrator NATA Calibration Date:	21/11/17
Pre-calibration:	93.9	Post calibration:	94.2

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
18:08	77.2	Traffic, background music around 55 dB(A)
18:10	70.1	Traffic causing max, background music just audible
18:12	72.9	Traffic causing max, background music just audible
18:14	73.6	Traffic causing max, background music just audible
18:16	73.1	Traffic causing max, background music just audible
18:18	83.5	Motorbike caused max, music less audible than previous measurements due to greater volumes of traffic
18:20	77.8	Traffic caused max, background music barely audible
18:22	82	Traffic causing max, background music just audible
18:24	75.6	Traffic causing max, background music just audible
18:26	88	Noisy car passby caused max, music inaudible
18:28	72.9	Traffic caused max, music inaudible
18:30	79.4	Traffic caused max, music just audible
18:32	73.6	Traffic caused max, music just audible
18:34	80.4	Traffic caused max, music inaudible

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
18:36	75.9	Traffic caused max, music just audible
18:38	75.3	Traffic caused max, music just audible
18:40	78.4	Traffic caused max, music inaudible
18:42	82.3	Traffic caused max, when minimal traffic, music 52-54 dB(A) (with some influence from patrons walking to venue), PA voice just audible.
18:44	82.3	Traffic caused max.
18:46	84.9	Person talking nearby, music just audible in the background
18:48	91.9	Motorbike caused max
18:50	82.8	Car horn caused max, PA speaker audible
18:52	73.2	Traffic caused max, PA speaker audible at times
18:54	75.7	Traffic caused max
18:56	74.4	Traffic caused max
18:58	76.4	Traffic caused max
19:00	76.9	Traffic caused max, music barely audible at times
19:02	74.6	Traffic caused max, PA speaker audible
19:04	72.6	Traffic caused max
19:06	83.5	Traffic caused max
19:08	76	Traffic caused max
19:10	77.9	Traffic caused max
19:12	80.2	Traffic caused max
19:14	76.7	Traffic caused max, PA announcer audible at times
19:16	80.4	Traffic caused max, PA announcer audible at times
19:18	82.2	Traffic caused max
19:20	72.6	Traffic caused max, announcer audible, patron noise audible

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
19:22	72.6	Traffic caused max, announcer audible, patron noise audible
19:24	75.9	Traffic caused max
19:26	77.1	Traffic caused max, PA announcements up to 4 dB over criterion (informed sound personnel)
19:28	86.1	Traffic caused max
19:30	73.9	Traffic caused max
19:32	76.3	Traffic caused max
19:34	75.2	Traffic caused max
19:36	75.3	Traffic caused max
19:46	81.3	Traffic caused max
19:48	75.4	Traffic caused max
19:50	73.1	Traffic caused max, music just audible on one occasion
19:52	83	Traffic caused max
19:54	80.3	Traffic caused max, crowd noise at times
19:56	76.6	Traffic caused max, PA announcer audible
19:58	73.3	Traffic caused max, crowd noise
20:00	76.9	Traffic caused max
20:02	78.9	Traffic caused max
20:04	80.8	Crowd caused max
20:06	79.3	Traffic caused max
20:08	75.6	Traffic caused max, crowd noise
20:10	74.3	Traffic caused max
20:12	77.6	Traffic caused max
20:14	75.8	Traffic caused max, crowd noise, PA just audible at times

Time	L _{Amax} dB(A)	Description of Noise and/or Changes to Weather
20:16	77.3	Traffic caused max
20:18	73.3	Traffic caused max
20:20	73.9	Traffic caused max, crowd noise
20:22	81.9	Traffic caused max
20:24	78	Traffic caused max, music audible 58-59 dB(A)
20:26	74.9	Traffic caused max, PA announcer just audible
20:28	74.3	Traffic caused max
20:30	78	Traffic caused max
20:32	73	Traffic caused max
20:34	76.3	Traffic caused max, halftime music and and advertisements 57 dB(A)
20:36	73.4	Traffic caused max, halftime music and and advertisements 57 dB(A)
20:38	70.5	Traffic caused max, half time music just audible, announcer
20:40	73.4	Traffic caused max, ground PA announcer 3-5 dB over criterion (informed sound personnel)
20:42	72.4	Traffic caused max, half time music just audible
20:44	76	Traffic caused max, half time music just audible
20:46	73.3	Traffic caused max
20:48	79.7	Traffic caused max
20:50	72	Traffic caused max
20:52	77	Traffic caused max, crowd noise
20:54	81.3	Traffic caused max
20:56	80.5	Traffic caused max
20:58	79.8	Traffic caused max
21:00	74.9	Traffic caused max

Time	L _{Amax} dB(A)	Description of Noise and/or Changes to Weather
21:02	76.8	Crowd caused max
21:04	80.3	Crowd caused max
21:06	73.4	Traffic caused max
21:08	75.6	Traffic caused max
21:10	75.3	Traffic caused max
21:12	74.7	Traffic caused max
21:14	73.1	Traffic caused max
21:16	75.4	Traffic caused max, music 59 dB(A)
21:18	72.3	Traffic caused max,
21:20	75.3	Traffic caused max, Box score announcer up to 65 dB(A), 5 dB over criterion (informed sound personnel)
21:22	74.5	Traffic caused max
21:24	78.6	Traffic caused max
21:26	71	Traffic caused max
21:28	70.7	Traffic caused max
21:30	74.5	Traffic caused max
21:32	73.2	Traffic caused max, game over siren audible
21:34	74.8	Traffic causing max, background music just audible, crowds leaving stadium
21:36	72.7	Traffic causing max, background music just audible, crowds leaving stadium
21:38	77.8	Traffic causing max, patrons leaving stadium dominant when minimal traffic, announcer noise just audible
21:40	82.2	Patrons talking nearby caused max, background music barely audible
21:42	75.3	Patrons talking nearby caused max, background music barely audible
21:44	94.8	Person shouting into microphone.

Time	L_{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
21:46	70.9	Traffic causing max.
21:48	75.7	Traffic causing max.

EVENT NOISE MANAGEMENT

Project Number:	5268	Date:	19 May 2018
Project Description:	Super Rugby		
Monitoring Location:	Position 2 - 10 Alexander Street Paddington		
Operator:	RT		
Weather Description:	Calm and dry		
Instrument:	Nor140	Calibrator Model:	SvanTek SV03A
Instrument Serial:	1405552	Calibrator Serial:	358
Instrument NATA Calibration Date:	17/7/19	Calibrator NATA Calibration Date:	21/11/17
Pre-calibration:	93.9	Post calibration:	94.0

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
18:00	68.9	Max Is Domestic Noise. No Event Noise – Traffic + Domestic Noise
18:02	70.2	Max Is Domestic Noise. No Event Noise – Traffic + Domestic Noise
18:04	70.5	Max Is Domestic Noise. No Event Noise – Traffic + Domestic Noise
18:06	75.9	Max Is Domestic Noise. No Event Noise – Traffic + Domestic Noise
18:08	68.2	Max Is Domestic Noise. No Event Noise – Traffic + Domestic Noise
18:10	61.8	Max Is Domestic Noise. No Event Noise – Traffic + Domestic Noise
18:12	58.3	Max Is Domestic Noise. No Event Noise – Traffic + Domestic Noise
18:14	59.3	Max Is Domestic Noise. No Event Noise – Traffic + Domestic Noise
18:16	65.2	Local Domestic & Traffic - No Event Noise
18:18	57.8	Max Vary – Siren Audible <60 dB(A)
18:20	59.8	65 – 75 dB(A) No Event Noise
18:22	66.1	Max Is Domestic Noise. No Event Noise – Traffic + Domestic Noise
18:24	74.6	Max Is Domestic Noise. No Event Noise – Traffic + Domestic Noise
18:26	64.5	Max Is Domestic Noise. No Event Noise – Traffic + Domestic Noise
18:28	81.7	Max Is Domestic Noise. No Event Noise – Traffic + Domestic Noise

Time	L _{Amax} dB(A)	Description of Noise and/or Changes to Weather
18:30	71.9	Local Traffic Max - No Event Noise - Traffic + Domestic Noise
18:32	75.2	Local Traffic Max - No Event Noise - Traffic + Domestic Noise
18:34	67.3	Local Traffic Max - No Event Noise - Traffic + Domestic Noise
18:36	63.4	Local Max - No Event Noise
18:38	62	No Event Noise
18:40	58.5	No Event Noise
18:42	71.7	No Event Noise
18:44	67.8	No Event Noise
18:46	65.9	Local Max 66 dBA Announcements = 48 dBA
18:48	67.7	Local Max - No Event Noise
18:50	67.7	PA Announcement - 53 dBA Max - Local Traffic
18:52	57.8	PA Announcement ~ 53 DB (A) Max - Local Traffic
18:54	65.3	PA Announcement ~ 53 DB (A) Max - Local Traffic
18:56	72.1	Local Max - No Event Noise
18:58	73.8	Local Max - No Event Noise
19:00	80.7	Local Max - No Event Noise - Basket Ball Game on Street
19:02	75.5	Local Max - No Event Noise
19:04	78.8	PA Announcement ~ 48 dBA - Local Traffic
19:06	79.2	PA Announcement ~ 48 dBA - Local Traffic
19:08	77.2	PA Announcement ~ 48 dBA - Local Traffic
19:10	79.5	PA Announcement ~ 48 dBA - Local Traffic
19:12	79.8	PA Announcement ~ 48 dBA - Local Traffic
19:14	91.5	PA Announcement ~ 52 dBA Max - Local Traffic
19:16	66.5	PA Announcement ~ 52 dBA Max - Local Traffic

Time	L _{Amax} dB(A)	Description of Noise and/or Changes to Weather
19:18	63.7	PA Announcement ~ 52 dBA Max – Local Traffic
19:20	61.2	PA Announcement ~ 52 dBA Max – Local Traffic + Siren
19:22	58.6	PA Music + Siren 48 dBA) Max – Local Traffic
19:24	62.3	PA Music + Siren 48 dBA Max – Local Traffic
19:26	69.2	PA 53 dBA Max – Local Traffic
19:28	65.2	PA 53 dBA Max – Local Traffic
19:30	58.5	PA 53 dBA Max – Local Traffic
19:32	67	PA 53 dBA Max – Local Traffic
19:34	68.6	PA 53 dBA Max – Local Traffic
19:36	67	PA 53 dBA Max – Local Traffic
19:38	61	PA 48 dBA Max – Local Traffic
19:40	78.3	PA ~ 53 dBA Max - Local Traffic -Max Basket Ball Game
19:42	86	PA ~ 53 dBA Max - Local Traffic -Max Basket Ball Game
19:44	83.2	PA ~ 53 dBA Max - Local Traffic -Max Basket Ball Game
19:46	81.9	PA ~ 53 dBA Max - Local Traffic -Max Basket Ball Game
19:48	82.8	Event Masked By Basket Ball Games In Street -Max Basket Ball Game
19:50	87.3	Event Masked By Basket Ball Games In Street -Max Basket Ball Game
19:52	83.5	Event Masked By Basket Ball Games In Street -Max Basket Ball Game
19:54	87	Event Masked By Basket Ball Games In Street -Max Basket Ball Game
19:56	83	Event Masked By Basket Ball Games In Street -Max Basket Ball Game
19:58	81.4	Event Masked By Basket Ball Games In Street -Max Basket Ball Game
20:00	81.4	Event Masked By Basket Ball Games In Street -Max Basket Ball Game
20:02	89.3	Event Masked By Basket Ball Games In Street -Max Basket Ball Game
20:04	83.5	Event Masked By Basket Ball Games In Street -Max Basket Ball Game

Time	L _{Amax} dB(A)	Description of Noise and/or Changes to Weather
20:06	87.8	Event Masked By Basket Ball Games In Street -Max Basket Ball Game
20:08	79.8	Event Masked By Basket Ball Games In Street -Max Basket Ball Game
20:10	78.9	Event Masked By Basket Ball Games In Street -Max Basket Ball Game
20:12	75.4	Crowd Noise - Max Basket Ball Game
20:14	79.7	Crowd Noise - Max Basket Ball Game
20:16	74.2	PA ~ 48 dBA - Max Basket Ball Game + Skateboard
20:18	69.7	Crowd Noise <48 – Traffic + Domestic
20:20	64.4	Crowd Noise <48 – Traffic + Domestic
20:22	69.9	Crowd Noise <48 – Traffic + Domestic
20:24	63.9	Low Crowd Noise – Occasional Traffic <48 dBA
20:26	58.4	Low Crowd Noise – Occasional Traffic <48 dBA
20:28	57.9	Low Crowd Noise – Occasional Traffic <48 dBA
20:30	54.1	Low Crowd Noise Max PA – Domestic, Occasional Traffic
20:32	59.2	Low Crowd Noise Max PA – Domestic, Occasional Traffic
20:34	64.7	Low Crowd Noise Max PA – Domestic, Occasional Traffic
20:36	55.9	PA 53 dB(A) + Siren – Domestic, Occasional Traffic Max
20:38	58.4	No PA. Domestic, Occasional Traffic - Max 59
20:40	65	PA ~ 56 dBA - Domestic, Occasional Traffic Max
20:42	60.8	PA ~ 54 Max - Domestic, Occasional Traffic Max
20:44	65.5	PA ~ 55 + Crowd 62 – Domestic <48, Traffic Max
20:46	68	PA ~ 52 - Domestic, Occasional Traffic Max 68
20:48	56.5	Crowd Noise - Domestic, Occasional Traffic Max
20:50	56.7	Crowd Noise - Domestic, Occasional Traffic Max
20:52	66.2	Crowd Noise - Domestic, Occasional Traffic Max

Time	L _{Amax} dB(A)	Description of Noise and/or Changes to Weather
20:54	59.9	PA = 48 - Domestic, Occasional Traffic Max
20:56	59.4	Crowd Noise - Domestic, Occasional Traffic Max
20:58	66.7	Crowd Noise - Domestic, Occasional Traffic Max
21:00	59.6	Crowd Noise - Domestic, Occasional Traffic Max
21:02	60.2	PA = 54, Crown Noise, Domestic and Occasional Traffic Max
21:04	67.5	Announcements - Crowd Noise < 67 - Domestic, Occasional Traffic
21:06	60.6	PA = 55, Crowd Noise <55 - Domestic, Occasional Traffic
21:08	58.8	Crowd Noise <48 - Domestic, Occasional Traffic
21:10	57	Crowd Noise <48 - Domestic, Occasional Traffic
21:12	68.4	Crowd Noise <48 - Domestic, Occasional Traffic
21:14	57.8	PA = 55 - Domestic, Occasional Traffic
21:16	66	PA = 53 - Domestic, Occasional Traffic
21:18	57.8	Traffic <45
21:20	71.8	PA = 54 Announcements - Domestic, Occasional Traffic Max
21:22	64.7	PA = 54 Max Announcements - Domestic, Occasional Traffic Max
21:24	57.4	Low Level Crowd Noise - Domestic, Occasional Traffic Max
21:26	64.4	Low Level Crowd Noise - Domestic, Occasional Traffic Max
21:28	64.3	Low Level Crowd Noise - Domestic, Occasional Traffic Max
21:30	57.1	Crowd Noise <50 - Domestic, Occasional Traffic Max
21:32	58.4	Crowd Noise <50 - Domestic, Occasional Traffic Max
21:34	62.3	Siren <53 - Domestic, Occasional Traffic Max
21:36	61.2	Siren <53 - Domestic, Occasional Traffic Max
21:38	56.9	PA = 50 Max
21:40	60	PA = 53 Max

Time	L _{Amax} dB(A)	<u>Description of Noise and/or Changes to Weather</u>
21:42	60.8	Crowd Noise + Traffic - Domestic, Occasional Traffic Max
21:44	68.9	Crowd Noise + Traffic - Domestic, Occasional Traffic Max
21:46	63.9	No Event Noise + Domestic, Occasional Traffic Max
21:48	60.7	No Event Noise + Domestic, Occasional Traffic Max
21:50	75.4	No Event Noise + Domestic, Occasional Traffic Max