Los Angeles County Metropolitan
Westlake/MacArthur Park Station
Noise Exposure Evaluation

Prepared for:
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660 South Figueroa St., Suite 1900
Los Angeles, CA 90017

Prepared by:
Aurora Industrial Hygiene
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South Pasadena, California 91030
Project #: 28747

Date of Monitoring: May 2 & 3, 2023
Date of Report: Revised July 14, 2023

Reviewed and Approved:

Grace M. Rinck, CIH

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1.0 Executive Summary

Aurora Industrial Hygiene (Aurora) evaluated the noise exposure of four Metro employees at the Westlake/MacArthur Park Station located at 660 South Alvarado Street in Los Angeles, California. Robert Rinck and Blaine Robey or Steve Froehlich conducted the noise evaluation on May 2, 2023 and May 3, 2023. The purpose of the noise evaluation was to conduct exposure assessment to noise for employees working in the station. The evaluation consisted of the following:

- Personal noise dosimetry was conducted for employees performing janitorial duties throughout the station during the first shift on May 2, 2023 and during the second shift on May 3, 2023.
- Sound levels were recorded at various locations throughout the station including the South Passage Entrance, Staff Security #7 (break room), mezzanine and platform areas. All readings were taken between 3-5 feet above ground level.

Noise measurements revealed that exposures to monitored employees were below Cal/OSHA PEL and HCP levels for noise of 90 decibels A-weighted (dBA) and 85 dBA, respectively.

Our observations, data collection, and recommendations are provided in this report. All data and information was reviewed and the final report written by Certified Industrial Hygienist (CIH) Grace M. Rinck, #6662.

2.0 Discussion

Noise monitoring was conducted for Metro employees while performing janitorial duties in the Westlake/MacArthur Park station located at 660 South Alvarado Street in Los Angeles. Two Metro employees were monitored for noise during the first shift (0600-1430) on May 2, 2023 and during the second shift (1400-2000) on May 3, 2023. The janitorial duties observed for the two employees involved moving throughout the station picking up trash and mopping, as needed. The janitorial staff work on all three levels at the station, which includes:

- Platform - lowest level of the station and where the trains are located.
- Mezzanine – middle level of the station where the station entry and turnstiles are located
- Outside – highest level includes the exterior of the station where trash is picked up and waste bins are emptied.

Music was played continuously during the work shifts from speakers located throughout the mezzanine and platform levels. Music was not played outside or in the breakroom. The north entry was closed.

3.0 Noise

3.1 Noise Standards

Cal/OSHA has established noise exposure limits in Title 8 of the California Code of Regulations

(CCR), Section 5096. The Cal/OSHA permissible exposure limit (PEL) for noise exposure, averaged over the 8-hour workday, is 90 dBA with an action level (AL) of 85 dBA. Above the PEL, the employer is required to use feasible engineering or administrative controls to reduce noise exposure. If engineering or administrative controls are not feasible, the employer may rely on personal protective equipment to reduce exposure.

Hearing conservation requirements outlined in T8 CCR Section 5097 require that an employer administer a HCP to any employee who is subjected to an eight-hour time-weighted average (TWA) exposure of 85 dBA. For the purposes of a HCP, employee noise exposures must be computed without regard to attenuation provided by hearing protection.

Cal/OSHA requires noise monitoring to be conducted using the A-scale, slow response, 5-decibel (dBA) exchange rate. The A-scale is used since it has a response similar to the human ear. A threshold level of 90 dBA is used to determine the PEL and an 80 dBA threshold is used for hearing conservation program (HCP) requirements. The threshold level means that all noise levels measured below this level are not included in the noise exposure calculations. The dosimeter measured noise exposure in accordance with the Cal/OSHA noise criterion based on a permitted exposure time being reduced by one-half for each 5-dBA increase or a 5-dBA exchange rate.

It should be recognized that strict compliance with the Cal/OSHA noise standard would not protect all workers from the adverse effects of noise exposure.

3.2 Personal Noise Monitoring

Noise monitoring was conducted on employees working at the Westlake/MacArthur Park Station using calibrated Larson Davis Spartan Model 730 personal noise dosimeters. The dosimeters were attached within each employee's hearing zone; thereby perceiving and accumulating approximately the same dosage as the ear. The dosimeters monitor the noise levels once every second calculating an average for every minute. The dosimeters were calibrated prior to and after with a calibrated Larson Davis Cal 200 Sound Calibrator. The personal noise monitoring was performed according to the protocols specified by Cal/OSHA and compared with the Cal/OSHA limits.

Based on the noise monitoring results, the following table summarizes the average noise levels for the monitoring period and assumed the same level for the entire 8-hour workday. A summary of each monitored employee noise levels is located in Attachment C.

Date	Dosimeter ID	Name	Description	*HCP 8-hr TWA[1] (dBA)*	*PEL 8-hr TWA[2] (dBA)*
5/2/2023	10996	Isaiah Getaw	1st shift janitor	65.1	46.2
5/2/2023	11000	Joshua Flores	1st shift janitor	62.1	41.7
5/3/2023	10999	Claudia Settle	2nd shift janitor	76.2	67.7

[1] TWA o9f 85 dBA or greater requires placement in a hearing conservation program.
[2] TWA of 90 dBA or greater requires hearing protection to be worn and/or enact feasible engineering/admin controls to lower exposure to below 90 dBA.

Date	Dosimeter ID	Name	Description	*HCP 8-hr TWA[1] (dBA)*	*PEL 8-hr TWA[2] (dBA)*
5/3/2023	11001	Casey Hernandez	2nd shift janitor	76.1	67.6

Findings: The noise exposures for all monitored employees were well below the Cal/OSHA AL/HCP of 85 dBA and the PEL of 90 dBA.

3.3 Monitored Employees Timeline/Location

The following tables summarizes the timeline of the monitored employee's location at the station and whether speakers were present in the area.

3.3.1 May 2, 2023 – 1st Shift — 06:30 am to 2 pm – Isaiah Getaw

Monitored Employee - Isaiah Getaw		
Time	**Location**	**Speakers in Area**
630	Staff Security #7 break room	No
640	Mezzanine, east	Yes
650	Mezzanine, center	Yes
700	Outside	No
740	Staff Security #7 break room	No
750	Outside	No
800	Mezzanine, Alvarado entry	Yes
830	Mezzanine, Alvarado entry	Yes
845	Outside	No
850	Outside	No
900	Outside	No
930	Outside	No
1000	Mezzanine, Alvarado entry	Yes
1015	Platform, west	Yes
1030	Platform, west	Yes
1040	Staff Security #7 break room	No
1100	Lunch break	No
1200	Mezzanine, east	Yes
1220	Platform, east	Yes
1230	Platform, center	Yes
1240	Mezzanine, west	Yes
1245	Outside	No
1255	Staff Security #7 break room	No
1310	Outside	No
1315	Outside	No
1320	Outside	No

Monitored Employee - Isaiah Getaw		
Time	**Location**	**Speakers in Area**
1330	Staff Security #7 break room	No

3.3.2 May 2, 2023 – 1st Shift — 06:30 am to 2 pm – Joshua Flores

Monitored Employee - Joshua Flores		
Time	**Location**	**Speakers in Area**
630	Staff Security #7 break room	No
640	Mezzanine, east	Yes
650	Mezzanine, center	Yes
700	Outside	No
800	Outside	No
830	Outside	No
900	Outside	No
930	Outside	No
1000	Mezzanine, Alvarado entry	Yes
1015	Platform, east	Yes
1030	Platform	Yes
1040	Staff Security #7 break room	No
1100	Lunch break	No
1200	Mezzanine, east	Yes
1220	Platform, east	Yes
1230	Platform, center	Yes
1240	Mezzanine, west	Yes
1245	Outside	No
1300	Mezzanine, Alvarado entry	Yes
1310	Mezzanine, east	Yes
1315	Platform, east	Yes
1320	Platform, center	Yes
1330	Staff Security #7 break room	No

3.3.3 May 3, 2023 – 2nd Shift — 2:30 pm to 10:00 pm– Claudia Settle

Monitored Employee: Claudia Settle		
Time	**Location**	**Speakers in Area**
1500	Staff Security #7 break room	No
1515	Mezzanine, east	Yes
1525	Platform, west	Yes
1540	Outside	No
1550	Platform, east	Yes
1600	Platform, center	Yes
1615	Platform, center	Yes
1630	Outside	No
1700	Outside	No
1715	Mezzanine, Alvarado entry	Yes
1720	Mezzanine, west turnstile	Yes
1730	Mezzanine, east turnstile	Yes
1740	Platform, east	Yes
1800	Platform, east	Yes
1805	Mezzanine, Alvarado entry	Yes
1819	Outside	No
1830	Dinner break	No
1930	Mezzanine, Alvarado entry	Yes
1945	Mezzanine, west turnstile	Yes
2000	Platform, east	Yes
2015	Platform, west	Yes
2030	Platform, east	Yes
2035	Mezzanine, center	Yes
2045	Mezzanine, center	Yes
2050	Mezzanine, west	Yes
2100	Outside	No
2120	Staff Security #7 break room	No

3.3.4 May 3, 2023 – 2nd Shift — 2:30 pm to 10:00 pm– Casey Hernandez

Monitored Employee: Casey Hernandez		
Time	**Location**	**Speakers in Area**
1500	Staff Security #7 break room	No
1515	Mezzanine, east	Yes
1525	Platform, west	Yes

Monitored Employee: Casey Hernandez		
Time	**Location**	**Speakers in Area**
1540	Outside	No
1550	Platform, east	Yes
1600	Platform, center	Yes
1615	Platform, center	Yes
1630	Outside	No
1700	Outside	No
1715	Mezzanine, Alvarado entry	Yes
1720	Mezzanine, west turnstile	Yes
1730	Mezzanine, east turnstile	Yes
1740	Platform, east	Yes
1800	Platform, east	Yes
1805	Mezzanine, Alvarado entry	Yes
1819	Outside	No
1830	Dinner break	No
1930	Mezzanine, Alvarado entry	Yes
1945	Mezzanine, west turnstile	Yes
2000	Platform, east	Yes
2015	Platform, west	Yes
2030	Platform, east	Yes
2035	Mezzanine, center	Yes
2045	Mezzanine, center	Yes
2050	Mezzanine, west	Yes
2100	Outside	No
2120	Staff Security #7 break room	No

3.4 Instantaneous Sound Level Measurements

In addition to the personal noise monitoring, a calibrated sound level meter, 3M model SD-200, was used to measure instantaneous sound levels in various areas. Sound levels were measured using slow response and A-weighting scale. Sound level readings reflect conditions within each work area. The below table and diagrams in Appendix A summarize the measured instantaneous sound levels during normal operations.

Location	Sound Level (dBA)
South entry	74.0
South entry at elevator	75.1
Staff Security #7 break room	68.9

Location	Sound Level (dBA)
South entry ticketing	73.1
South entry	74.3
South entry	72.2
South entry	72.3
Mezzanine center	72.3
West mezzanine turnstiles, south	71.3
West mezzanine turnstiles, north	74.2
East mezzanine at elevator	72.3
East mezzanine, south side	73.6
East mezzanine, north side	73.4
East mezzanine, middle stairs/escalator	79.2
East mezzanine	73.3
Platform, west	76.2
Platform, west	77.7
Platform, west at escalator base	78.3
Platform, south of escalator	74.3
Platform, north of stairs	76.0
Platform	79.4
Platform	74.2
Platform, center	73.4
Platform at elevator	72.9
Platform at middle escalator	76.3
Platform, east	76.3
Platform, east	76.5
Platform, east	79.1
Outside	54.1

Findings: All measured sound levels were below Cal/OSHA threshold levels of 80 dBA. Cal/OSHA does not consider noise levels below the threshold to be potentially harmful.

Conclusions and Recommendations

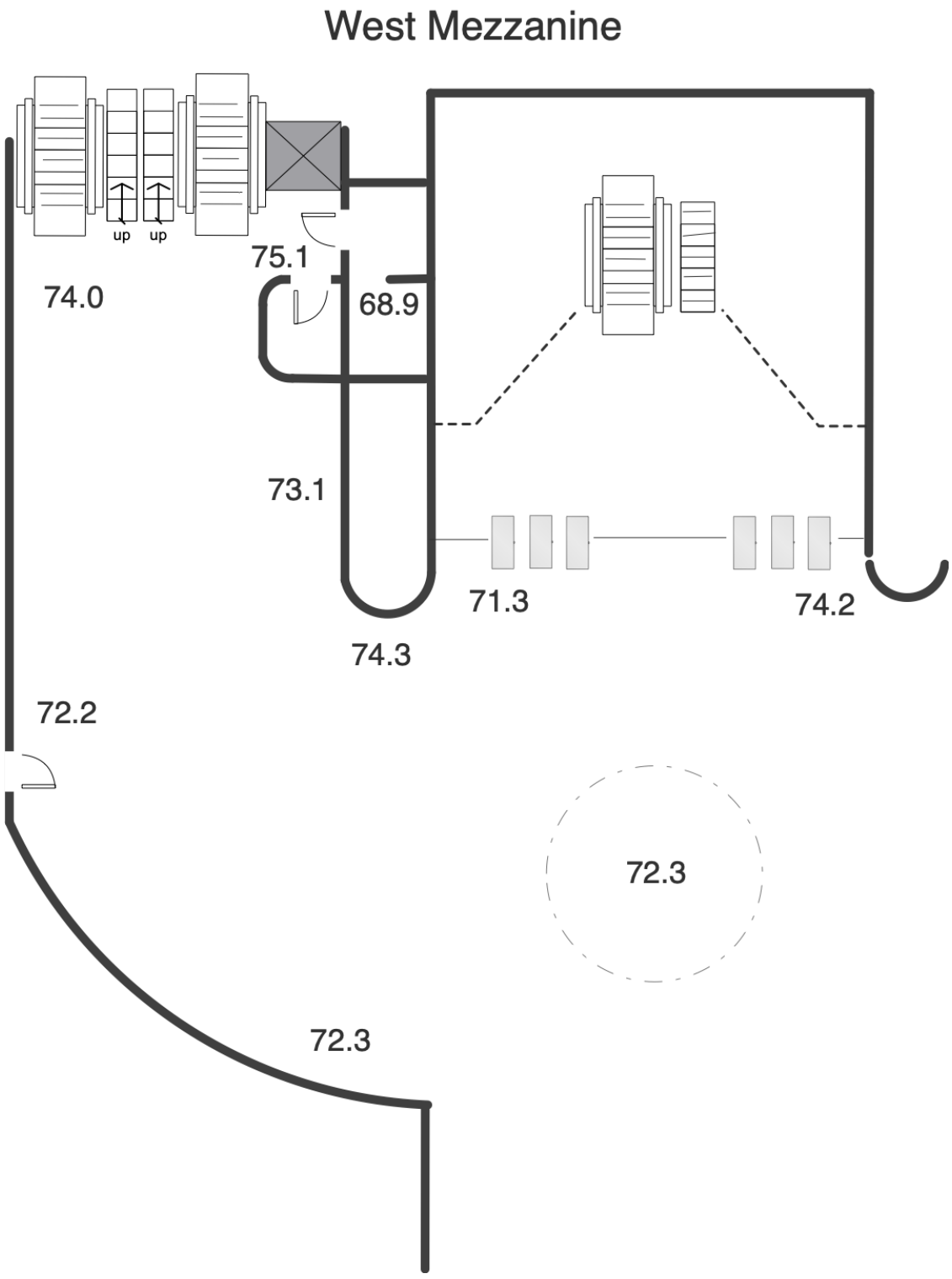
Aurora summarizes the results and makes the following recommendations:

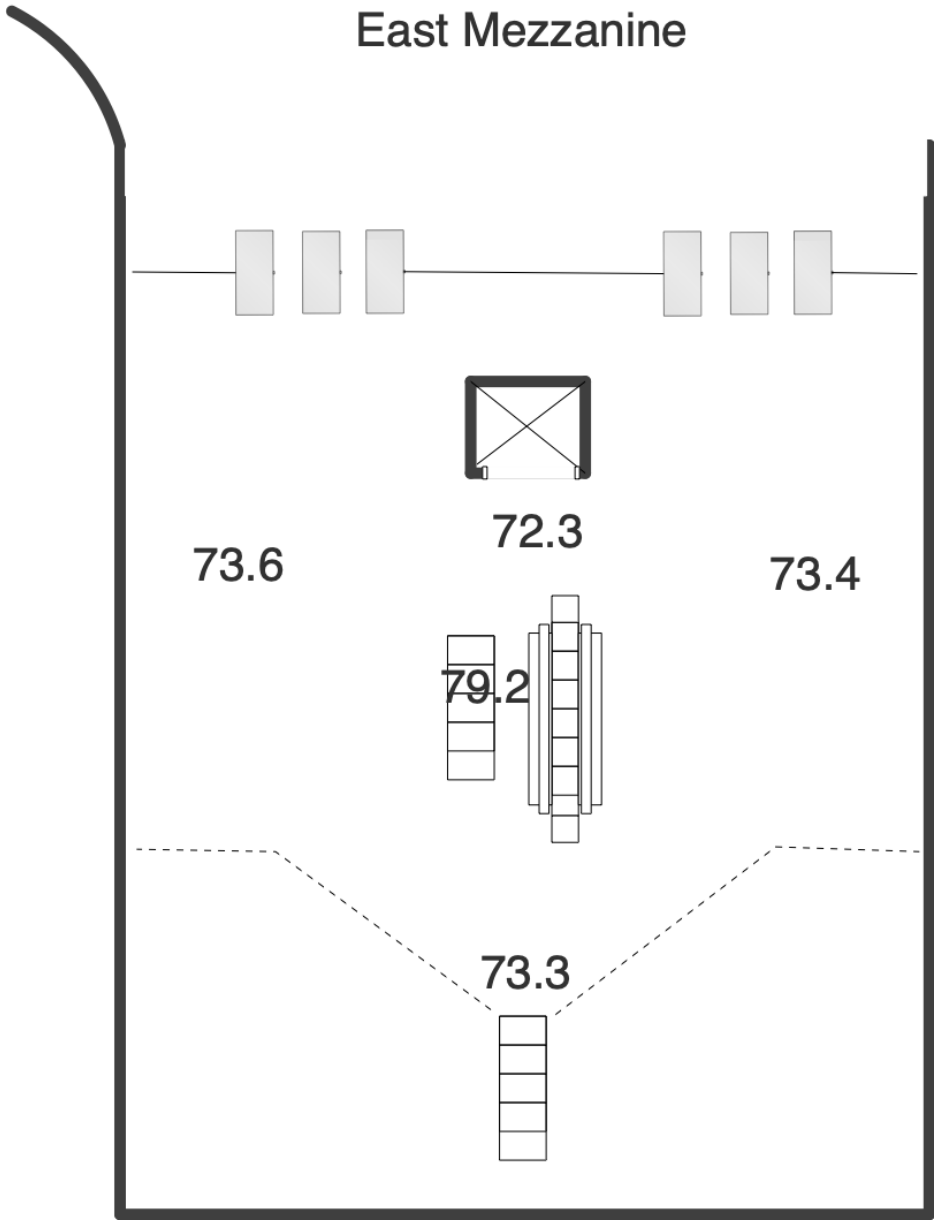
1. Using the Cal/OSHA noise criteria, monitored employee exposures were all below the Cal/OSHA PEL and AL/HCP. Therefore, a hearing conservation program and feasible engineering and/or administration controls are not required for the monitored employees and any other employees represented by their monitoring data.
2. Although employees were not exposed to levels at or above the Cal/OSHA action limit and it is not required by 8 CCR 5097, it is recommended the monitoring results be provided to affected employees.

4.0 Limitations

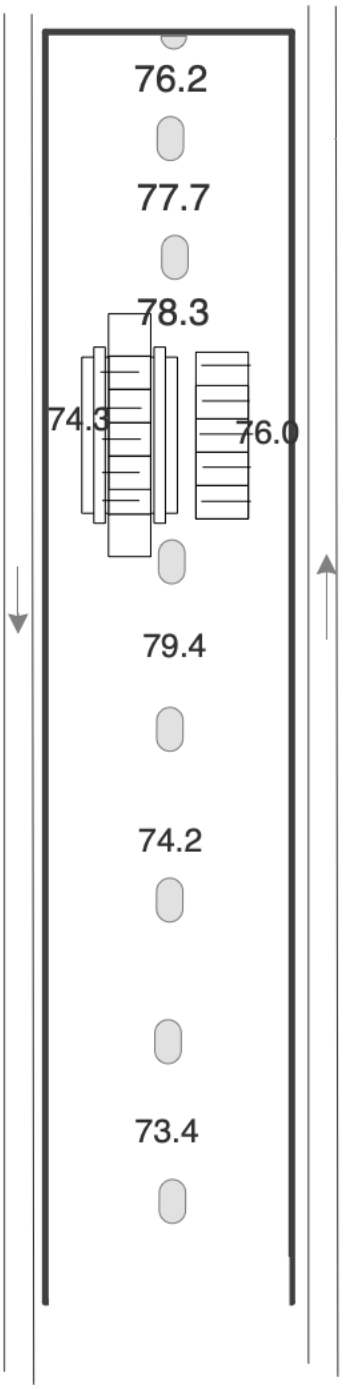
The data and observations collected during the course of this work have been gathered to provide the Client with information pertaining to the areas of the subject property identified in this report. Although Aurora believes that the findings and conclusions provided in this report are reasonable, the assessment is limited to the conditions observed and to the information available at the time of the work. Due to the nature of the work, there is a possibility that conditions may exist which could not be identified within the scope of the assessment or which were not apparent at the time of our site work. The assessment is also limited to information available from the client at the time it was conducted. It is also possible that the testing methods employed at the time of the report may later be superseded by other methods. Aurora does not accept responsibility for changes in the state of the art.

ATTACHMENT A - DIAGRAMS

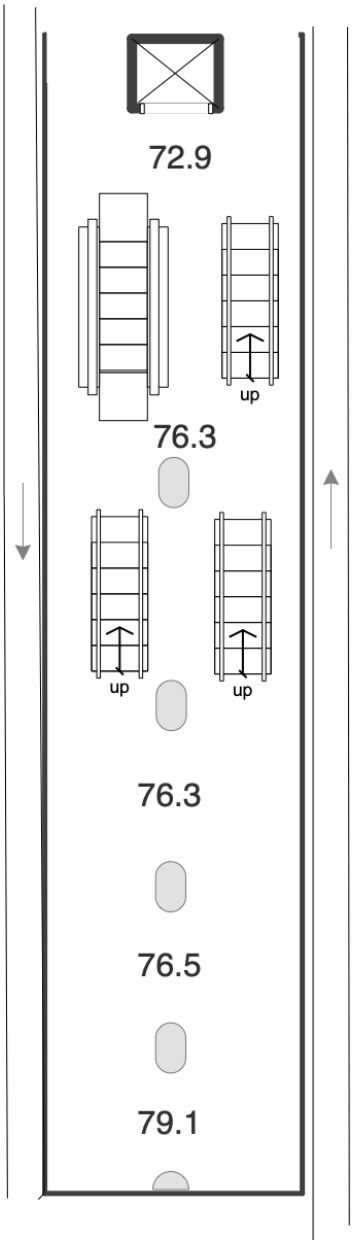



East Mezzanine
72.3
73.6
73.4
79.2
73.3

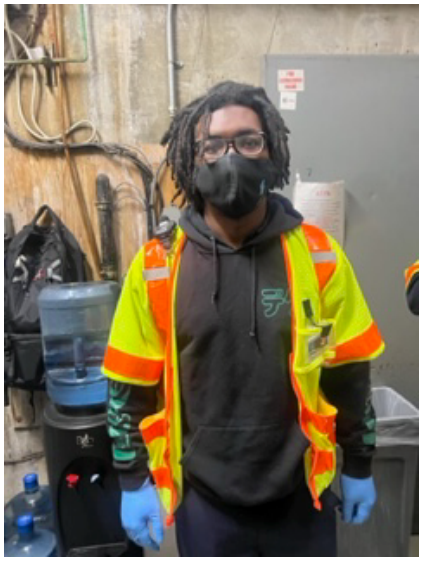
Platform West



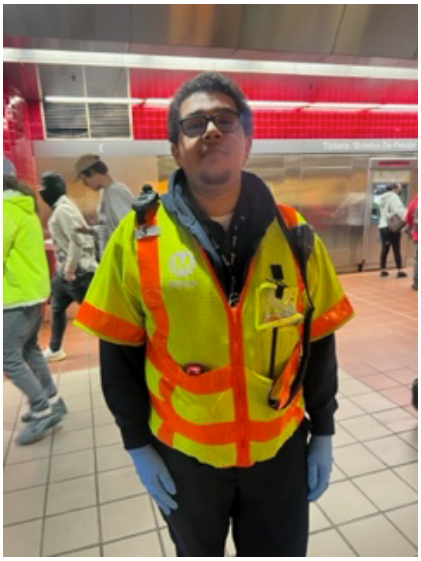
Platform East



ATTACHMENT B - PHOTOGRAPHS



Isaiah Getaw



Joshua Flores

Claudia Settle

Casey Hernandez

ATTACHMENT C – NOISE DOSIMETER SUMMARY REPORTS

LARSON DAVIS
A PCB DIVISION

Spartan 730 Summary: 2023-05-03 08:17:48

User:

Name: Joshua Flores

Job Description: Janitor

Notes:

Virtual Dosimeters

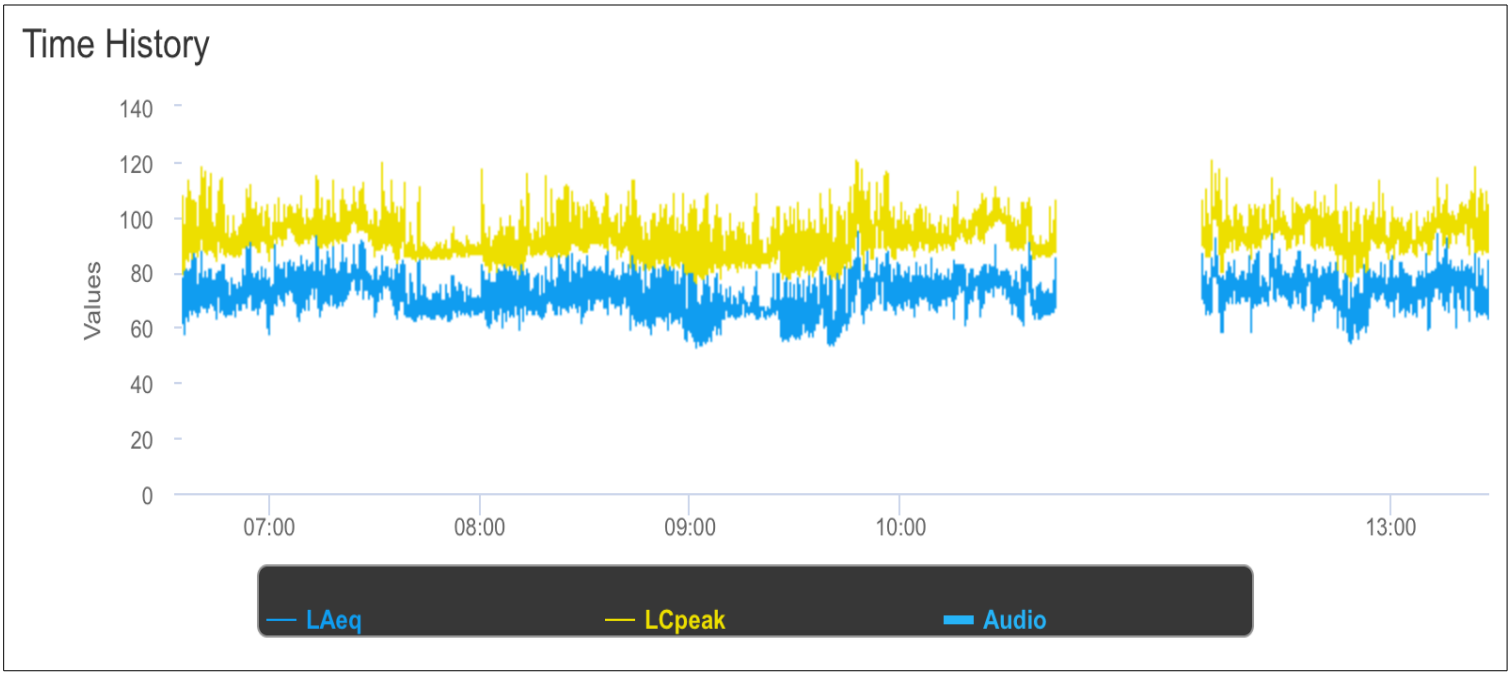
	1	2	3	4
	OSHA-PEL	OSHA-HC	ACGIH	NIOSH
Dose	0.1 %	1.4 %	2.7 %	2.7 %
Projected Dose	0.1 %	2.1 %	3.9 %	3.9 %
L_{avg}	41.7 dB	62.1 dB	70.9 dB	70.9 dB
TWA(8)	39.0 dB	59.4 dB	69.3 dB	69.3 dB
Projected TWA(8)	41.7 dB	62.1 dB	70.9 dB	70.9 dB
Criterion Level	90.0 dB	90.0 dB	85.0 dB	85.0 dB
Threshold Level	90.0 dB	80.0 dB	80.0 dB	80.0 dB
Exchange Rate	5 dB	5 dB	3 dB	3 dB
LEP'd/Lex,8h	73.9 dB	73.9 dB	73.9 dB	73.9 dB
Projected LEP'd/Lex,8h	75.5 dB	75.5 dB	75.5 dB	75.5 dB
Shift Time	8 hours	8 hours	8 hours	8 hours

Overall Measurement

Start Date & Time	2023-05-02 06:34:56	
Stop Date & Time	2023-05-02 13:28:01	
Run Time	05:31:21	
Pre-Calibration Deviation (Cal Lvl)	-0.21 dB (114.0 dB)	2023-05-01 21:37:52
Pre-Sensitivity	-42.4 dB	
Post-Calibration Deviation (Cal Lvl)	0.24 dB (114.0 dB)	2023-05-02 13:28:30
Post-Sensitivity	-42.6 dB	
Motion Percent	54.4 %	
LA_{eq}	75.5 dB	
LAI_{eq}	81.1 dB	
LC_{peak}	120.4 dB	2023-05-02 09:47:10
LAS_{max}	94.2 dB	2023-05-02 07:13:33
LAF_{max}	101.2 dB	2023-05-02 09:47:43
Overload Count	0	
Overload Duration	00:00:00	

Meter General Information

Serial Number	11000
Model	730
HW Version	D
FW Version	1.108
Sensitivity (dB re. 1V/Pa)	-42.4 dB
Manufacturer	Larson Davis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120
100
80
60
40
20
0
Values
07:00
08:00
09:00
10:00
13:00
LAeq
LCpeak
Audio

LARSON DAVIS
A PCB DIVISION

Spartan 730 Summary: 2023-05-03 08:16:01

User: Isaiah Getaw

Location:

Job Description: Janitor

Notes:

Virtual Dosimeters

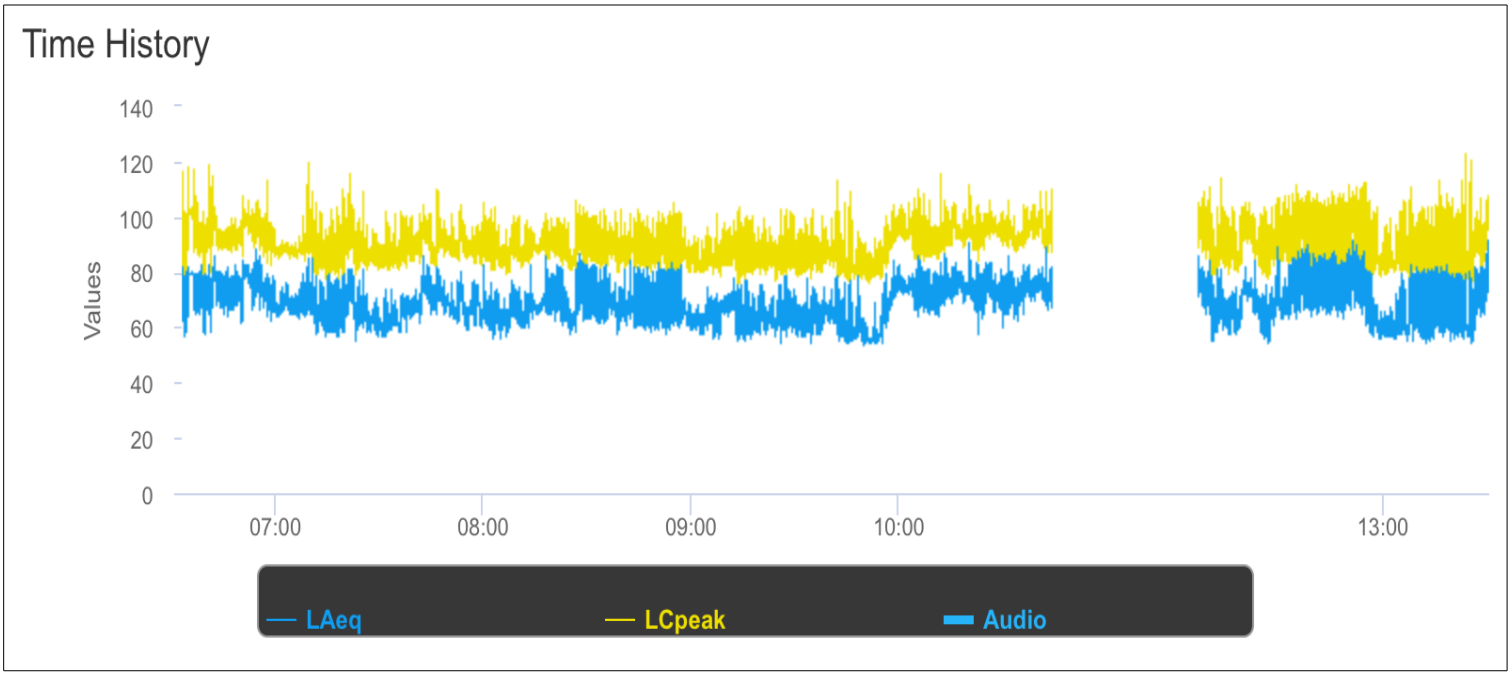
	1	2	3	4
	OSHA-PEL	OSHA-HC	ACGIH	NIOSH
Dose	0.2 %	2.2 %	4.5 %	4.5 %
Projected Dose	0.2 %	3.2 %	6.5 %	6.5 %
L_{avg}	46.2 dB	65.1 dB	73.1 dB	73.1 dB
TWA(8)	43.6 dB	62.5 dB	71.5 dB	71.5 dB
Projected TWA(8)	46.2 dB	65.1 dB	73.1 dB	73.1 dB
Criterion Level	90.0 dB	90.0 dB	85.0 dB	85.0 dB
Threshold Level	90.0 dB	80.0 dB	80.0 dB	80.0 dB
Exchange Rate	5 dB	5 dB	3 dB	3 dB
LEP'd/Lex,8h	73.9 dB	73.9 dB	73.9 dB	73.9 dB
Projected LEP'd/Lex,8h	75.5 dB	75.5 dB	75.5 dB	75.5 dB
Shift Time	8 hours	8 hours	8 hours	8 hours

Overall Measurement

Start Date & Time	2023-05-02 06:32:54	
Stop Date & Time	2023-05-02 13:30:40	
Run Time	05:35:34	
Pre-Calibration Deviation (Cal Lvl)	-0.01 dB (114.0 dB)	2023-05-01 21:36:44
Pre-Sensitivity	-41.0 dB	
Post-Calibration Deviation (Cal Lvl)	0.00 dB (114.0 dB)	2023-05-02 13:30:55
Post-Sensitivity	-41.0 dB	
Motion Percent	53.6 %	
LA_{eq}	75.5 dB	
LAI eq	82.0 dB	
LC_{peak}	122.6 dB	2023-05-02 13:23:55
LAS max	96.8 dB	2023-05-02 13:22:45
LAF max	100.6 dB	2023-05-02 13:22:45
Overload Count	0	
Overload Duration	00:00:00	

Meter General Information

Serial Number	10996
Model	730
HW Version	D
FW Version	1.108
Sensitivity (dB re. 1V/Pa)	-41.0 dB
Manufacturer	Larson Davis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100
80
60
40
20
0
Values
07:00
08:00
09:00
10:00
13:00
LAeq
LCpeak
Audio

LARSON DAVIS
A PCB DIVISION

Spartan 730 Summary: 2023-05-04 10:30:50

User: Claudia Settle

Location:

Job Description: Janitor

Notes:

Virtual Dosimeters

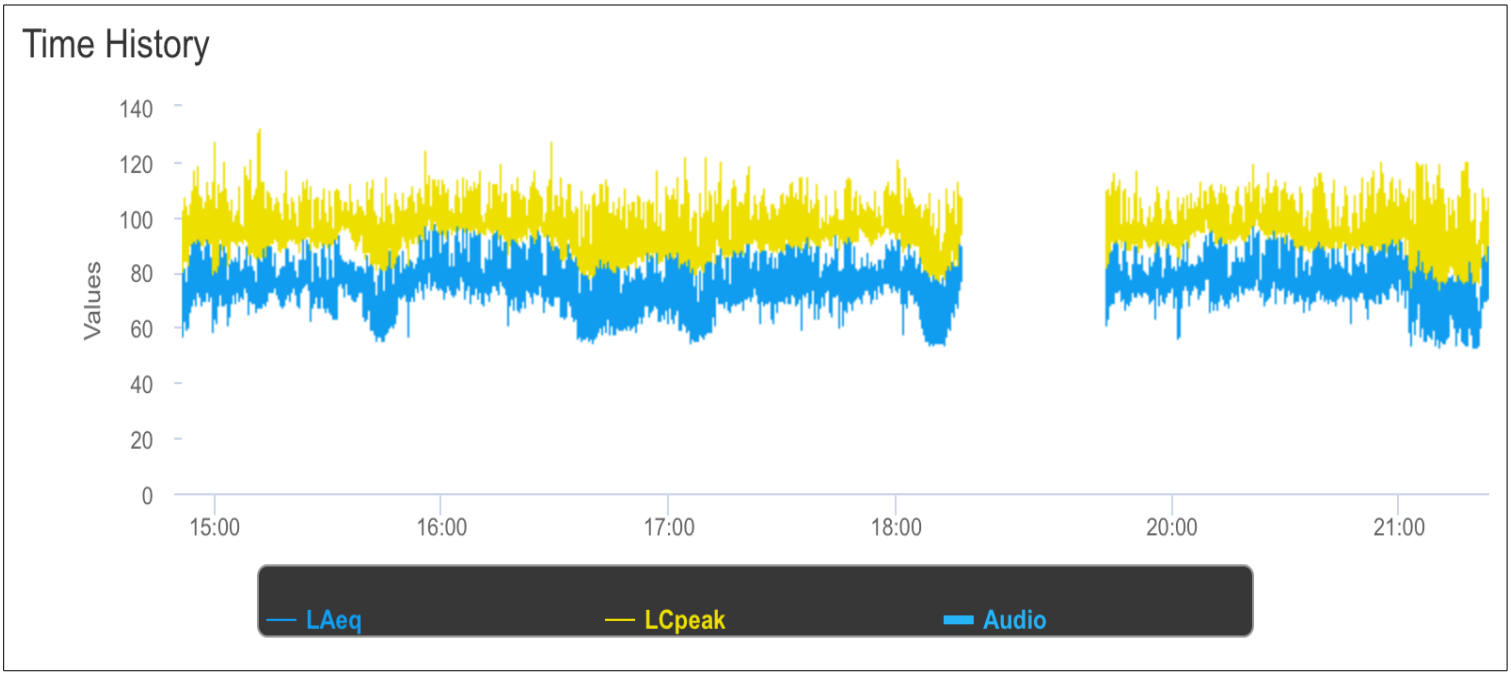
	1	2	3	4
	OSHA-PEL	OSHA-HC	ACGIH	NIOSH
Dose	2.9 %	9.4 %	27.3 %	27.3 %
Projected Dose	4.5 %	14.8 %	42.7 %	42.7 %
L_{avg}	67.7 dB	76.2 dB	81.3 dB	81.3 dB
TWA(8)	64.5 dB	73.0 dB	79.4 dB	79.4 dB
Projected TWA(8)	67.7 dB	76.2 dB	81.3 dB	81.3 dB
Criterion Level	90.0 dB	90.0 dB	85.0 dB	85.0 dB
Threshold Level	90.0 dB	80.0 dB	80.0 dB	80.0 dB
Exchange Rate	5 dB	5 dB	3 dB	3 dB
LEP'd/Lex,8h	80.2 dB	80.2 dB	80.2 dB	80.2 dB
Projected LEP'd/Lex,8h	82.1 dB	82.1 dB	82.1 dB	82.1 dB
Shift Time	8 hours	8 hours	8 hours	8 hours

Overall Measurement

Start Date & Time	2023-05-03 14:51:18	
Stop Date & Time	2023-05-03 21:23:39	
Run Time	05:06:51	
Pre-Calibration Deviation (Cal Lvl)	-0.20 dB (114.0 dB)	2023-05-03 14:50:17
Pre-Sensitivity	-42.0 dB	
Post-Calibration Deviation (Cal Lvl)	0.05 dB (114.0 dB)	2023-05-03 21:24:22
Post-Sensitivity	-42.1 dB	
Motion Percent	47.8 %	
LA_{eq}	82.1 dB	
LAI_{eq}	90.1 dB	
LC_{peak}	131.9 dB	2023-05-03 15:12:04
LAS_{max}	105.2 dB	2023-05-03 15:55:38
LAF_{max}	113.2 dB	2023-05-03 15:55:38
Overload Count	0	
Overload Duration	00:00:00	

Meter General Information

Serial Number	10999
Model	730
HW Version	D
FW Version	1.108
Sensitivity (dB re. 1V/Pa)	-42.0 dB
Manufacturer	Larson Davis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100
80
60
40
20
0
Values
15:00
16:00
17:00
18:00
20:00
21:00
LAeq
LCpeak
Audio

LARSON DAVIS
A PCB DIVISION

Spartan 730 Summary: 2023-05-04 10:31:45

User: Casey Hernandez

Location:

Job Description: Janitor

Notes:

Virtual Dosimeters

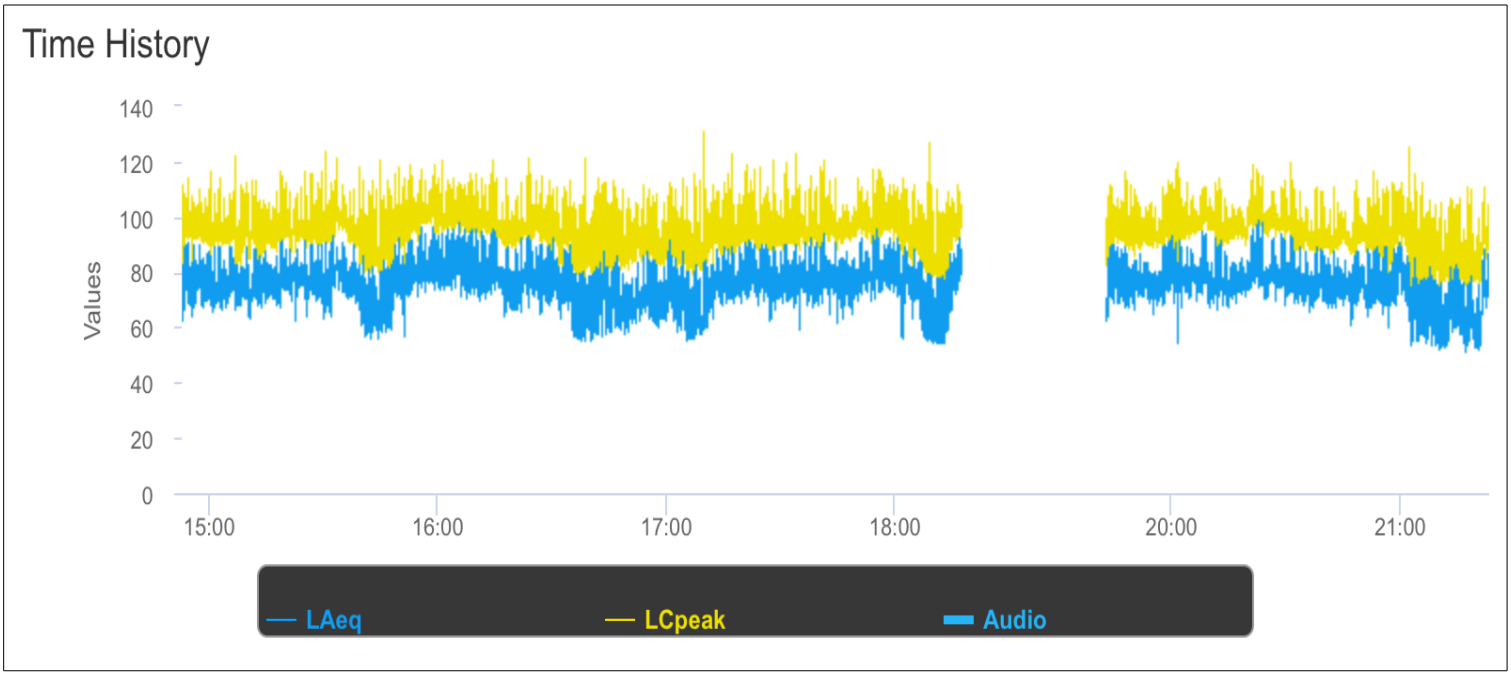
	1	2	3	4
	OSHA-PEL	OSHA-HC	ACGIH	NIOSH
Dose	2.8 %	9.3 %	27.1 %	27.1 %
Projected Dose	4.5 %	14.6 %	42.7 %	42.7 %
L_{avg}	67.6 dB	76.1 dB	81.3 dB	81.3 dB
TWA(8)	64.3 dB	72.8 dB	79.3 dB	79.3 dB
Projected TWA(8)	67.6 dB	76.1 dB	81.3 dB	81.3 dB
Criterion Level	90.0 dB	90.0 dB	85.0 dB	85.0 dB
Threshold Level	90.0 dB	80.0 dB	80.0 dB	80.0 dB
Exchange Rate	5 dB	5 dB	3 dB	3 dB
LEP'd/Lex,8h	80.0 dB	80.0 dB	80.0 dB	80.0 dB
Projected LEP'd/Lex,8h	82.0 dB	82.0 dB	82.0 dB	82.0 dB
Shift Time	8 hours	8 hours	8 hours	8 hours

Overall Measurement

Start Date & Time	2023-05-03 14:52:46	
Stop Date & Time	2023-05-03 21:23:19	
Run Time	05:04:59	
Pre-Calibration Deviation (Cal Lvl)	-0.06 dB (114.0 dB)	2023-05-03 14:52:37
Pre-Sensitivity	-41.2 dB	
Post-Calibration Deviation (Cal Lvl)	0.49 dB (114.0 dB)	2023-05-03 21:23:57
Post-Sensitivity	-41.7 dB	
Motion Percent	49.0 %	
LA_{eq}	82.0 dB	
LAI eq	89.6 dB	
LC_{peak}	130.8 dB	2023-05-03 17:09:42
LAS max	108.1 dB	2023-05-03 21:02:15
LAF max	115.0 dB	2023-05-03 21:02:15
Overload Count	0	
Overload Duration	00:00:00	

Meter General Information

Serial Number	11001
Model	730
HW Version	D
FW Version	1.108
Sensitivity (dB re. 1V/Pa)	-41.2 dB
Manufacturer	Larson Davis


Time History
140
120
100
80
60
40
20
0
Values
15:00
16:00
17:00
18:00
20:00
21:00
LAeq
LCpeak
Audio