esi engineering

November 10, 2020

Ms. Katherine McGah
Morrison Hershfield
1455 Lincoln Parkway, Suite 500
Atlanta, Georgia 30346

Subject: Revised Summary Report for
Generator and HVAC Outdoor Noise Control
Verizon MSC Expansion – Bloomington, Minnesota

Dear Ms. McGah:

This letter is a revised summary for the Verizon Mobile Switching Center (MSC) expansion project in Bloomington, Minnesota that addresses comments raised by the City of Bloomington Planning Commission and by the residential neighbors about noise. The project is a building expansion that will have new exterior air-handling units (AHUs), condensing units, and emergency generators on the north side(see Figure 1). ESI Engineering was asked to review the equipment noise levels and locations, prepare a noise contour plot for the area surrounding the MSC, and to make recommendations to meet the City of Bloomington and State of Minnesota noise requirements. ESI was also asked to perform noise testing once the expansion is complete to confirm city and state codes are met.

Executive Summary

Calculations were prepared to evaluate noise from the air-handling and condensing units that will be located on the north side of the new expansion at Version. The goal was to meet the State MPCA noise requirement of 50 dBA during the nighttime. The existing dry cooler noise was also included in the analysis. The calculations accounted for the attenuation provided by the service lot masonry walls and the noise control barrier walls around the AHU's. Noise levels were evaluated at the point of the nearest receiver on the north side of Old Shakopee Road as directed by the MPCA.

As currently designed, noise from the outdoor mechanical equipment is code compliant with the MPCA requirements, which have been determined to be the applicable governing criteria. Air handling units and condensing units that operate continuously meet the nighttime requirement of 50 dBA at the residential property lines. The emergency generators will have enclosures that reduce noise to levels that meet the 60 dBA daytime requirement.

As requested, the original report was revised to address concerns raised during the planning commission meeting on October 28, 2020. The following revisions were made:

1. Evaluation of ambient noise levels in the vicinity of the Verizon property and surrounding neighborhoods.
2. Explanation of the calculation methods used and of environmental effects (e.g. wind, temperature inversions, air absorption, ground effect, etc.) on the noise levels predicted.
3. Inclusion of site topography in the calculations.
4. Evaluation of noise from new mechanical air handling equipment on the north side of the building for realistic operating conditions and increased barrier wall height.
5. Evaluation of noise from the existing dry coolers during the winter operation.
6. Evaluation of noise from the new generators.
7. Evaluation of traffic noise reflections from the northern service lot wall.

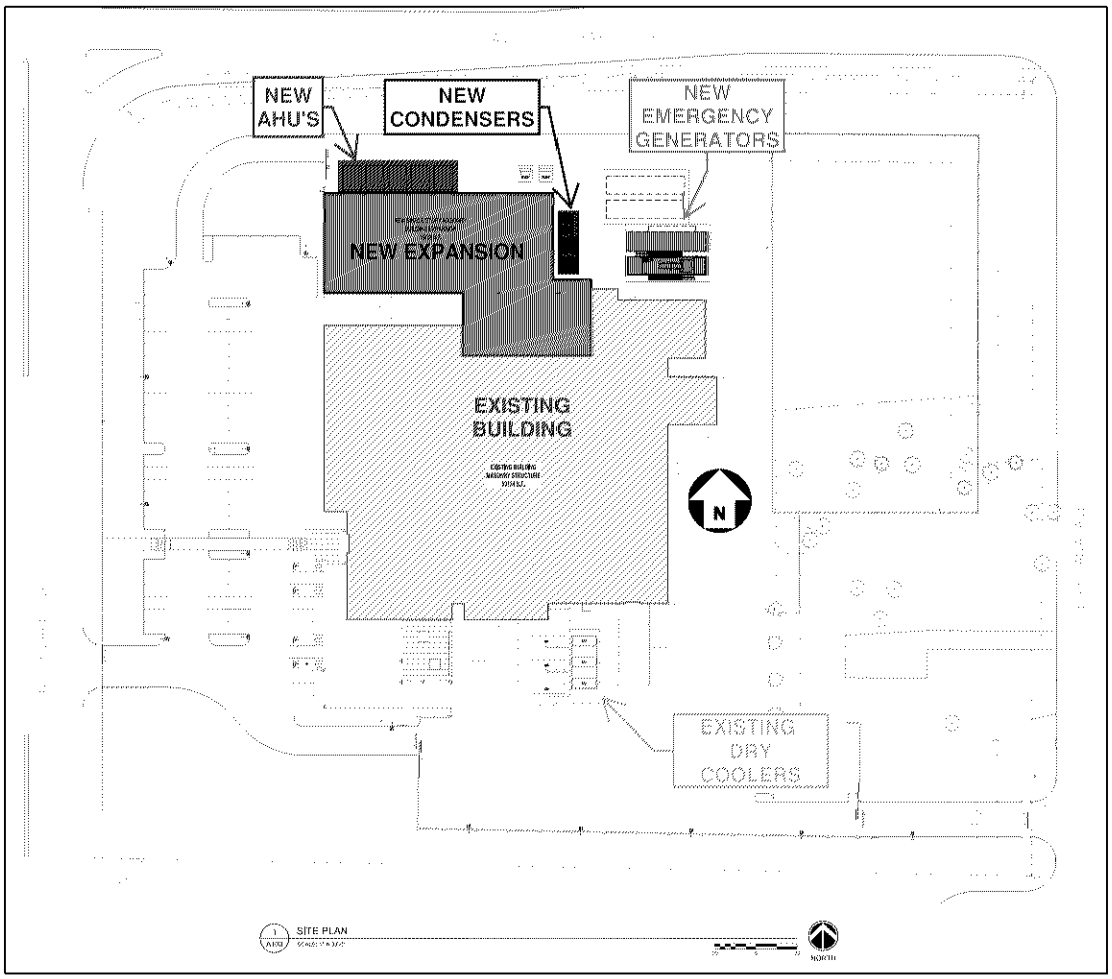

Figure 1 – Site plan of the Bloomington Verizon building.

NOISE REQUIREMENTS

The following summarizes the noise requirements:

- The City of Bloomington Code, Section 10, Article 4: Noise Code, has requirements for outdoor noise. Section 10.29.02: Noise Source Requirements, has the following L10[1] noise limits (in dBA[2]) per receiver zoning district, measured at the property line of the source:
    - Industrial or freeway development zoning districts: 70 dBA at all times
    - Business or commercial-recreational: 65 dBA at all times
    - Residential (includes hotels): 60 dBA in the daytime (7:00 AM to 10:00 PM) and 50 dBA in the nighttime (10:00 PM to 7:00 AM)
- The State of Minnesota also has requirements for outdoor noise. Minnesota Administrative Rules Chapter 7030: Noise Pollution Control, prepared by the Minnesota Pollution Control Agency (MPCA), has requirements for maximum allowable sound levels by receiving land use. Table 1 shows the Rule 7030 L50[3] and L10 noise limits (in dBA) per noise area classification (NAC). In general, NAC 1 is residential and recreational, NAC 2 is commercial, and NAC 3 is industrial.

Table 1 – MPCA Code Requirements

Noise Area Classification	Receiver Type	Daytime (7AM - 10PM)		Nighttime (10PM - 7AM)	
		L10	L50	L10	L50
1	Residential	65 dBA	60 dBA	55 dBA	50 dBA
2	Commercial	70 dBA	65 dBA	70 dBA	65 dBA
3	Industrial	80 dBA	75 dBA	80 dBA	75 dBA

- Minnesota Administrative Rules 7030.0060 Measurement Methodology, § Subpart 1. Measurement location, states, "Measurement of sound must be made at or within the applicable NAC at the point of human activity which is nearest to the noise source."
- Minnesota Statute § 116.07 Powers and Duties, Subdivision 2. Adopting standards states, "No local governing unit shall set standards describing the maximum levels of sound pressure which are more stringent than those set by the Pollution Control Agency."
    - The city L10 requirement is 5 dBA lower than the state requirement, which in our opinion is not consistent with this statute and more stringent than the MPCA requirements.
    - The city requirement is also measured at the property line of the source, not at the point of the nearest receiver as prescribed by the MPCA, which makes the city's location more stringent and not in line with the statute.

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[1] L10 is the sound level that is exceeded 10% of the time during a measurement period.

[2] dBA is the abbreviation for an A-weighted decibel. A-weighting is a filtered decibel level that reflects the human ear response to sounds of a low pressure level.

[3] L50 is the sound level that is exceeded 50% of the time during a measurement period.

- The new AHU's and condenser fans will be running at all hours of the day, therefore noise from the AHU's and condenser fans at the nearest property line must meet the State requirement of 50 dBA (strictest nighttime requirement for residences). Because the equipment noise is steady over a 1-hour period, there is no differentiation between L10 and L50.
- The emergency generators are expected to only run during emergency power outages and during weekly testing and maintenance, where one generator is run at a time. We assume the noise limits do not apply during emergency use since the generators are for life safety. We understand that the testing/maintenance will only take place during the daytime hours, and thus the specified design goal for the generators was a maximum of 65 dBA measured 23' from the generators. This equipment requirement will help achieve noise levels below the daytime requirements for nearest residential property lines.

In summary, with exception of the generators, noise from mechanical equipment at Verizon was compared with the State of Minnesota nighttime requirement of 50 dBA at the nearest residential receivers. Generator noise was compared to the residential daytime requirement of 60 dBA.

AMBIENT NOISE MEASUREMENTS

Based on comments from residential neighbors, noise measurements were made in the area around the Verizon property. Figure 2 shows locations of the measurements. Noise was monitored for seven consecutive days at Location A, which is on the north side of the Verizon property near Old Shakopee Road. This location was chosen as a baseline location that allowed us to understand how noise varied from day to night, and over the course of the week. The results of the noise monitoring are in Attachment A. The hourly L50 noise levels at Location A were about 65 dBA during the daytime and in the 38 to 44 dBA range in the nighttime. The primary noise source was traffic on Old Shakopee Road.

Measurements lasting several minutes each were made from 1:15 AM to 2:30 AM on October 27, 2020 at 14 locations in the neighborhoods around Verizon and at 2 locations on the Verizon property (see Figure 2). These shorter duration measurements allow us to sample noise from constant sources (such as the mechanical equipment) and exclude unrelated noise from traffic, aircraft and other similar transient sources. Table 2 shows a summary of the measurement results. Chillers on the southside of the Verizon building were running during the measurements but the dry coolers were not. Measurement data for each location are in Attachment B.

The loudest level measured location was at Location P on Louisiana Avenue. The noise source was mechanical cooling equipment at Entegris to the east. The L50 levels in the neighborhoods were in the 36 dBA to 42 dBA range. Sources were primarily distant vehicular traffic, although some fan noise was audible at locations to the north, which we sensed was from Entegris, and some fan noise was audible at locations to the west, which was from the chillers at Verizon. The noise from the mechanical equipment was well below the 50 dBA nighttime requirement at all residential locations.

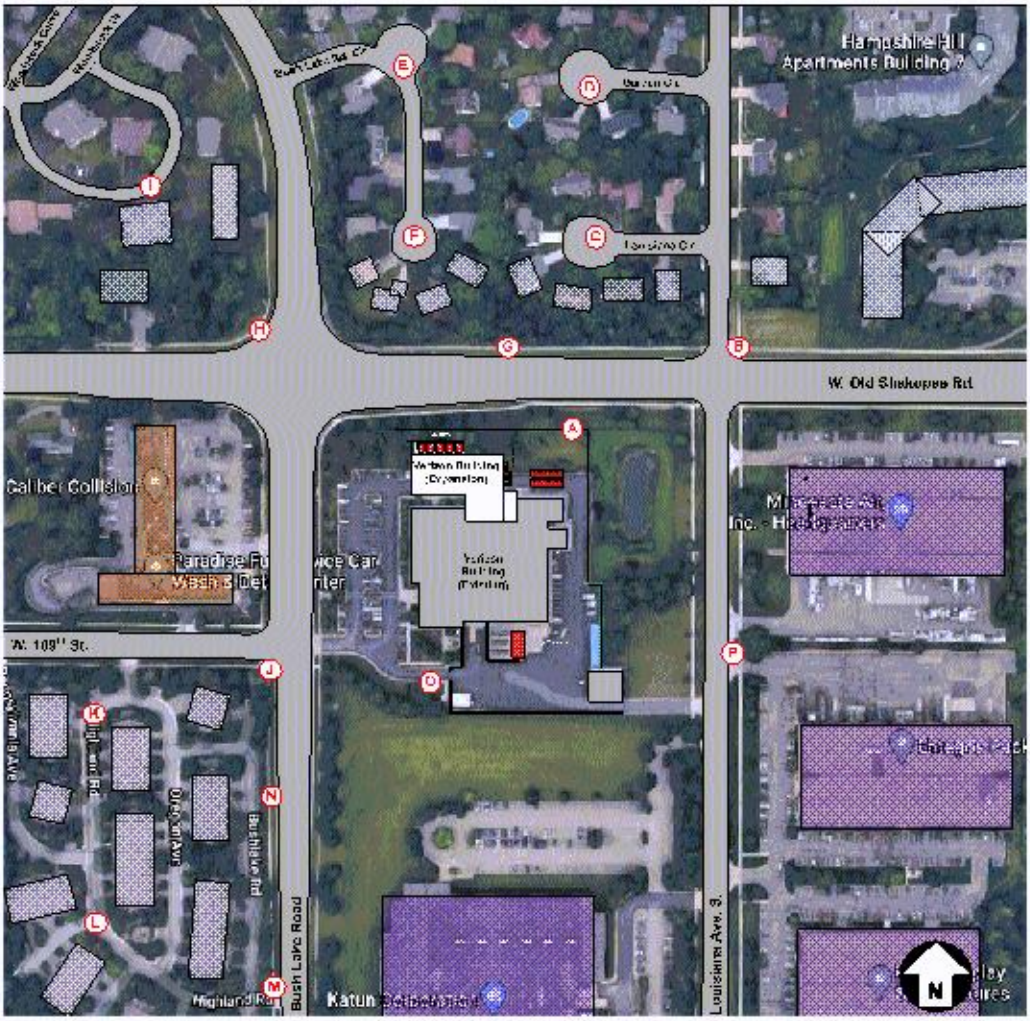

Figure 2 – Measurement locations in the area around the Verizon property.

Table 2 – Results of Noise Measurements on October 27, 2020

Location	Measurement Results, dBA L10	L50	L90	L_{Aeq}
A	43	38	37	41
B	44	42	40	43
C	43	37	36	40
D	39	38	37	38
E	40	37	36	38
F	40	38	36	38
G	43	41	40	42
H	42	40	38	40
I	43	40	38	41
J	43	42	41	42
K	38	30	35	30
L	41	30	34	38
M	41	40	38	40
N	43	42	41	42
O	54	53	52	53
P	58	57	57	58

NOISE ANALYSIS AND CONTOUR PLOTS

ESI prepared calculations and developed a contour plot to illustrate noise levels from mechanical equipment in the areas surrounding Verizon. The calculations followed the method published in the ANSI/ASA standard S12.62-2012 Acoustics – Attenuation of Sound Propagation Outdoors – Part 2: General Method of Calculation (reaffirmed June 22, 2020). Other references have methods that are similar. The ANSI/ASA method predicts average noise levels for meteorological conditions that are favorable to propagation, that is, downwind propagation (2 mph to 11 mph winds within +/- 45°) or a moderate temperature inversion. The standard has equations for calculating attenuation from the following:

1. Distance – decay of sound with distance between each source and each receiver location (also called geometrical divergence).
2. Atmospheric absorption – sound absorption by the atmosphere.
3. Ground effect –attenuation due to the ground surface conditions. For example, the attenuation of noise above grass is greater than the attenuation above water.
4. Barrier effects – the attenuation provided by solid obstacles, terrain, or other barriers.
5. Miscellaneous effects - the attenuation caused by foliage and other similar obstacles.
6. Meteorological correction – correction for wind conditions that are favorable to propagation (creates a no-wind condition).

The above six terms are commonly called "excess attenuation", meaning they reduce noise levels, not increase levels. We can calculate the effects of these variables, but since environmental conditions are always changing, we only included distance and barrier attenuation in our analysis. The other variables will only reduce noise levels further. Making worst-case assumptions is a common approach in engineering analysis.

For meteorological conditions that are even more favorable to propagation, such as very strong downwind propagation, we estimate that noise levels could be as much as 8 dBA higher than the predicted levels based on our review of available information and research reports. However, this is not a design condition. Strong winds that will "carry" the mechanical noise to distant receivers also cause other noise that tends to mask or cover-up the mechanical noise. The standard methods do not use strong winds as the basis for the calculation and evaluation. On the other hand, levels could also be substantially lower than those predicted here for winds blowing from the receiver to the source and for normal temperature gradients.

As shown in Figure 2, the MSC expansion has the following new mechanical equipment on the north side of the building:

- Air Handling units
    - Five Liebert DP500's – worst-case conditions are five units operating at 80% of full load.
- Condensing Units (CFs)
    - Four Liebert MCL110's – worst-case conditions are four units operating at 100% of full load.
    - Two Liebert MCM040's – worst-case conditions are two units operating at 100% of full load.

In addition to the new equipment, noise from existing dry coolers on the south side of the Verizon building was also included in the calculations. The dry coolers operate only during the colder winter months. Adding these sources was prompted by comments from residential neighbors who said they can hear noise from Verizon during the wintertime. There are also chillers on the south side of the building that run during the warmer months, however because the chillers are quieter than the dry coolers they were not included in the analysis. The chillers and dry coolers do not operate simultaneously, so the worst-case scenario was evaluated.

The two new generators and the existing generators were not included in the calculations of mechanical equipment noise. The generators are tested weekly during the daytime hours when the code requirement is 60 dBA, and they are tested individually, not all at the same time. Since the design is for the mechanical equipment to be at a level that is below 50 dBA, it will not add to the generator noise. A 50 dBA level added to a 60 dBA level is still 60 dBA.

Figure 3 below shows the site plan used for the calculations and shows the new equipment locations on the north side of the expansion and the existing dry coolers on the south side of the buildings.

In discussions with Morrison Hershfield, the following design assumptions were included in the noise calculations:

- Five of the air handling units will be running at 80% load. This condition is a worst-case design condition and is not anticipated to happen. Normal operation will be at lower loads and noise levels.
- The six new condensing units will be running at a full load, which is also considered worst-case.
- All dry coolers were operating at 100% capacity, which is considered worst-case.
- The generators will not be running except in emergency conditions and were not included in the noise contour calculations. A separate review of the generator noise is included in a later section of this report.
- The current service lot at the Verizon property has a masonry barrier around the perimeter. This will be continued on the north side of the property. The wall will be approximately 12' above ground.
- Based on topographical information for this area of Bloomington, we used a level ground elevation south of Old Shakopee Road and an increasing slope to the north of Old Shakopee Road.

Figure 3 – Aerial photo showing the extents of the noise model around Verizon.

ESI prepared calculations and developed a contour plot to illustrate noise levels from mechanical equipment in the areas surrounding Verizon. The nearest residential property lines are approximately 180' to the north of the new equipment, across W. Old Shakopee Road. Dimensions and elevations were measured from architectural drawings and Google Earth, and noise levels for the equipment were provided by the manufacturers.

Figure 4 shows an elevation sketch of a noise control barrier around the AHU's. The height of this wall was increased by 1' from the previous analysis to help reduce noise reduction transmission to the neighborhoods. Figure 5 shows a partial plan view of the layout and location of the barrier. The barrier will be along the north side of each AHU, with sides that extend back to the building on the east and west ends. The interior of the barrier will have acoustical absorption material to reduce reflections. The barrier wall will be within 3' of the AHU's, as that was the assumed distance for the calculations (closer is better).

Figure 6 shows a contour plot of the calculated noise levels for the new mechanical sources with the barrier wall near the AHU's and the 12' high masonry wall around the perimeter of the service lot. The contours were evaluated at 5' above ground level and the topography of the site was included. The dry cooler noise is also included in these results. As shown in Figure 6, the **noise at Location 1 at the nearest residential property line to the building expansion is 48 dBA, which meets the requirement of 50 dBA.** The **noise at Location 2 to the west of the Verizon property is 47 dBA, which also meets the 50 dBA requirement.** These results are for worst-case conditions. We expect levels will lower during typical operating conditions.

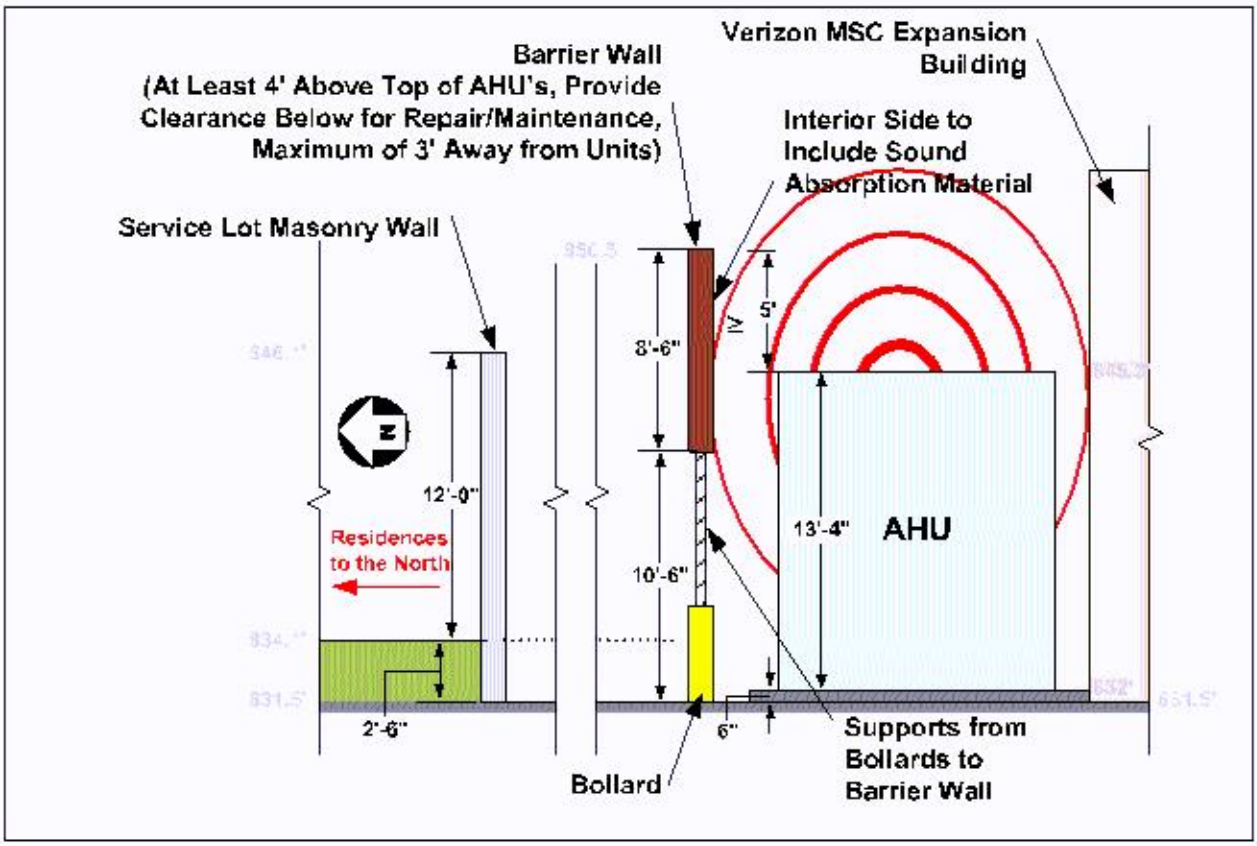

Figure 4 – Elevation sketch of the proposed AHU noise control barrier wall.

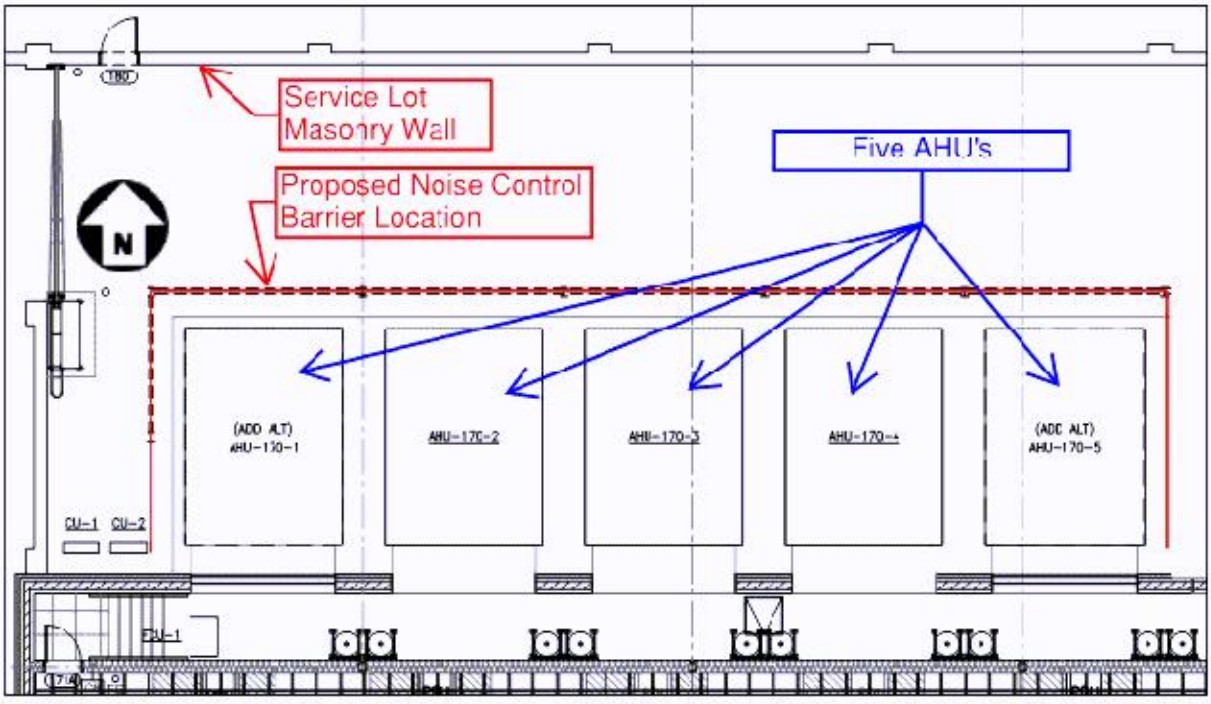

Figure 5 – Partial plan view showing the layout and location of the proposed barrier wall.

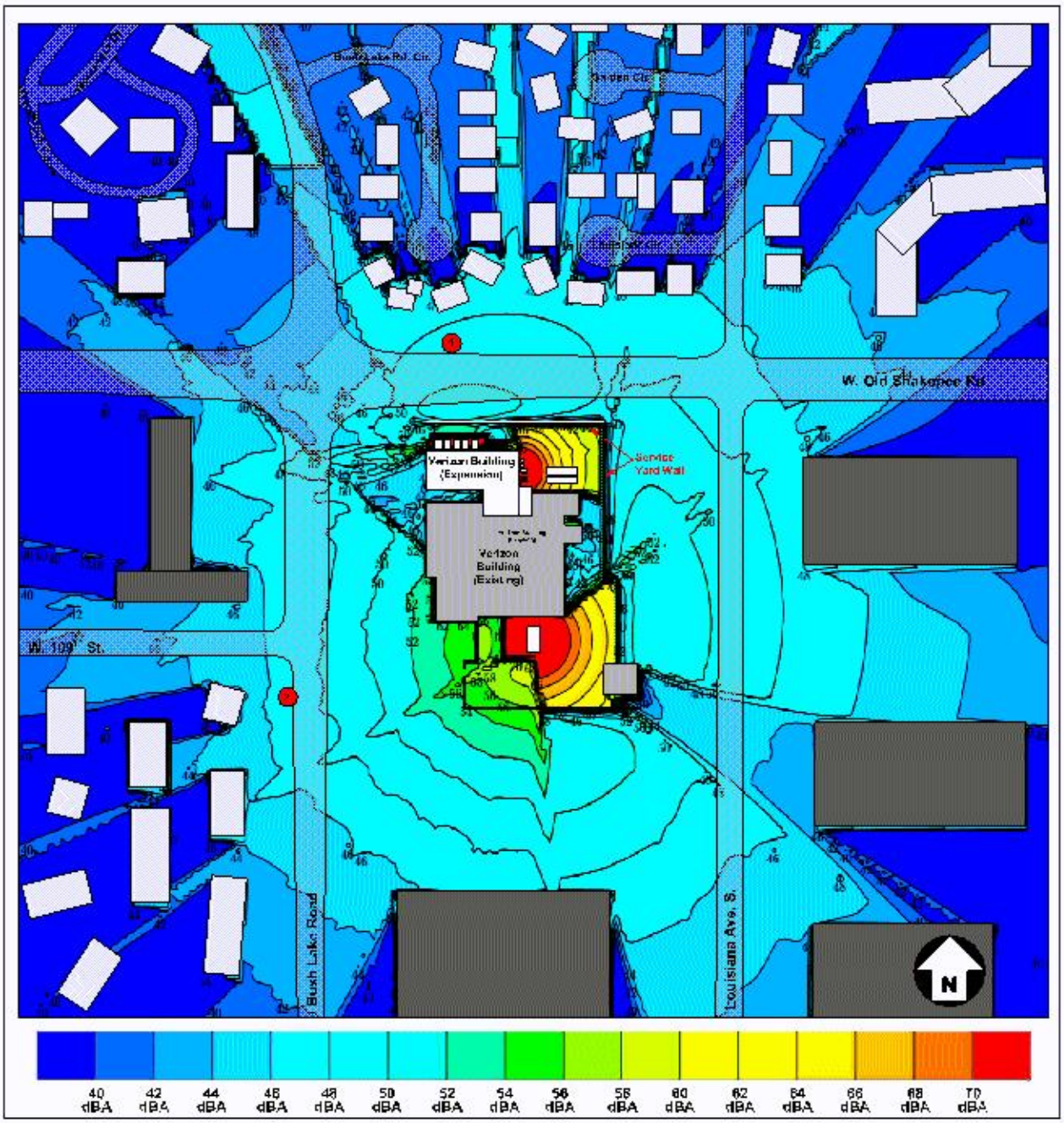

Figure 6 – Calculated noise contour plot of the area surrounding the Verizon property.

The contour plot in Figure 6 shows the A-weighted equipment noise levels that can be compared to the 50 dBA requirement for residential receivers. The light blue to dark blue areas are below 50 dBA. The noise levels at **Location 1, the nearest residential property line to the building expansion, is 48 dBA, which meets the 50 dBA requirement. The noise at Location 2 to the west of the Verizon property is 47 dBA, which also meets the 50 dBA requirement.** These results are for worst-case conditions. We expect levels will lower during typical operating conditions.

GENERATOR NOISE REVIEW

The two new emergency generators for the project are both Caterpillar 3516 Diesel Generators with sound enclosures. The specification for noise from each generator was to meet 65 dBA at 23' away. The data provided by the vendor shows that noise from all paths (i.e. exhaust, intake and discharge air, and through the enclosure panels) and for each generator will be 67.5 dBA at 23'. Using this level, we calculated noise will be 60 dBA at 54' from the north generator, which is a location that still on the Version property on the south side of Old Shakopee Road. We are confident the generator noise will meet the 60 dBA daytime requirement at the nearest residential receivers. The generator noise is low enough that when added to the mechanical noise shown in the contour plot, the total noise will still meet the 60 dBA daytime requirement. We conclude that noise with both the new mechanical equipment, the existing dry coolers, and the new generators will meet the 60 dBA daytime noise requirement.

Noise from the existing generators does not need to be included in this analysis since the existing and new generators will not operate at the same time except during an emergency. During maintenance operation of the existing generators the same logic applies; the new mechanical equipment and the dry coolers are low enough that the increase to the existing generator noise is negligible.

REFLECTIONS FROM THE NEW BARRIER WALL

Residential neighbors were concerned that the new masonry service lot wall parallel to Old Shakopee Road will increase noise in their neighborhoods because of reflections of vehicular noise. The barrier will be 91' south of the center of the road and at a higher elevation by about 5'. In our opinion, noise from traffic will not be significantly higher in the neighborhoods than it is now. There will be reflections from the new wall, however the reflections will be directed upward because of the elevation difference. The reflections will not be noticeable at the nearest homes.

CONCLUSIONS

ESI Engineering was asked to evaluate the new mechanical equipment noise levels for the MSC expansion at Verizon. A noise contour plot showing noise levels in the neighborhood areas surrounding the Verizon was prepared and levels were compared with the City of Bloomington and State of Minnesota noise requirements. The calculations indicated that a 12' barrier wall around the service lot and a second barrier wall close to the AHU's reduced noise at the nearest residential property line to a level that was below the State nighttime residential requirement of 50 dBA. This was for the worst-case conditions with five AHU's running at 80% load, which will not typically occur. Noise from new condensing units and the existing dry coolers was also included in the analysis at 100% load, which is a worst-case condition that is not expected to occur.

Noise from the new emergency generators will meet the 60 dBA daytime noise requirements during weekly maintenance operation.

In our opinion, reflections of vehicular noise from the service lot wall to the residences to the north will be not be noticeable due to distance and elevation.

We appreciate the opportunity to work with Morrison Hershfield on this project to serve the needs of Verizon. We remain available to assist in the resolution of these and any other matters. Please let us know if you have any questions or need more information.

Sincerely,

Andrew A.J. Schmitt
Consulting Engineer
ESI Engineering, Inc.

Anthony J. Baxter, P.E. (MN and WI)
Principal
ESI Engineering, Inc.

Ms. Katherine McGah
Morrison Hershfield

November 10, 2020

Attachment A

Ambient Noise Measurement Data

October 23, 2020 to October 30, 2020

Verizon Noise Monitoring Summary

Date	Hour	Measurement Results, dBA				Weather Conditions		
		L10	L50	L90	Hourly L_{Aeq}	Temp	Wind	Condition
Friday, October 23, 2020	5:00 PM	72	67	59	68	34 °F	13 mph	Cloudy
	6:00 PM	71	66	57	68	33 °F	17 mph	Cloudy
	7:00 PM	70	64	54	66	32 °F	13 mph	Cloudy
	8:00 PM	68	61	50	65	30 °F	12 mph	Cloudy
	9:00 PM	68	61	50	66	28 °F	12 mph	Partly Cloudy
	10:00 PM	67	58	46	62	26 °F	9 mph	Fair
	11:00 PM	65	56	45	61	24 °F	8 mph	Fair
Saturday, October 24, 2020	12:00 AM	63	50	42	58	24 °F	6 mph	Fair
	1:00 AM	62	45	41	57	24 °F	8 mph	Fair
	2:00 AM	59	42	40	55	24 °F	5 mph	Fair
	3:00 AM	60	42	40	56	25 °F	7 mph	Mostly Cloudy
	4:00 AM	60	42	40	57	25 °F	5 mph	Cloudy
	5:00 AM	65	50	42	60	24 °F	0 mph	Cloudy
	6:00 AM	65	53	44	61	24 °F	5 mph	Cloudy
	7:00 AM	67	59	47	63	26 °F	5 mph	Mostly Cloudy
	8:00 AM	69	63	51	65	26 °F	0 mph	Cloudy
	9:00 AM	70	64	54	66	28 °F	3 mph	Cloudy
	10:00 AM	70	65	55	67	30 °F	6 mph	Partly Cloudy
	11:00 AM	71	66	56	67	30 °F	6 mph	Cloudy
	12:00 PM	71	66	57	67	32 °F	7 mph	Cloudy
	1:00 PM	70	66	56	67	31 °F	10 mph	Cloudy
	2:00 PM	71	66	56	67	31 °F	6 mph	Cloudy
	3:00 PM	70	66	56	67	31 °F	6 mph	Cloudy
	4:00 PM	70	65	56	67	31 °F	6 mph	Mostly Cloudy
	5:00 PM	70	65	56	67	29 °F	5 mph	Partly Cloudy
	6:00 PM	69	64	54	66	28 °F	7 mph	Mostly Cloudy
	7:00 PM	69	62	51	65	28 °F	7 mph	Mostly Cloudy
	8:00 PM	67	60	48	63	29 °F	5 mph	Mostly Cloudy
	9:00 PM	67	59	46	62	29 °F	6 mph	Cloudy
	10:00 PM	66	58	44	62	29 °F	6 mph	Cloudy
	11:00 PM	65	53	41	60	29 °F	5 mph	Cloudy

Verizon Noise Monitoring Summary

Date	Hour	Measurement Results, dBA				Weather Conditions		
		L10	L50	L90	Hourly L_{Aeq}	Temp	Wind	Condition
Sunday, October 25, 2020	12:00 AM	64	48	39	59	29 °F	7 mph	Cloudy
	1:00 AM	62	44	39	58	28 °F	5 mph	Cloudy
	2:00 AM	60	40	38	56	28 °F	0 mph	Cloudy
	3:00 AM	57	40	38	54	28 °F	8 mph	Cloudy
	4:00 AM	57	39	38	54	27 °F	7 mph	Cloudy
	5:00 AM	63	45	39	58	27 °F	9 mph	Cloudy
	6:00 AM	63	48	40	59	26 °F	7 mph	Cloudy
	7:00 AM	65	52	41	60	27 °F	8 mph	Cloudy
	8:00 AM	67	59	47	63	28 °F	8 mph	Light Snow
	9:00 AM	69	62	50	65	27 °F	9 mph	Light Snow
	10:00 AM	70	64	54	66	27 °F	7 mph	Light Snow
	11:00 AM	71	66	57	67	27 °F	7 mph	Light Snow
	12:00 PM	71	66	57	68	28 °F	10 mph	Light Snow
	1:00 PM	71	67	55	68	27 °F	10 mph	Light Snow
	2:00 PM	71	66	57	68	28 °F	10 mph	Light Snow
	3:00 PM	72	67	57	68	27 °F	9 mph	Light Snow
	4:00 PM	72	67	58	68	27 °F	5 mph	Light Snow
	5:00 PM	71	65	54	67	27 °F	8 mph	Cloudy
	6:00 PM	69	64	53	66	27 °F	7 mph	Cloudy
	7:00 PM	68	62	51	65	27 °F	7 mph	Cloudy
	8:00 PM	67	60	48	63	27 °F	5 mph	Mostly Cloudy
	9:00 PM	66	57	44	62	26 °F	7 mph	Mostly Cloudy
	10:00 PM	65	52	42	60	26 °F	5 mph	Mostly Cloudy
	11:00 PM	63	48	41	59	27 °F	10 mph	Mostly Cloudy
Monday, October 26, 2020	12:00 AM	60	41	39	56	27 °F	9 mph	Cloudy
	1:00 AM	58	40	38	55	26 °F	12 mph	Mostly Cloudy
	2:00 AM	55	39	38	54	26 °F	8 mph	Cloudy
	3:00 AM	60	41	38	57	26 °F	12 mph	Cloudy
	4:00 AM	64	48	40	59	25 °F	9 mph	Cloudy
	5:00 AM	68	59	46	64	25 °F	7 mph	Cloudy
	6:00 AM	70	64	53	66	25 °F	9 mph	Mostly Cloudy
	7:00 AM	72	66	57	68	24 °F	12 mph	Mostly Cloudy
	8:00 AM	72	67	58	68	27 °F	12 mph	Mostly Cloudy
	9:00 AM	71	65	56	68	28 °F	13 mph	Mostly Cloudy
	10:00 AM	70	65	55	67	28 °F	10 mph	Mostly Cloudy
	11:00 AM	71	66	57	67	29 °F	10 mph	Mostly Cloudy
	12:00 PM	71	66	56	68	29 °F	6 mph	Mostly Cloudy
	1:00 PM	71	65	55	67	29 °F	9 mph	Partly Cloudy
	2:00 PM	71	66	57	68	31 °F	9 mph	Partly Cloudy
	3:00 PM	72	66	57	68	29 °F	9 mph	Mostly Cloudy
	4:00 PM	72	67	58	68	28 °F	8 mph	Partly Cloudy
	5:00 PM	72	66	57	68	26 °F	8 mph	Partly Cloudy
	6:00 PM	70	65	56	66	25 °F	6 mph	Mostly Cloudy
	7:00 PM	69	63	51	70	25 °F	5 mph	Partly Cloudy
	8:00 PM	66	61	49	64	25 °F	5 mph	Fair
	9:00 PM	66	57	46	61	23 °F	5 mph	Fair
	10:00 PM	66	56	46	61	22 °F	6 mph	Fair
	11:00 PM	64	51	43	59	20 °F	0 mph	Fair

Verizon Noise Monitoring Summary

Date	Hour	Measurement Results, dBA				Weather Conditions		
		L10	L50	L90	Hourly L_{Aeq}	Temp	Wind	Condition
Tuesday, October 27, 2020	12:00 AM	60	44	41	56	21 °F	6 mph	Fair
	1:00 AM	57	43	41	54	20 °F	6 mph	Fair
	2:00 AM	58	43	41	56	19 °F	5 mph	Fair
	3:00 AM	59	44	41	55	18 °F	6 mph	Fair
	4:00 AM	65	51	44	60	17 °F	6 mph	Fair
	5:00 AM	68	59	48	64	17 °F	6 mph	Fair
	6:00 AM	70	63	54	66	16 °F	6 mph	Fair
	7:00 AM	71	66	57	68	18 °F	7 mph	Fair
	8:00 AM	72	66	57	68	21 °F	10 mph	Fair
	9:00 AM	71	65	56	67	25 °F	9 mph	Fair
	10:00 AM	70	64	55	66	28 °F	14 mph	Fair
	11:00 AM	71	65	55	67	30 °F	16 mph	Fair
	12:00 PM	71	66	56	67	31 °F	15 mph	Fair
	1:00 PM	71	65	54	67	33 °F	16 mph	Fair
	2:00 PM	71	65	56	67	34 °F	13 mph	Fair
	3:00 PM	71	66	57	68	33 °F	14 mph	Partly Cloudy
	4:00 PM	72	67	58	68	33 °F	14 mph	Mostly Cloudy
	5:00 PM	71	66	59	68	32 °F	8 mph	Mostly Cloudy
	6:00 PM	70	65	55	66	32 °F	10 mph	Mostly Cloudy
	7:00 PM	68	63	52	65	32 °F	10 mph	Mostly Cloudy
	8:00 PM	68	61	50	64	32 °F	13 mph	Cloudy
	9:00 PM	66	58	48	62	32 °F	15 mph	Cloudy
	10:00 PM	66	55	48	61	33 °F	12 mph	Mostly Cloudy
	11:00 PM	64	51	46	59	32 °F	14 mph	Fair
Wednesday, October 28, 2020	12:00 AM	60	48	44	56	32 °F	16 mph	Fair
	1:00 AM	56	46	43	54	32 °F	14 mph	Fair
	2:00 AM	56	45	43	54	32 °F	7 mph	Partly Cloudy
	3:00 AM	60	47	44	57	31 °F	7 mph	Fair
	4:00 AM	64	51	45	60	31 °F	9 mph	Fair
	5:00 AM	68	60	50	64	30 °F	6 mph	Partly Cloudy
	6:00 AM	70	64	55	66	32 °F	6 mph	Mostly Cloudy
	7:00 AM	71	65	57	67	32 °F	7 mph	Mostly Cloudy
	8:00 AM	71	65	58	67	34 °F	6 mph	Mostly Cloudy
	9:00 AM	71	65	57	67	35 °F	8 mph	Cloudy
	10:00 AM	71	65	58	67	36 °F	5 mph	Cloudy
	11:00 AM	71	66	59	68	39 °F	6 mph	Mostly Cloudy
	12:00 PM	71	66	59	70	42 °F	8 mph	Fair
	1:00 PM	71	66	57	68	47 °F	14 mph	Fair
	2:00 PM	72	66	59	68	49 °F	9 mph	Fair
	3:00 PM	72	67	58	72	48 °F	12 mph	Fair
	4:00 PM	72	67	58	71	45 °F	7 mph	Fair
	5:00 PM	71	66	59	68	43 °F	8 mph	Fair
	6:00 PM	70	66	59	67	42 °F	7 mph	Fair
	7:00 PM	69	64	55	66	41 °F	10 mph	Partly Cloudy
	8:00 PM	69	62	51	65	41 °F	12 mph	Mostly Cloudy
	9:00 PM	67	59	48	62	39 °F	8 mph	Mostly Cloudy
	10:00 PM	65	57	46	61	39 °F	10 mph	Cloudy
	11:00 PM	64	51	42	59	38 °F	15 mph	Cloudy

Verizon Noise Monitoring Summary

Date	Hour	Measurement Results, dBA				Weather Conditions		
		L10	L50	L90	Hourly L_{Aeq}	Temp	Wind	Condition
Thursday, October 29, 2020	12:00 AM	61	45	39	57	37 °F	13 mph	Cloudy
	1:00 AM	59	41	38	55	36 °F	9 mph	Cloudy
	2:00 AM	60	41	38	57	35 °F	13 mph	Cloudy
	3:00 AM	59	40	37	56	35 °F	13 mph	Cloudy
	4:00 AM	64	49	40	59	34 °F	13 mph	Cloudy
	5:00 AM	68	58	45	63	33 °F	13 mph	Cloudy
	6:00 AM	70	64	54	66	33 °F	14 mph	Cloudy
	7:00 AM	71	66	58	68	32 °F	12 mph	Cloudy
	8:00 AM	72	66	58	68	32 °F	13 mph	Cloudy
	9:00 AM	71	65	57	67	33 °F	9 mph	Cloudy
	10:00 AM	71	65	57	67	33 °F	8 mph	Cloudy
	11:00 AM	71	66	58	68	34 °F	7 mph	Cloudy
	12:00 PM	71	67	58	68	35 °F	6 mph	Cloudy
	1:00 PM	71	66	58	68	36 °F	7 mph	Cloudy
	2:00 PM	72	67	58	68	37 °F	8 mph	Mostly Cloudy
	3:00 PM	72	67	59	68	35 °F	3 mph	Mostly Cloudy
	4:00 PM	72	67	59	69	33 °F	3 mph	Partly Cloudy
	5:00 PM	71	67	58	68	33 °F	3 mph	Partly Cloudy
	6:00 PM	70	65	56	67	32 °F	3 mph	Partly Cloudy
	7:00 PM	69	63	52	65	32 °F	3 mph	Mostly Cloudy
	8:00 PM	68	62	49	64	32 °F	0 mph	Mostly Cloudy
	9:00 PM	67	59	47	63	32 °F	3 mph	Mostly Cloudy
	10:00 PM	66	57	46	61	32 °F	0 mph	Mostly Cloudy
	11:00 PM	63	52	43	59	31 °F	0 mph	Cloudy
Friday, October 30, 2020	12:00 AM	62	47	43	57	31 °F	0 mph	Cloudy
	1:00 AM	60	43	40	56	32 °F	0 mph	Cloudy
	2:00 AM	59	42	40	55	32 °F	0 mph	Cloudy
	3:00 AM	61	44	41	57	31 °F	3 mph	Cloudy
	4:00 AM	63	46	42	58	31 °F	3 mph	Cloudy
	5:00 AM	68	59	46	63	31 °F	0 mph	Cloudy
	6:00 AM	70	63	52	66	32 °F	5 mph	Mostly Cloudy
	7:00 AM	71	66	57	67	32 °F	3 mph	Mostly Cloudy
	8:00 AM	71	66	58	67	34 °F	0 mph	Mostly Cloudy
	9:00 AM	71	66	59	68	36 °F	6 mph	Cloudy
	10:00 AM	71	67	63	68	38 °F	3 mph	Mostly Cloudy

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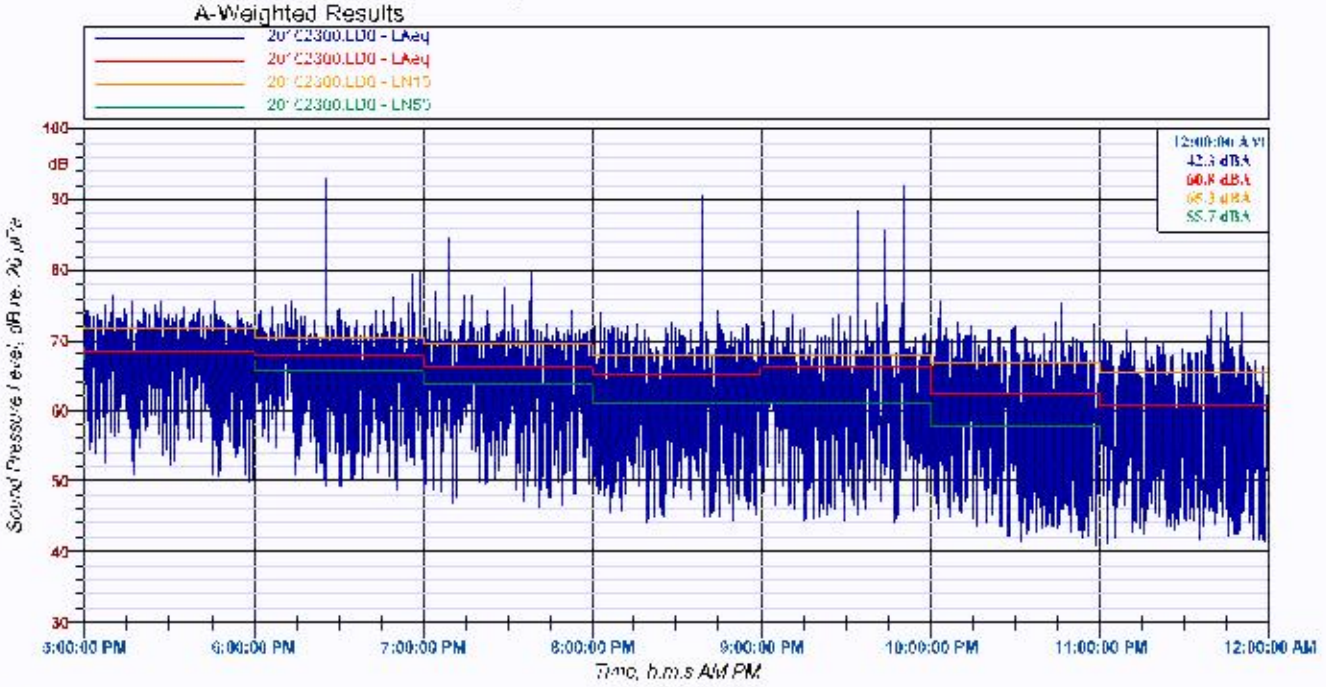
Acoustic Test Results

Minneapolis, Minnesota | o: 952.831.4646 | esi-engineering.com

Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Harshfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location A	**Meteorology:**	Temperature: 24 - 34 °F
Date:	10/23/2020		Wind Speed / Dir.: 8 - 17 MPH / NW
Start Time:	4:43:04 PM		Humidity: 66 - 81%
End Time:	12:00:00 AM	**Calibration Check:**	Calibration Frequency: 1 kHz
Run Time:	26216.0 seconds		Initial Calibration: 93.7 dB
			Final Calibration: 93.7 dB
			Last Cal. Check: 10/30/20 @ 11:24 AM

Measurements: Friday: One Second and Hourly Ambient Noise Levels
A-Weighted Results



Noise Monitoring
Measured Hourly LAeq Data

Time	LAeq	Time	LAeq	Time	LAeq	Time	LAeq	Time	LAeq
4:43:04 PM	69 dBA	9:00:00 PM	66 dBA						
5:00:00 PM	68 dBA	10:00:00 PM	62 dBA						
6:00:00 PM	68 dBA	11:00:00 PM	61 dBA						
7:00:00 PM	66 dBA								
8:00:00 PM	65 dBA								

Noise Monitoring
Measured Hourly L10 Data

Time	LAeq	Time	LAeq
5:00:00 PM	72 dBA		
6:00:00 PM	71 dBA		
7:00:00 PM	70 dBA		
8:00:00 PM	68 dBA		
9:00:00 PM	68 dBA		
10:00:00 PM	67 dBA		
11:00:00 PM	65 dBA		

Noise Monitoring
Measured Hourly L50 Data

Time	LAeq	Time	LAeq
5:00:00 PM	67 dBA		
6:00:00 PM	66 dBA		
7:00:00 PM	64 dBA		
8:00:00 PM	61 dBA		
9:00:00 PM	61 dBA		
10:00:00 PM	58 dBA		
11:00:00 PM	56 dBA		

Figure A1

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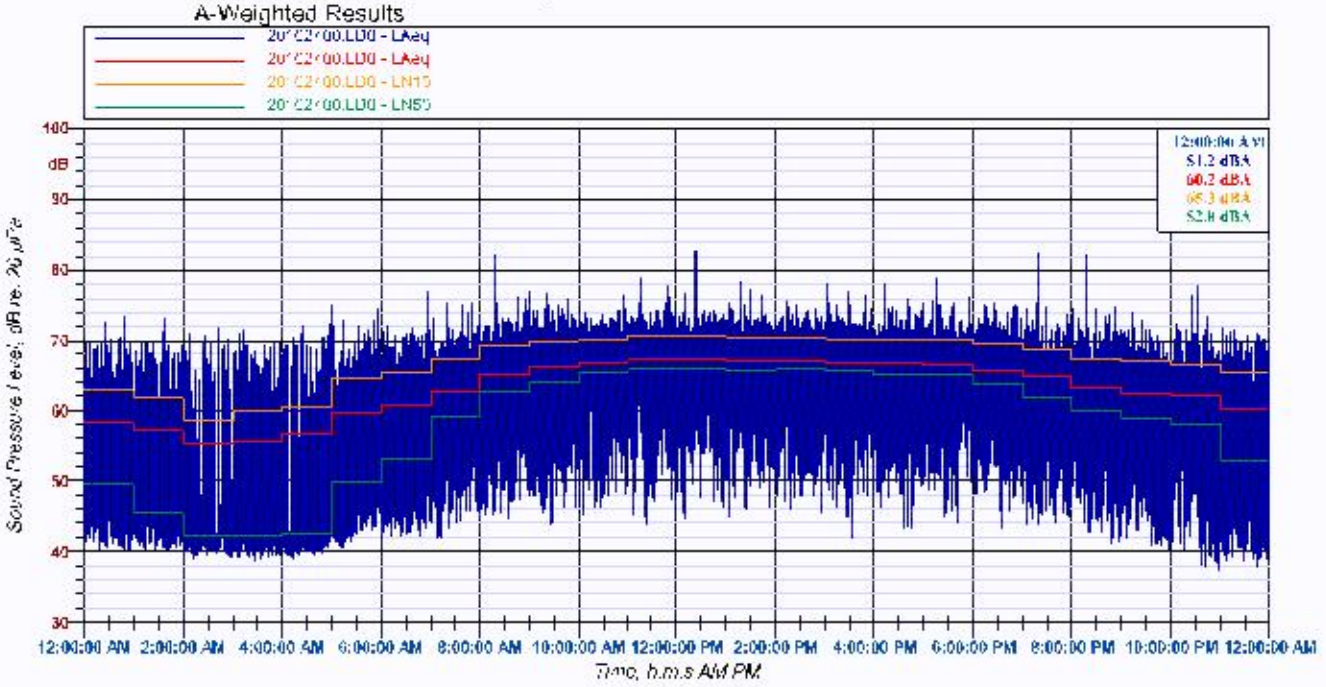
Acoustic Test Results

Minneapolis, Minnesota | o: 952.831.4646 | esi-engineering.com

Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Harshfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location A	**Meteorology:**	Temperature: 24 - 32 °F
Date:	10/24/2020		Wind Speed / Dir.: 0 - 10 MPH / N - W
Start Time:	12:00:00 AM		Humidity: 50 - 81%
End Time:	12:00:00 AM	**Calibration Check:**	Calibration Frequency: 1 kHz
Run Time:	86400.0 seconds		Initial Calibration: 93.7 dB
			Final Calibration: 93.7 dB
			Last Cal. Check: 10/30/20 @ 11:24 AM

Measurements: Saturday: One Second and Hourly Ambient Noise Levels
A-Weighted Results



Noise Monitoring
Measured Hourly LAeq Data

Time	LAeq	Time	LAeq	Time	LAeq	Time	LAeq	Time	LAeq
12:00:00 AM	58 dBA	5:00:00 AM	60 dBA	10:00:00 AM	67 dBA	3:00:00 PM	67 dBA	8:00:00 PM	63 dBA
1:00:00 AM	57 dBA	6:00:00 AM	61 dBA	11:00:00 AM	67 dBA	4:00:00 PM	67 dBA	9:00:00 PM	62 dBA
2:00:00 AM	55 dBA	7:00:00 AM	63 dBA	12:00:00 PM	67 dBA	5:00:00 PM	67 dBA	10:00:00 PM	62 dBA
3:00:00 AM	56 dBA	8:00:00 AM	65 dBA	1:00:00 PM	67 dBA	6:00:00 PM	66 dBA	11:00:00 PM	60 dBA
4:00:00 AM	57 dBA	9:00:00 AM	66 dBA	2:00:00 PM	67 dBA	7:00:00 PM	65 dBA		

Noise Monitoring
Measured Hourly L10 Data

Time	LAeq	Time	LAeq
12:00:00 AM	63 dBA	12:00:00 PM	71 dBA
1:00:00 AM	62 dBA	1:00:00 PM	70 dBA
2:00:00 AM	59 dBA	2:00:00 PM	71 dBA
3:00:00 AM	60 dBA	3:00:00 PM	70 dBA
4:00:00 AM	60 dBA	4:00:00 PM	70 dBA
5:00:00 AM	65 dBA	5:00:00 PM	70 dBA
6:00:00 AM	65 dBA	6:00:00 PM	69 dBA
7:00:00 AM	67 dBA	7:00:00 PM	69 dBA
8:00:00 AM	69 dBA	8:00:00 PM	67 dBA
9:00:00 AM	70 dBA	9:00:00 PM	67 dBA
10:00:00 AM	70 dBA	10:00:00 PM	66 dBA
11:00:00 AM	71 dBA	11:00:00 PM	65 dBA

Noise Monitoring
Measured Hourly L50 Data

Time	LAeq	Time	LAeq
12:00:00 AM	50 dBA	12:00:00 PM	66 dBA
1:00:00 AM	45 dBA	1:00:00 PM	66 dBA
2:00:00 AM	42 dBA	2:00:00 PM	66 dBA
3:00:00 AM	42 dBA	3:00:00 PM	66 dBA
4:00:00 AM	42 dBA	4:00:00 PM	65 dBA
5:00:00 AM	50 dBA	5:00:00 PM	65 dBA
6:00:00 AM	53 dBA	6:00:00 PM	64 dBA
7:00:00 AM	59 dBA	7:00:00 PM	62 dBA
8:00:00 AM	63 dBA	8:00:00 PM	60 dBA
9:00:00 AM	64 dBA	9:00:00 PM	59 dBA
10:00:00 AM	65 dBA	10:00:00 PM	58 dBA
11:00:00 AM	66 dBA	11:00:00 PM	53 dBA

Figure A2

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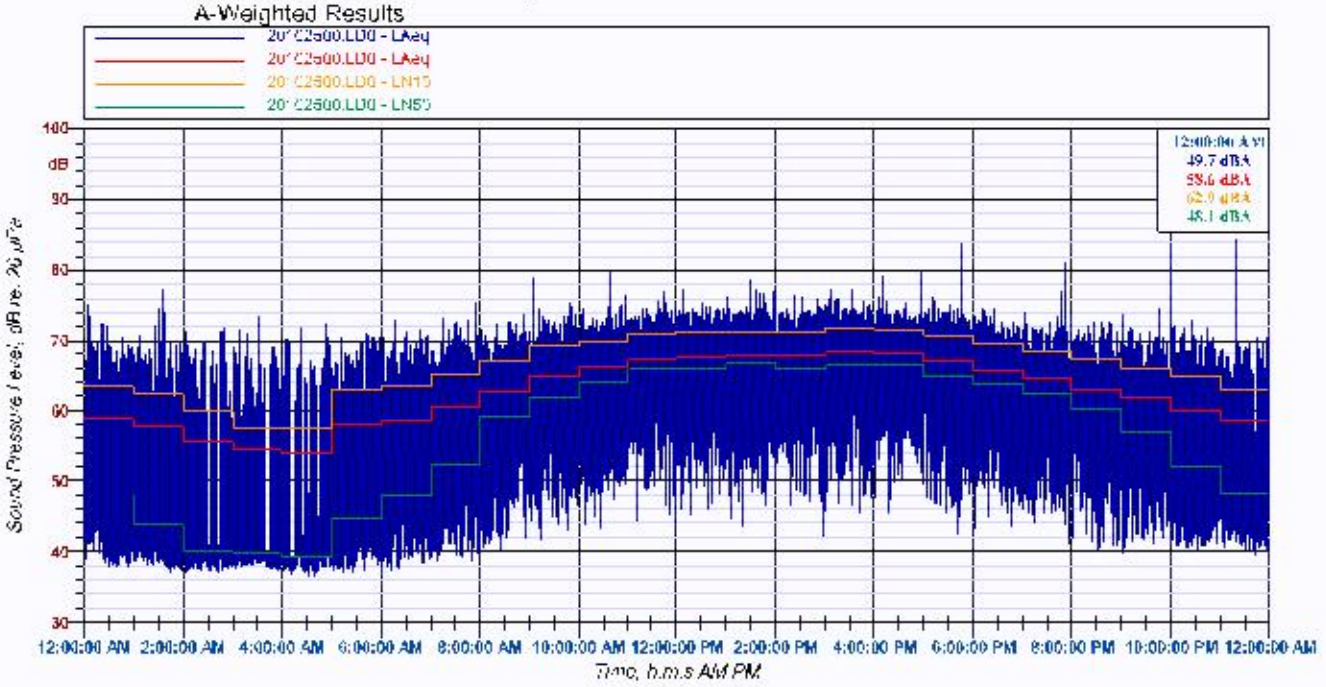
Acoustic Test Results

Minneapolis, Minnesota | o: 952.831.4646 | esi-engineering.com

Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Harshfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location A	**Meteorology:**	Temperature: 26 - 29 °F Wind Speed / Dir.: 0 - 10 MPH / N - NW Humidity: 61 - 89%
Date:	10/25/2020		
Start Time:	12:00:00 AM	**Calibration Check:**	Calibration Frequency: 1 kHz Initial Calibration: 93.7 dB Final Calibration: 93.7 dB Last Cal. Check: 10/30/20 @ 11:24 AM
End Time:	12:00:00 AM		
Run Time:	86400.0 seconds		

Measurements: Sunday: One Second and Hourly Ambient Noise Levels
A-Weighted Results



Noise Monitoring
Measured Hourly LAeq Data

Time	LAeq	Time	LAeq	Time	LAeq	Time	LAeq	Time	LAeq
12:00:00 AM	59 dBA	5:00:00 AM	58 dBA	10:00:00 AM	66 dBA	3:00:00 PM	68 dBA	8:00:00 PM	63 dBA
1:00:00 AM	58 dBA	6:00:00 AM	59 dBA	11:00:00 AM	67 dBA	4:00:00 PM	68 dBA	9:00:00 PM	62 dBA
2:00:00 AM	56 dBA	7:00:00 AM	60 dBA	12:00:00 PM	68 dBA	5:00:00 PM	67 dBA	10:00:00 PM	60 dBA
3:00:00 AM	54 dBA	8:00:00 AM	63 dBA	1:00:00 PM	68 dBA	6:00:00 PM	66 dBA	11:00:00 PM	59 dBA
4:00:00 AM	54 dBA	9:00:00 AM	65 dBA	2:00:00 PM	68 dBA	7:00:00 PM	65 dBA		

Noise Monitoring
Measured Hourly L10 Data

Time	LAeq	Time	LAeq
12:00:00 AM	64 dBA	12:00:00 PM	71 dBA
1:00:00 AM	62 dBA	1:00:00 PM	71 dBA
2:00:00 AM	60 dBA	2:00:00 PM	71 dBA
3:00:00 AM	57 dBA	3:00:00 PM	72 dBA
4:00:00 AM	57 dBA	4:00:00 PM	72 dBA
5:00:00 AM	63 dBA	5:00:00 PM	71 dBA
6:00:00 AM	63 dBA	6:00:00 PM	69 dBA
7:00:00 AM	65 dBA	7:00:00 PM	68 dBA
8:00:00 AM	67 dBA	8:00:00 PM	67 dBA
9:00:00 AM	69 dBA	9:00:00 PM	66 dBA
10:00:00 AM	70 dBA	10:00:00 PM	65 dBA
11:00:00 AM	71 dBA	11:00:00 PM	63 dBA

Noise Monitoring
Measured Hourly L50 Data

Time	LAeq	Time	LAeq
12:00:00 AM	48 dBA	12:00:00 PM	66 dBA
1:00:00 AM	44 dBA	1:00:00 PM	67 dBA
2:00:00 AM	40 dBA	2:00:00 PM	66 dBA
3:00:00 AM	40 dBA	3:00:00 PM	67 dBA
4:00:00 AM	39 dBA	4:00:00 PM	67 dBA
5:00:00 AM	45 dBA	5:00:00 PM	65 dBA
6:00:00 AM	48 dBA	6:00:00 PM	64 dBA
7:00:00 AM	52 dBA	7:00:00 PM	62 dBA
8:00:00 AM	59 dBA	8:00:00 PM	60 dBA
9:00:00 AM	62 dBA	9:00:00 PM	57 dBA
10:00:00 AM	64 dBA	10:00:00 PM	52 dBA
11:00:00 AM	66 dBA	11:00:00 PM	48 dBA

Figure A3

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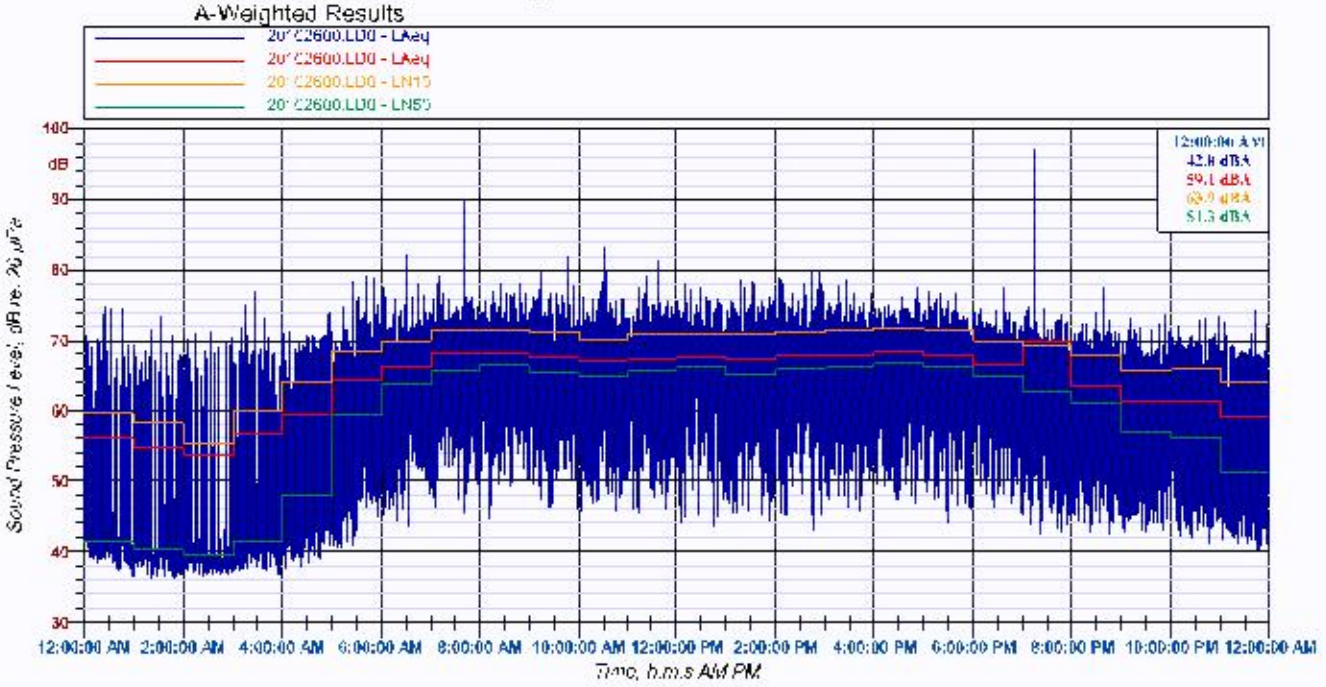
Acoustic Test Results

Minneapolis, Minnesota | o: 952.831.4646 | esi-engineering.com

Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Harshfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location A	**Meteorology:**	Temperature: 20 - 29 °F
Date:	10/26/2020		Wind Speed / Dir.: 0 - 13 MPH / N - W
Start Time:	12:00:00 AM		Humidity: 47 - 78%
End Time:	12:00:00 AM	**Calibration Check:**	Calibration Frequency: 1 kHz
Run Time:	86400.0 seconds		Initial Calibration: 93.7 dB
			Final Calibration: 93.7 dB
			Last Cal. Check: 10/30/20 @ 11:24 AM

Measurements: Monday: One Second and Hourly Ambient Noise Levels
A-Weighted Results



Noise Monitoring
Measured Hourly LAeq Data

Time	LAeq	Time	LAeq	Time	LAeq	Time	LAeq	Time	LAeq
12:00:00 AM	56 dBA	5:00:00 AM	64 dBA	10:00:00 AM	67 dBA	3:00:00 PM	68 dBA	8:00:00 PM	64 dBA
1:00:00 AM	55 dBA	6:00:00 AM	66 dBA	11:00:00 AM	67 dBA	4:00:00 PM	68 dBA	9:00:00 PM	61 dBA
2:00:00 AM	54 dBA	7:00:00 AM	68 dBA	12:00:00 PM	68 dBA	5:00:00 PM	66 dBA	10:00:00 PM	61 dBA
3:00:00 AM	57 dBA	8:00:00 AM	68 dBA	1:00:00 PM	67 dBA	6:00:00 PM	66 dBA	11:00:00 PM	59 dBA
4:00:00 AM	59 dBA	9:00:00 AM	68 dBA	2:00:00 PM	68 dBA	7:00:00 PM	70 dBA		

Noise Monitoring
Measured Hourly L10 Data

Time	LAeq	Time	LAeq
12:00:00 AM	60 dBA	12:00:00 PM	71 dBA
1:00:00 AM	58 dBA	1:00:00 PM	71 dBA
2:00:00 AM	55 dBA	2:00:00 PM	71 dBA
3:00:00 AM	60 dBA	3:00:00 PM	72 dBA
4:00:00 AM	64 dBA	4:00:00 PM	72 dBA
5:00:00 AM	68 dBA	5:00:00 PM	72 dBA
6:00:00 AM	70 dBA	6:00:00 PM	70 dBA
7:00:00 AM	72 dBA	7:00:00 PM	69 dBA
8:00:00 AM	72 dBA	8:00:00 PM	68 dBA
9:00:00 AM	71 dBA	9:00:00 PM	66 dBA
10:00:00 AM	70 dBA	10:00:00 PM	66 dBA
11:00:00 AM	71 dBA	11:00:00 PM	64 dBA

Noise Monitoring
Measured Hourly L50 Data

Time	LAeq	Time	LAeq
12:00:00 AM	41 dBA	12:00:00 PM	66 dBA
1:00:00 AM	40 dBA	1:00:00 PM	65 dBA
2:00:00 AM	39 dBA	2:00:00 PM	66 dBA
3:00:00 AM	41 dBA	3:00:00 PM	66 dBA
4:00:00 AM	48 dBA	4:00:00 PM	67 dBA
5:00:00 AM	59 dBA	5:00:00 PM	66 dBA
6:00:00 AM	64 dBA	6:00:00 PM	65 dBA
7:00:00 AM	66 dBA	7:00:00 PM	63 dBA
8:00:00 AM	67 dBA	8:00:00 PM	61 dBA
9:00:00 AM	65 dBA	9:00:00 PM	57 dBA
10:00:00 AM	65 dBA	10:00:00 PM	56 dBA
11:00:00 AM	66 dBA	11:00:00 PM	51 dBA

Figure A4

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Acoustic Test Results

Minneapolis, Minnesota | o: 952.831.4646 | esi-engineering.com

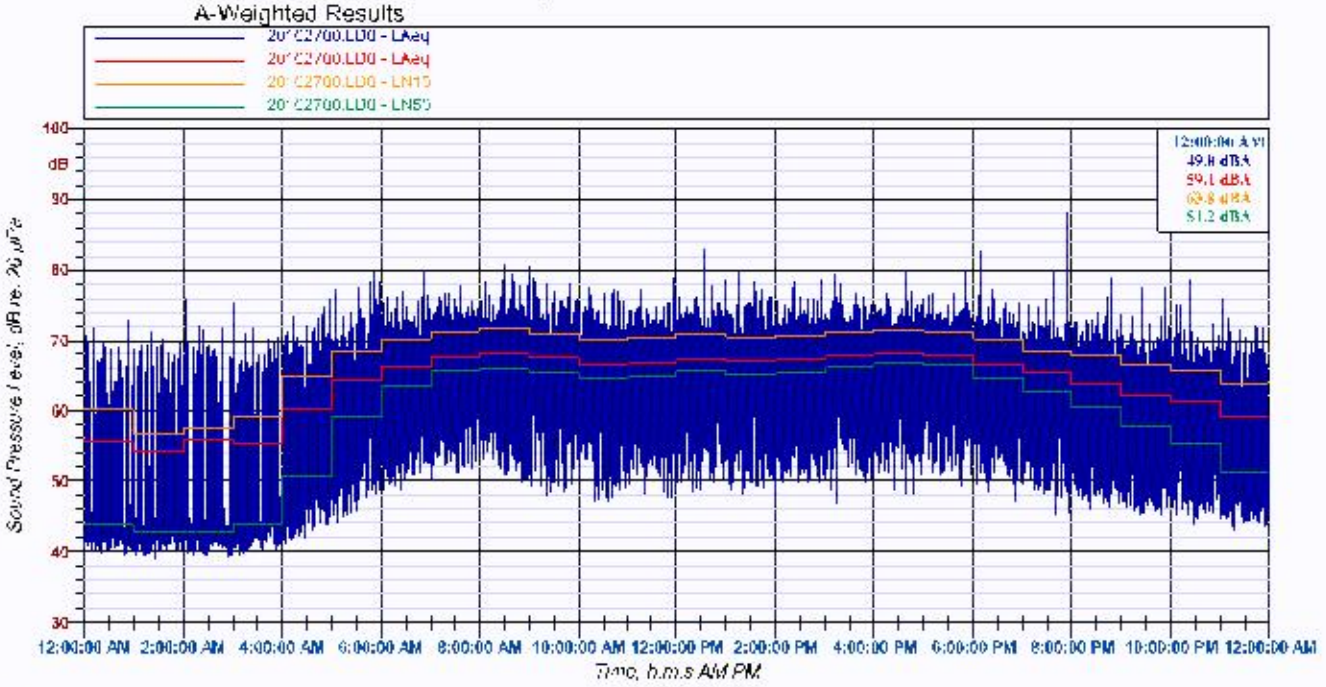
Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Harshfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location: Location A
Date: 10/27/2020
Start Time: 12:00:00 AM
End Time: 12:00:00 AM
Run Time: 86400.0 seconds

Meteorology: Temperature: 16 - 34 °F
Wind Speed / Dir.: 6 - 16 MPH / S - SW
Humidity: 46 - 88%

Calibration Check: Calibration Frequency: 1 kHz
Initial Calibration: 93.7 dB
Final Calibration: 93.7 dB
Last Cal. Check: 10/30/20 @ 11:24 AM

Measurements: Tuesday: One Second and Hourly Ambient Noise Levels
A-Weighted Results



Noise Monitoring
Measured Hourly LAeq Data

Time	LAeq	Time	LAeq	Time	LAeq	Time	LAeq	Time	LAeq
12:00:00 AM	56 dBA	5:00:00 AM	64 dBA	10:00:00 AM	66 dBA	3:00:00 PM	68 dBA	8:00:00 PM	64 dBA
1:00:00 AM	54 dBA	6:00:00 AM	66 dBA	11:00:00 AM	67 dBA	4:00:00 PM	68 dBA	9:00:00 PM	62 dBA
2:00:00 AM	56 dBA	7:00:00 AM	68 dBA	12:00:00 PM	67 dBA	5:00:00 PM	68 dBA	10:00:00 PM	61 dBA
3:00:00 AM	55 dBA	8:00:00 AM	68 dBA	1:00:00 PM	67 dBA	6:00:00 PM	66 dBA	11:00:00 PM	59 dBA
4:00:00 AM	60 dBA	9:00:00 AM	67 dBA	2:00:00 PM	67 dBA	7:00:00 PM	65 dBA		

Noise Monitoring
Measured Hourly L10 Data

Time	LAeq	Time	LAeq
12:00:00 AM	60 dBA	12:00:00 PM	71 dBA
1:00:00 AM	57 dBA	1:00:00 PM	71 dBA
2:00:00 AM	58 dBA	2:00:00 PM	71 dBA
3:00:00 AM	59 dBA	3:00:00 PM	71 dBA
4:00:00 AM	65 dBA	4:00:00 PM	72 dBA
5:00:00 AM	68 dBA	5:00:00 PM	71 dBA
6:00:00 AM	70 dBA	6:00:00 PM	70 dBA
7:00:00 AM	71 dBA	7:00:00 PM	68 dBA
8:00:00 AM	72 dBA	8:00:00 PM	68 dBA
9:00:00 AM	71 dBA	9:00:00 PM	66 dBA
10:00:00 AM	70 dBA	10:00:00 PM	66 dBA
11:00:00 AM	71 dBA	11:00:00 PM	64 dBA

Noise Monitoring
Measured Hourly L50 Data

Time	LAeq	Time	LAeq
12:00:00 AM	44 dBA	12:00:00 PM	66 dBA
1:00:00 AM	43 dBA	1:00:00 PM	65 dBA
2:00:00 AM	43 dBA	2:00:00 PM	65 dBA
3:00:00 AM	44 dBA	3:00:00 PM	66 dBA
4:00:00 AM	51 dBA	4:00:00 PM	67 dBA
5:00:00 AM	59 dBA	5:00:00 PM	66 dBA
6:00:00 AM	63 dBA	6:00:00 PM	65 dBA
7:00:00 AM	66 dBA	7:00:00 PM	63 dBA
8:00:00 AM	66 dBA	8:00:00 PM	61 dBA
9:00:00 AM	65 dBA	9:00:00 PM	58 dBA
10:00:00 AM	64 dBA	10:00:00 PM	55 dBA
11:00:00 AM	65 dBA	11:00:00 PM	51 dBA

Figure A5

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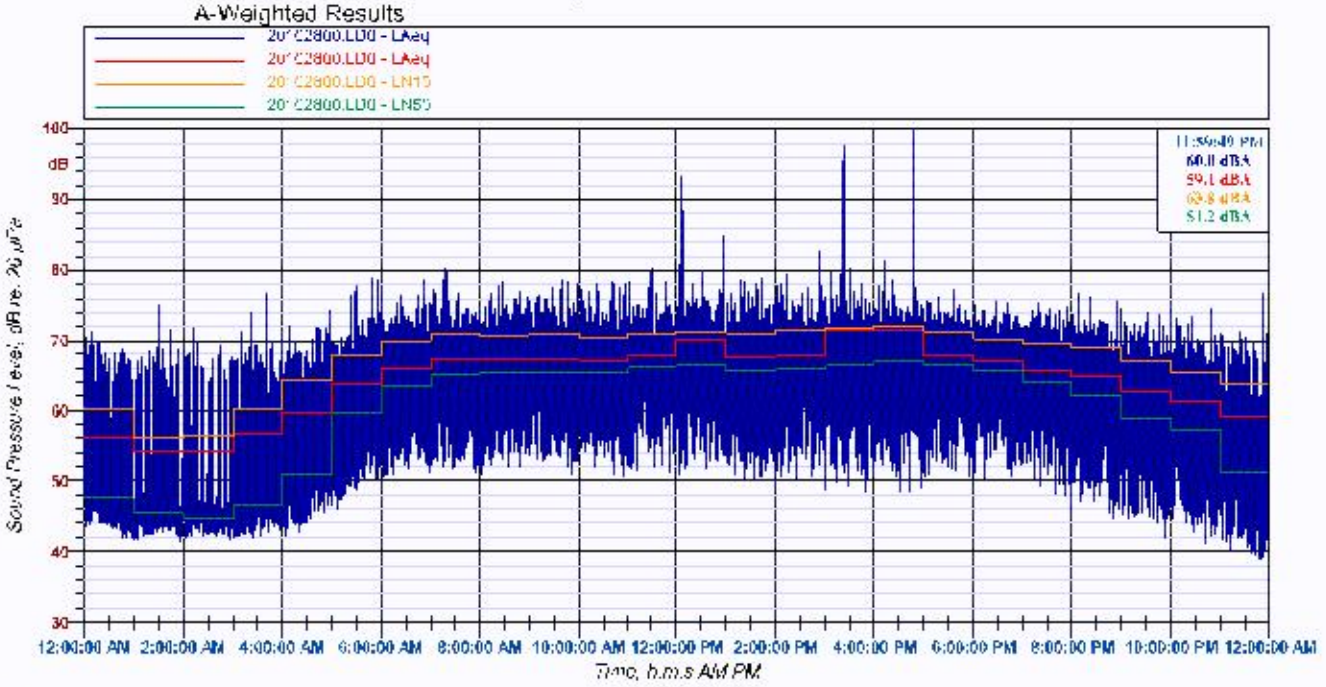
Acoustic Test Results

Minneapolis, Minnesota | o: 952.831.4646 | esi-engineering.com

Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Harshfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location A	**Meteorology:**	Temperature: 30 - 49 °F Wind Speed / Dir.: 5 - 16 MPH / N - SW Humidity: 52 - 82%
Date:	10/28/2020		
Start Time:	12:00:00 AM		
End Time:	11:59:49 PM	**Calibration Check:**	Calibration Frequency: 1 kHz Initial Calibration: 93.7 dB Final Calibration: 93.7 dB Last Cal. Check: 10/30/20 @ 11:24 AM
Run Time:	86389.0 seconds		

Measurements: Wednesday: One Second and Hourly Ambient Noise Levels
A-Weighted Results



Noise Monitoring
Measured Hourly LAeq Data

Time	LAeq	Time	LAeq	Time	LAeq	Time	LAeq	Time	LAeq
12:00:00 AM	56 dBA	5:00:00 AM	64 dBA	10:00:00 AM	67 dBA	3:00:00 PM	72 dBA	8:00:10 PM	65 dBA
1:00:00 AM	54 dBA	6:00:00 AM	66 dBA	11:00:00 AM	68 dBA	4:00:00 PM	71 dBA	9:00:10 PM	62 dBA
2:00:00 AM	54 dBA	7:00:00 AM	67 dBA	12:00:00 PM	70 dBA	5:00:10 PM	68 dBA	10:00:10 PM	61 dBA
3:00:00 AM	57 dBA	8:00:00 AM	67 dBA	1:00:00 PM	68 dBA	6:00:10 PM	67 dBA	11:00:10 PM	59 dBA
4:00:00 AM	60 dBA	9:00:00 AM	67 dBA	2:00:00 PM	68 dBA	7:00:10 PM	66 dBA		

Noise Monitoring
Measured Hourly L10 Data

Time	LAeq	Time	LAeq
12:00:00 AM	60 dBA	12:00:00 PM	71 dBA
1:00:00 AM	58 dBA	1:00:00 PM	71 dBA
2:00:00 AM	58 dBA	2:00:00 PM	72 dBA
3:00:00 AM	60 dBA	3:00:00 PM	72 dBA
4:00:00 AM	64 dBA	4:00:00 PM	72 dBA
5:00:00 AM	68 dBA	5:00:10 PM	71 dBA
6:00:00 AM	70 dBA	6:00:10 PM	70 dBA
7:00:00 AM	71 dBA	7:00:10 PM	69 dBA
8:00:00 AM	71 dBA	8:00:10 PM	69 dBA
9:00:00 AM	71 dBA	9:00:10 PM	67 dBA
10:00:00 AM	71 dBA	10:00:10 PM	65 dBA
11:00:00 AM	71 dBA	11:00:10 PM	64 dBA

Noise Monitoring
Measured Hourly L50 Data

Time	LAeq	Time	LAeq
12:00:00 AM	48 dBA	12:00:00 PM	66 dBA
1:00:00 AM	46 dBA	1:00:00 PM	66 dBA
2:00:00 AM	45 dBA	2:00:00 PM	66 dBA
3:00:00 AM	47 dBA	3:00:00 PM	67 dBA
4:00:00 AM	51 dBA	4:00:00 PM	67 dBA
5:00:00 AM	60 dBA	5:00:10 PM	66 dBA
6:00:00 AM	64 dBA	6:00:10 PM	66 dBA
7:00:00 AM	65 dBA	7:00:10 PM	64 dBA
8:00:00 AM	65 dBA	8:00:10 PM	62 dBA
9:00:00 AM	65 dBA	9:00:10 PM	59 dBA
10:00:00 AM	65 dBA	10:00:10 PM	57 dBA
11:00:00 AM	66 dBA	11:00:10 PM	51 dBA

Figure A6

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Acoustic Test Results

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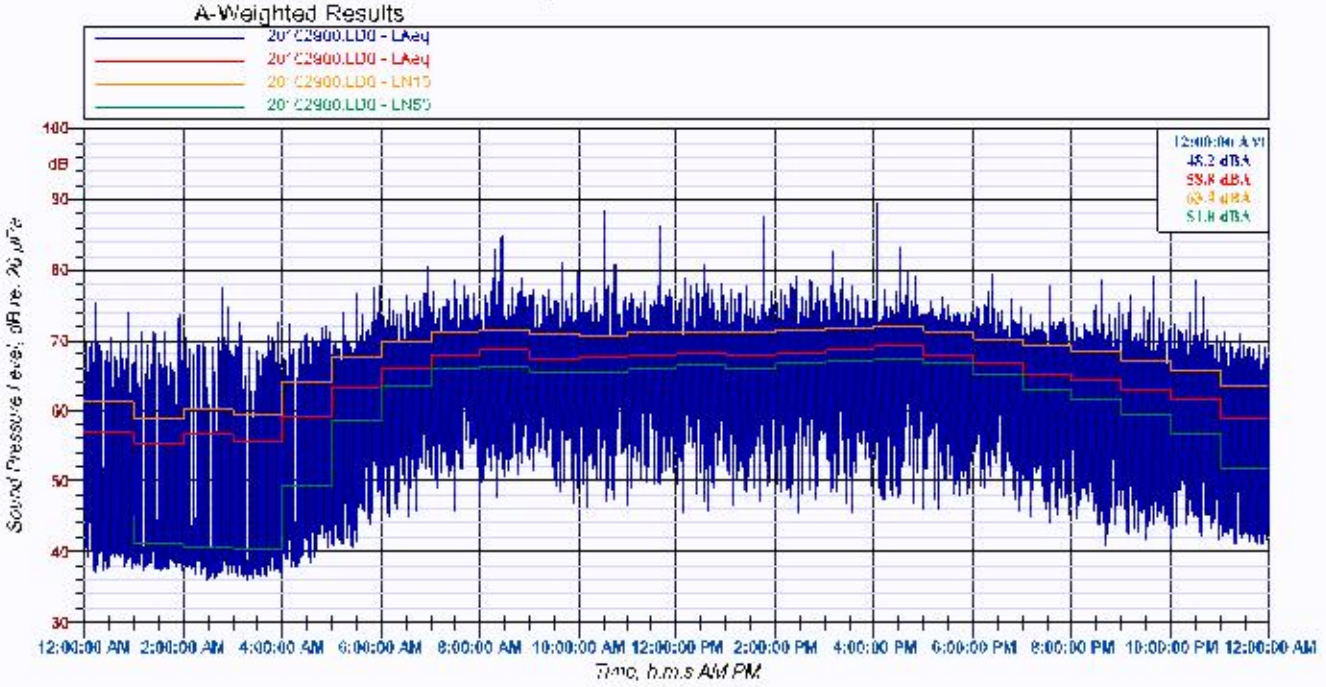
Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Harshfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location: Location A
Date: 10/29/2020
Start Time: 12:00:00 AM
End Time: 12:00:00 AM
Run Time: 86400.0 seconds

Meteorology: Temperature: 31 - 37 °F
Wind Speed / Dir.: 0 - 14 MPH / NW - E
Humidity: 50 - 75%

Calibration Check: Calibration Frequency: 1 kHz
Initial Calibration: 93.7 dB
Final Calibration: 93.7 dB
Last Cal. Check: 10/30/20 @ 11:24 AM

Measurements: Thursday: One Second and Hourly Ambient Noise Levels
A-Weighted Results



Noise Monitoring
Measured Hourly LAeq Data

Time	LAeq	Time	LAeq	Time	LAeq	Time	LAeq	Time	LAeq
12:00:00 AM	57 dBA	5:00:00 AM	63 dBA	10:00:00 AM	67 dBA	3:00:00 PM	68 dBA	8:00:00 PM	64 dBA
1:00:00 AM	55 dBA	6:00:00 AM	66 dBA	11:00:00 AM	68 dBA	4:00:00 PM	69 dBA	9:00:00 PM	63 dBA
2:00:00 AM	57 dBA	7:00:00 AM	68 dBA	12:00:00 PM	68 dBA	5:00:00 PM	68 dBA	10:00:00 PM	61 dBA
3:00:00 AM	56 dBA	8:00:00 AM	68 dBA	1:00:00 PM	68 dBA	6:00:00 PM	67 dBA	11:00:00 PM	59 dBA
4:00:00 AM	59 dBA	9:00:00 AM	67 dBA	2:00:00 PM	68 dBA	7:00:00 PM	65 dBA		

Noise Monitoring
Measured Hourly L10 Data

Time	LAeq	Time	LAeq
12:00:00 AM	61 dBA	12:00:00 PM	71 dBA
1:00:00 AM	59 dBA	1:00:00 PM	71 dBA
2:00:00 AM	60 dBA	2:00:00 PM	72 dBA
3:00:00 AM	59 dBA	3:00:00 PM	72 dBA
4:00:00 AM	64 dBA	4:00:00 PM	72 dBA
5:00:00 AM	68 dBA	5:00:00 PM	71 dBA
6:00:00 AM	70 dBA	6:00:00 PM	70 dBA
7:00:00 AM	71 dBA	7:00:00 PM	69 dBA
8:00:00 AM	72 dBA	8:00:00 PM	68 dBA
9:00:00 AM	71 dBA	9:00:00 PM	67 dBA
10:00:00 AM	71 dBA	10:00:00 PM	66 dBA
11:00:00 AM	71 dBA	11:00:00 PM	63 dBA

Noise Monitoring
Measured Hourly L50 Data

Time	LAeq	Time	LAeq
12:00:00 AM	45 dBA	12:00:00 PM	67 dBA
1:00:00 AM	41 dBA	1:00:00 PM	66 dBA
2:00:00 AM	41 dBA	2:00:00 PM	67 dBA
3:00:00 AM	40 dBA	3:00:00 PM	67 dBA
4:00:00 AM	49 dBA	4:00:00 PM	67 dBA
5:00:00 AM	58 dBA	5:00:00 PM	67 dBA
6:00:00 AM	64 dBA	6:00:00 PM	65 dBA
7:00:00 AM	66 dBA	7:00:00 PM	63 dBA
8:00:00 AM	66 dBA	8:00:00 PM	62 dBA
9:00:00 AM	65 dBA	9:00:00 PM	59 dBA
10:00:00 AM	65 dBA	10:00:00 PM	57 dBA
11:00:00 AM	66 dBA	11:00:00 PM	52 dBA

Figure A7

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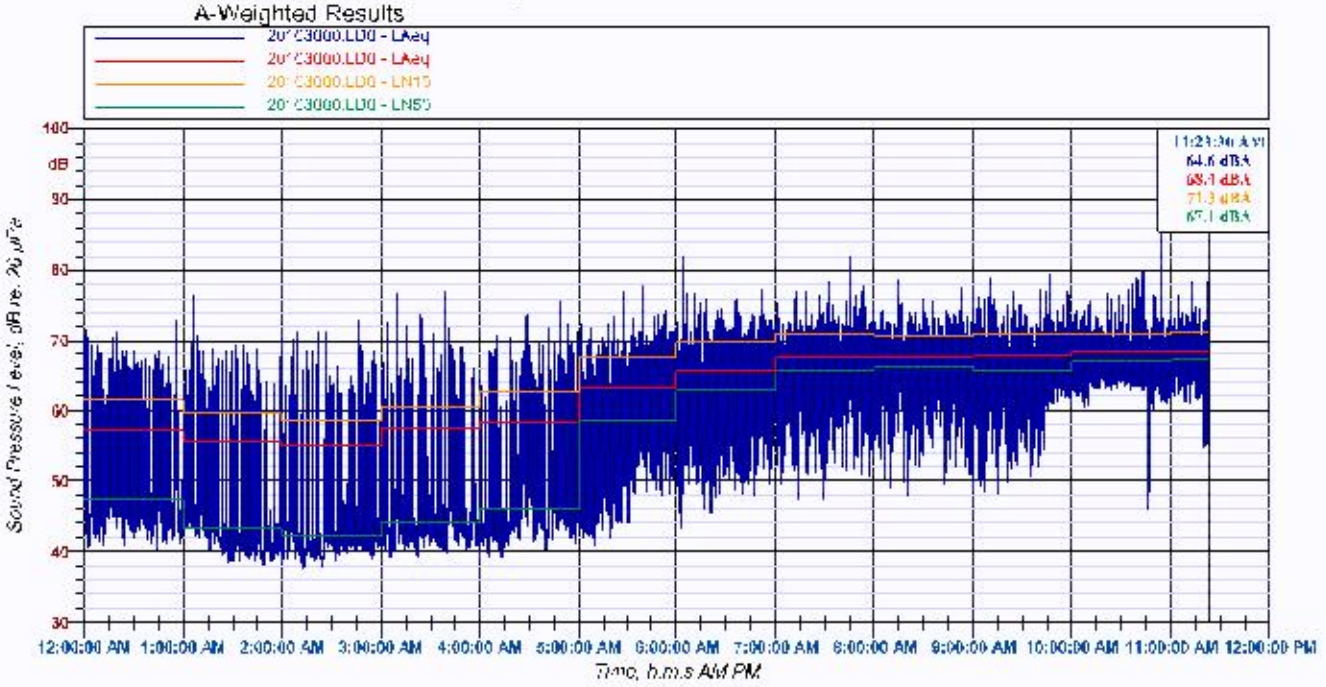
Acoustic Test Results

Minneapolis, Minnesota | o: 952.831.4646 | esi-engineering.com

Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Harshfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location A	**Meteorology:**	Temperature: 31 - 38 °F
Date:	10/30/2020		Wind Speed / Dir.: 0 - 6 MPH / S - SE
Start Time:	12:00:00 AM		Humidity: 57 - 79%
End Time:	11:23:30 AM	**Calibration Check:**	Calibration Frequency: 1 kHz
Run Time:	41010.0 seconds		Initial Calibration: 93.7 dB
			Final Calibration: 93.7 dB
			Last Cal. Check: 10/30/20 @ 11:24 AM

Measurements: Friday: One Second and Hourly Ambient Noise Levels
A-Weighted Results



Noise Monitoring
Measured Hourly LAeq Data

Time	LAeq	Time	LAeq	Time	LAeq	Time	LAeq	Time	LAeq
12:00:00 AM	57 dBA	5:00:00 AM	63 dBA	10:00:00 AM	68 dBA				
1:00:00 AM	56 dBA	6:00:00 AM	66 dBA	11:00:00 AM	68 dBA				
2:00:00 AM	55 dBA	7:00:00 AM	67 dBA						
3:00:00 AM	57 dBA	8:00:00 AM	67 dBA						
4:00:00 AM	58 dBA	9:00:00 AM	68 dBA						

Noise Monitoring
Measured Hourly L10 Data

Time	LAeq	Time	LAeq
12:00:00 AM	62 dBA		
1:00:00 AM	60 dBA		
2:00:00 AM	59 dBA		
3:00:00 AM	61 dBA		
4:00:00 AM	63 dBA		
5:00:00 AM	65 dBA		
6:00:00 AM	70 dBA		
7:00:00 AM	71 dBA		
8:00:00 AM	71 dBA		
9:00:00 AM	71 dBA		
10:00:00 AM	71 dBA		
11:00:00 AM	71 dBA		

Noise Monitoring
Measured Hourly L50 Data

Time	LAeq	Time	LAeq
12:00:00 AM	47 dBA		
1:00:00 AM	43 dBA		
2:00:00 AM	42 dBA		
3:00:00 AM	44 dBA		
4:00:00 AM	46 dBA		
5:00:00 AM	59 dBA		
6:00:00 AM	63 dBA		
7:00:00 AM	66 dBA		
8:00:00 AM	66 dBA		
9:00:00 AM	66 dBA		
10:00:00 AM	67 dBA		
11:00:00 AM	67 dBA		

Figure A8

Ms. Katherine McGah
Morrison Hershfield

November 10, 2020

Attachment B

Ambient Noise Measurement Data

1:15 AM to 2:30 AM on October 27, 2020

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Acoustic Test Results

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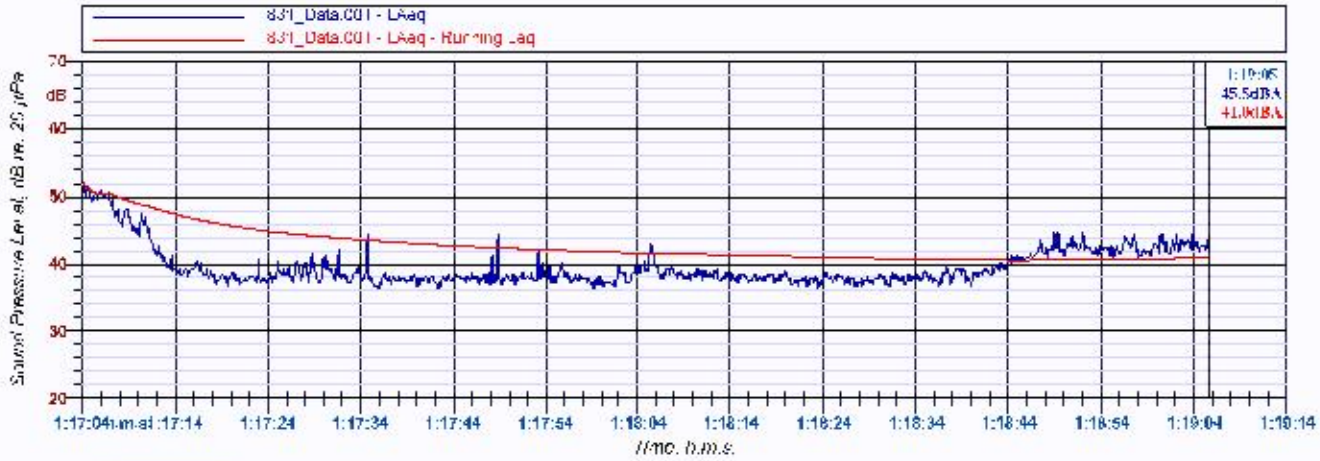
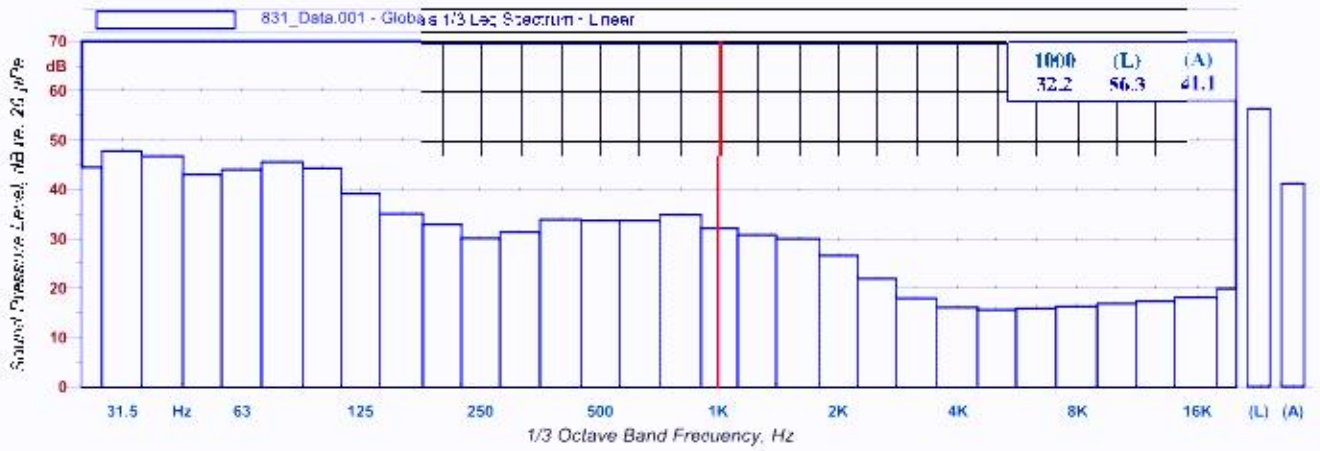
Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Hershfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location A	**Meteorology:**	Temperature: 20 - 21 °F Wind Speed / Dir.: 0 - 6 MPH / SW Humidity: 78%
Date:	10/27/2020		
Start Time:	1:17:04 AM		
End Time:	1:19:05 AM	**Calibration Check:**	Calibration Frequency: 1 kHz Initial Calibration: 93.8 dB Final Calibration: 93.7 dB Last Cal. Check: 10/27/20 @ 2:36 AM
Run Time:	121.7 seconds		

Measurements: File N. 1: Ambient Measurement while Verizon 2 South Chillers Running; Some Traffic Noise





L1.0: 50.4 dB(A) **L50.0: 38.3 dB(A)** **L95.0: 37.2 dB(A)** **Leq: 41.0 dB(A)**

L10.0: 43.0 dB(A) **L90.0: 37.4 dB(A)** **LMin: 36.3 dB(A)** **LMax: 52.2 dB(A)**

831_Data.001
Globals 1/3 Leq Spectrum - Linear

Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB
25	44.4 dB	80	45.6 dB	250	30.2 dB	800	34.8 dB	2500	21.9 dB	8000	16.3 dB
31.5	47.8 dB	100	44.3 dB	315	31.4 dB	1000	32.2 dB	3150	18.0 dB	10000	16.9 dB
40	46.7 dB	125	39.1 dB	400	33.9 dB	1250	30.8 dB	4000	16.1 dB	12500	17.4 dB
50	43.0 dB	160	35.0 dB	500	33.7 dB	1600	30.0 dB	5000	15.6 dB	16000	18.1 dB
63	44.0 dB	200	33.0 dB	630	33.7 dB	2000	26.6 dB	6300	15.9 dB	20000	19.9 dB

Figure A1

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Acoustic Test Results

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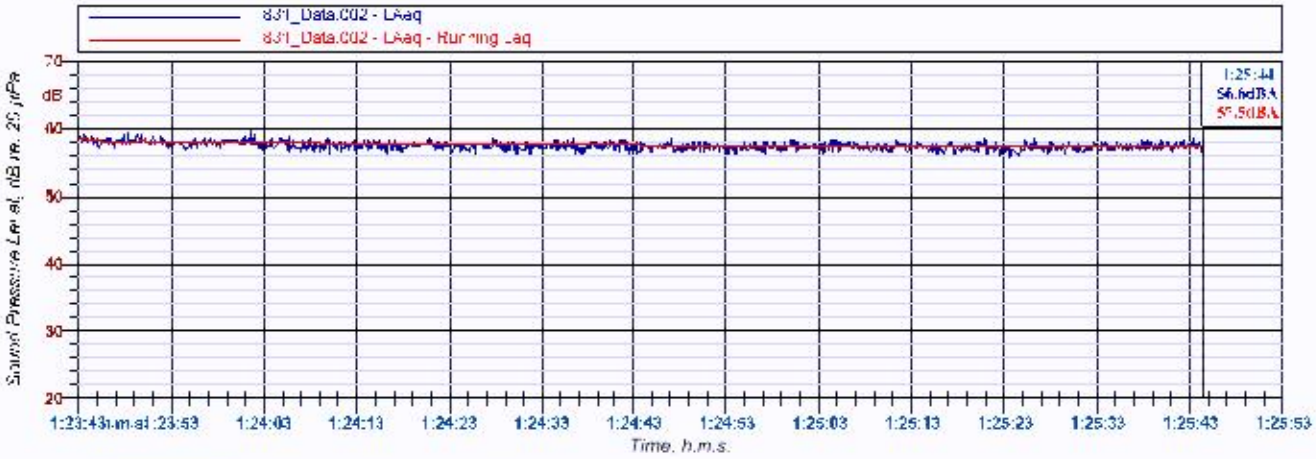
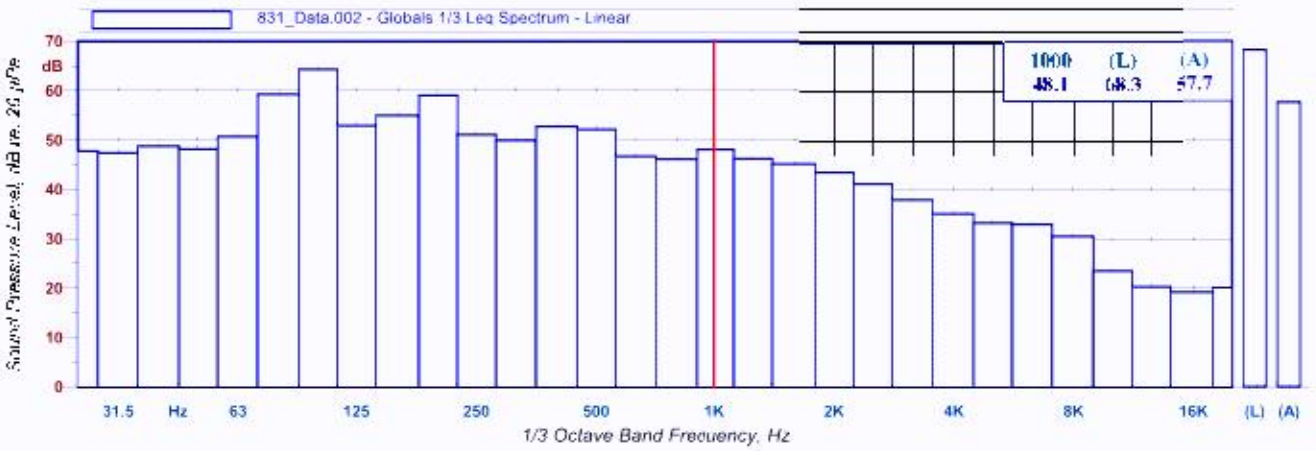
Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Hershfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location P	**Meteorology:**	Temperature: 20 - 21 °F Wind Speed / Dir.: 0 - 6 MPH / SW Humidity: 78%
Date:	10/27/2020		
Start Time:	1:23:43 AM		
End Time:	1:25:44 AM	**Calibration Check:**	Calibration Frequency: 1 kHz Initial Calibration: 93.8 dB Final Calibration: 93.7 dB Last Cal. Check: 10/27/20 @ 2:36 AM
Run Time:	121.5 seconds		

Measurements: File N. 2: Ambient Measurement while Verizon 2 South Chillers Running;
Near Entegris Chillers or Similar HVAC Equip.





L1.0: 58.7 dB(A)	**L50.0: 57.4 dB(A)**	**L95.0: 56.8 dB(A)**	**Leq: 57.5 dB(A)**
L10.0: 58.1 dB(A)	**L90.0: 56.9 dB(A)**	**LMin: 56.1 dB(A)**	**LMax: 59.2 dB(A)**

831_Data.002
Globals 1/3 Leq Spectrum - Linear

Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB
25	47.8 dB	80	59.2 dB	250	51.1 dB	800	46.2 dB	2500	41.1 dB	8000	30.5 dB
31.5	47.4 dB	100	64.3 dB	315	50.0 dB	1000	48.1 dB	3150	37.8 dB	10000	23.5 dB
40	48.8 dB	125	63.0 dB	400	52.7 dB	1250	46.2 dB	4000	35.0 dB	12500	20.3 dB
50	48.2 dB	160	55.0 dB	500	52.2 dB	1600	45.1 dB	5000	33.2 dB	16000	19.2 dB
63	50.7 dB	200	59.0 dB	630	46.7 dB	2000	43.4 dB	6300	32.9 dB	20000	20.2 dB

Figure A2

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Acoustic Test Results

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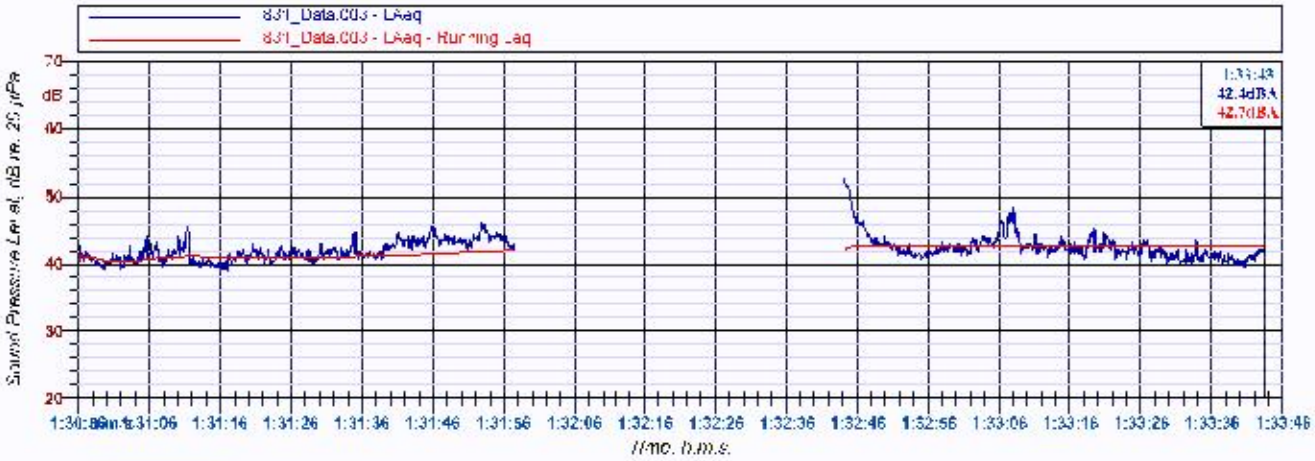
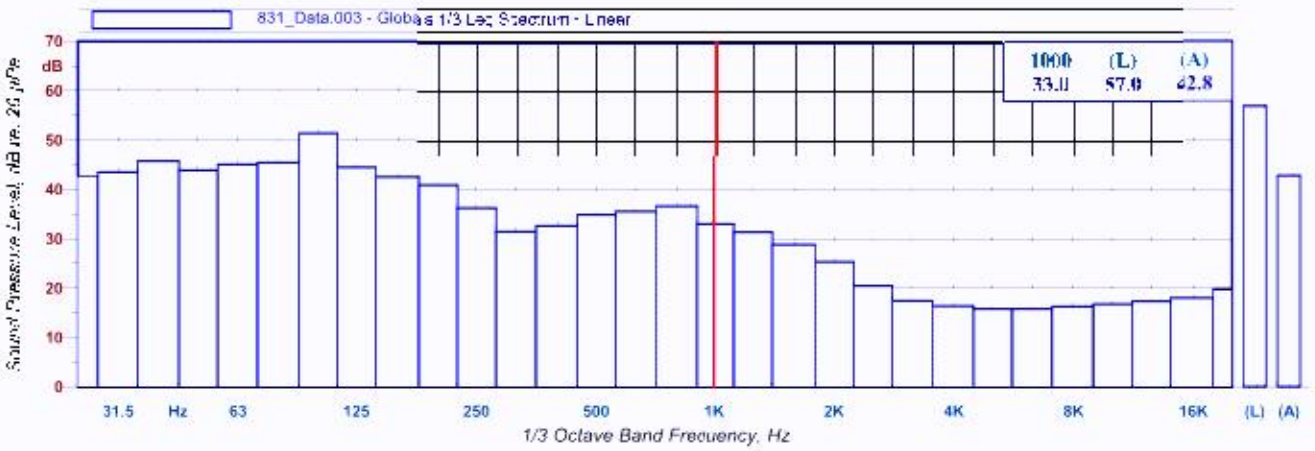
Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Harshfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location B	**Meteorology:**	Temperature: 20 - 21 °F Wind Speed / Dir.: 0 - 6 MPH / SW Humidity: 78%
Date:	10/27/2020		
Start Time:	1:30:56 AM		
End Time:	1:33:43 AM	**Calibration Check:**	Calibration Frequency: 1 kHz Initial Calibration: 93.8 dB Final Calibration: 93.7 dB Last Cal. Check: 10/27/20 @ 2:36 AM
Run Time:	167.6 seconds		

Measurements: File N. 3: Ambient Measurement while Verizon 2 South Chillers Running; Some Traffic Noise & Noise from Entegris Chillers or Similar HVAC Equip.





L1.0: 49.0 dB(A)	**L50.0: 41.9 dB(A)**	**L95.0: 40.1 dB(A)**	**Leq: 42.7 dB(A)**
L10.0: 44.0 dB(A)	**L90.0: 40.4 dB(A)**	**LMin: 39.0 dB(A)**	**LMax: 53.6 dB(A)**

831_Data.003
Globals 1/3 Leq Spectrum - Linear

Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB
25	42.6 dB	80	45.5 dB	250	36.2 dB	800	36.6 dB	2500	20.4 dB	8000	16.2 dB
31.5	43.5 dB	100	51.4 dB	315	31.5 dB	1000	33.0 dB	3150	17.4 dB	10000	16.6 dB
40	45.8 dB	125	44.5 dB	400	32.7 dB	1250	31.4 dB	4000	16.4 dB	12500	17.4 dB
50	43.9 dB	160	42.6 dB	500	34.9 dB	1600	28.8 dB	5000	15.8 dB	16000	18.1 dB
63	45.1 dB	200	40.9 dB	630	35.5 dB	2000	25.3 dB	6300	15.8 dB	20000	19.8 dB

Figure A3

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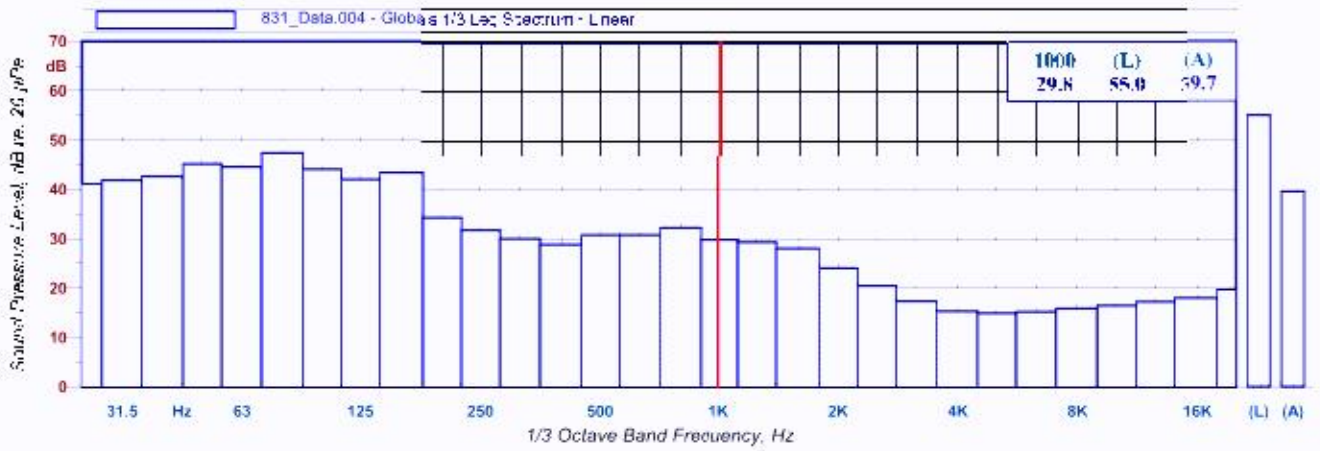
Acoustic Test Results

Minneapolis, Minnesota | o: 952.831.4646 | esi-engineering.com

Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Horshfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location C	**Meteorology:**	Temperature: 20 - 21 °F Wind Speed / Dir.: 0 - 6 MPH / SW Humidity: 78%
Date:	10/27/2020		
Start Time:	1:36:16 AM		
End Time:	1:38:18 AM	**Calibration Check:**	Calibration Frequency: 1 kHz Initial Calibration: 93.8 dB Final Calibration: 93.7 dB Last Cal. Check: 10/27/20 @ 2:36 AM
Run Time:	122.6 seconds		

Measurements: File N. 4: Ambient Measurement while Verizon 2 South Chillers Running; Some Traffic Noise



L1.0: 48.7 dB(A)	L50.0: 37.2 dB(A)	L95.0: 35.5 dB(A)	Leq: 39.5 dB(A)
L10.0: 42.6 dB(A)	L90.0: 35.9 dB(A)	LMin: 34.2 dB(A)	LMax: 50.3 dB(A)

831_Data.004
Globals 1/3 Leq Spectrum - Linear

Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB
25	41.2 dB	80	47.5 dB	250	31.7 dB	800	32.2 dB	2500	20.5 dB	8000	15.9 dB
31.5	41.9 dB	100	44.1 dB	315	30.0 dB	1000	29.8 dB	3150	17.3 dB	10000	16.5 dB
40	42.7 dB	125	42.0 dB	400	28.8 dB	1250	29.3 dB	4000	15.3 dB	12500	17.2 dB
50	45.2 dB	160	43.4 dB	500	30.8 dB	1600	28.0 dB	5000	15.0 dB	16000	18.0 dB
63	44.6 dB	200	34.3 dB	630	30.8 dB	2000	24.1 dB	6300	15.3 dB	20000	19.8 dB

Figure A4

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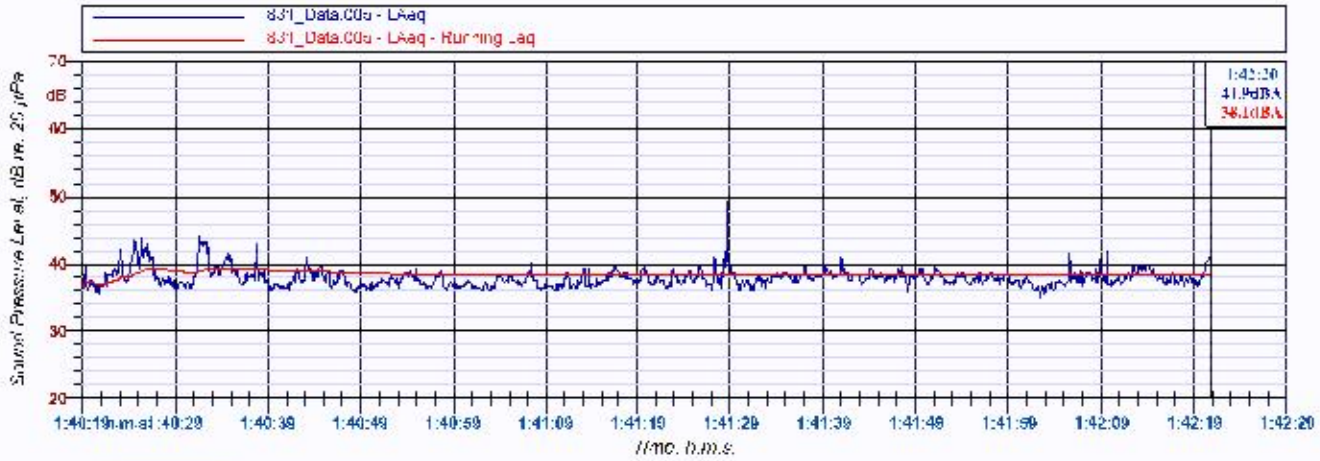
Acoustic Test Results

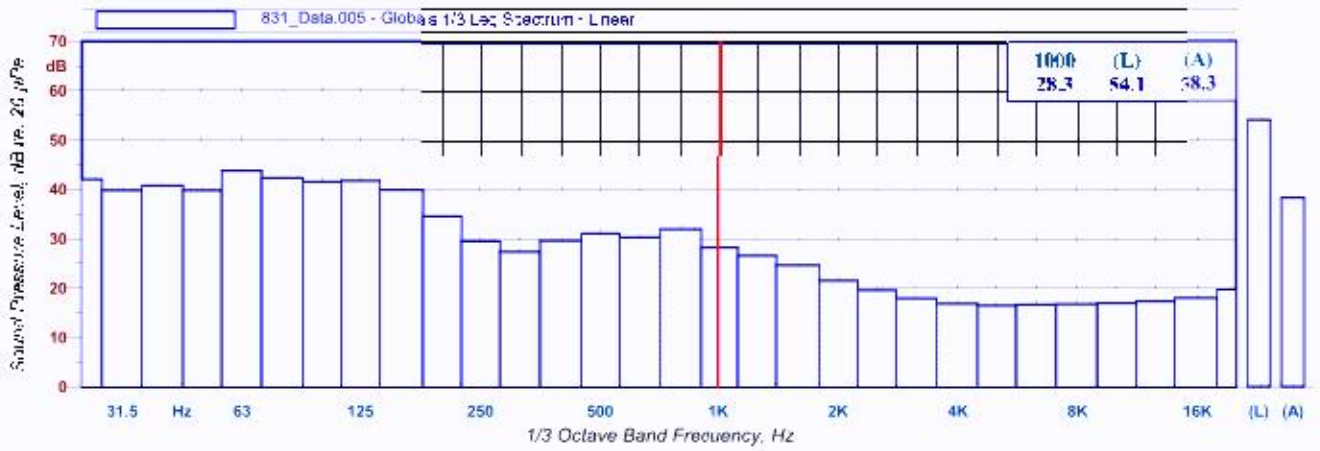
Minneapolis, Minnesota | o: 952.831.4646 | esi-engineering.com

Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Horshfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location D	**Meteorology:**	Temperature: 20 - 21 °F Wind Speed / Dir.: 0 - 6 MPH / SW Humidity: 78%
Date:	10/27/2020		
Start Time:	1:40:19 AM	**Calibration Check:**	Calibration Frequency: 1 kHz Initial Calibration: 93.8 dB Final Calibration: 93.7 dB Last Cal. Check: 10/27/20 @ 2:36 AM
End Time:	1:42:20 AM		
Run Time:	121.9 seconds		

Measurements: File N. 5: Ambient Measurement while Verizon 2 South Chillers Running;
Some Traffic Noise & Pond Running





L1.0: 42.8 dB(A)	L50.0: 37.7 dB(A)	L95.0: 36.4 dB(A)	Leq: 38.1 dB(A)
L10.0: 39.2 dB(A)	L90.0: 36.6 dB(A)	LMin: 35.3 dB(A)	LMax: 47.8 dB(A)

831_Data.005
Globals 1/3 Leq Spectrum - Linear

Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB
25	42.0 dB	80	42.3 dB	250	29.5 dB	800	32.0 dB	2500	19.6 dB	8000	16.7 dB
31.5	39.8 dB	100	41.6 dB	315	27.3 dB	1000	28.3 dB	3150	18.0 dB	10000	17.0 dB
40	40.8 dB	125	41.7 dB	400	29.6 dB	1250	26.6 dB	4000	16.8 dB	12500	17.4 dB
50	39.8 dB	160	39.9 dB	500	31.0 dB	1600	24.6 dB	5000	16.5 dB	16000	18.1 dB
63	43.8 dB	200	34.6 dB	630	30.3 dB	2000	21.5 dB	6300	16.6 dB	20000	19.8 dB

Figure A5

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Acoustic Test Results

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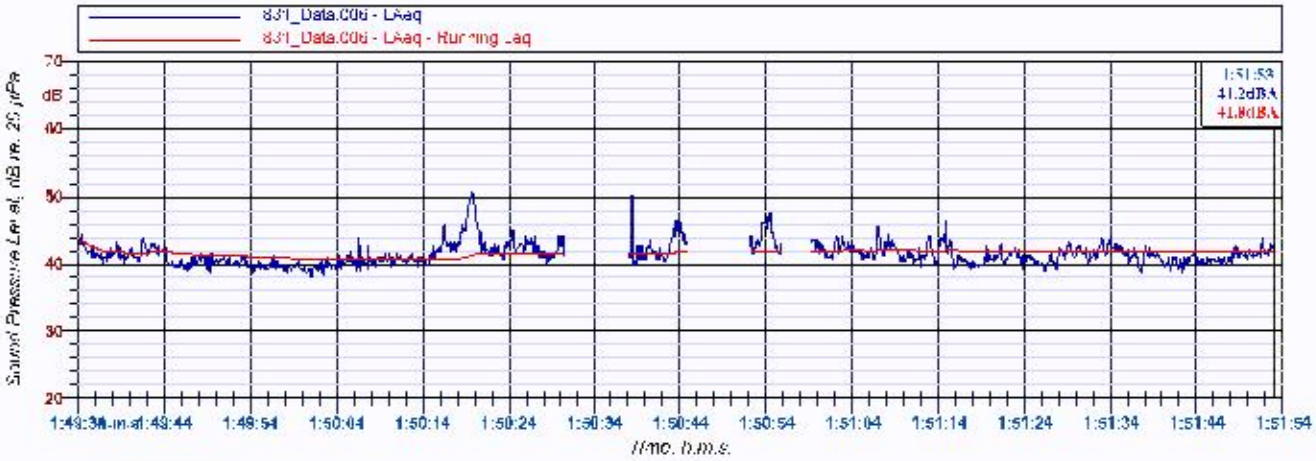
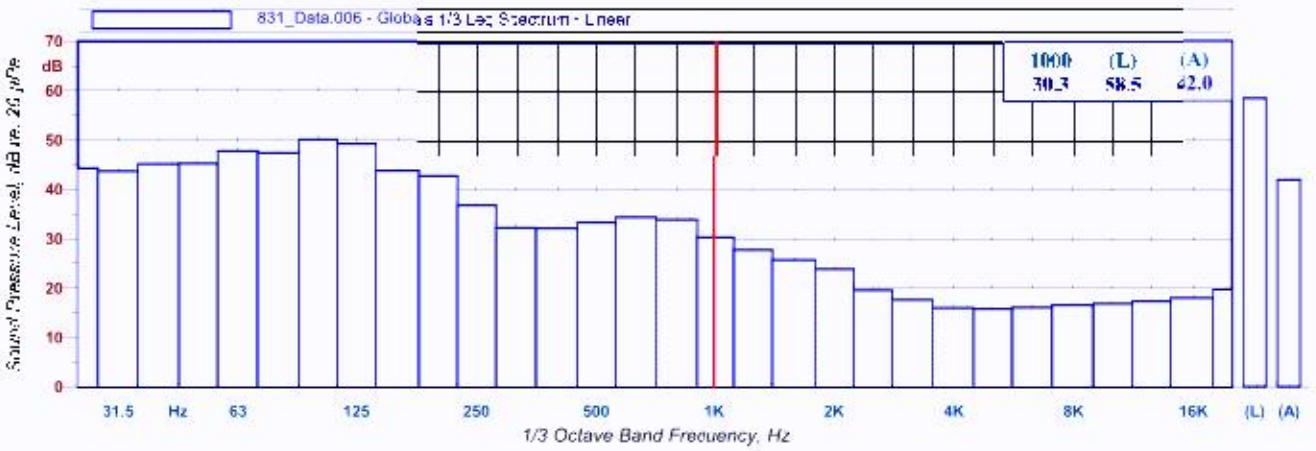
Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Hershfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location G	**Meteorology:**	Temperature: 20 - 21 °F Wind Speed / Dir.: 0 - 6 MPH / SW Humidity: 78%
Date:	10/27/2020		
Start Time:	1:49:34 AM		
End Time:	1:51:53 AM	**Calibration Check:**	Calibration Frequency: 1 kHz Initial Calibration: 93.8 dB Final Calibration: 93.7 dB Last Cal. Check: 10/27/20 @ 2:36 AM
Run Time:	139.1 seconds		

Measurements: File N. 6: Ambient Measurement while Verizon 2 South Chillers Running; Some Traffic Noise & Faint Noise from Entegris Chillers or Similar HVAC Equip.





L1.0: 46.9 dB(A)	**L50.0: 41.2 dB(A)**	**L95.0: 39.5 dB(A)**	**Leq: 41.8 dB(A)**
L10.0: 43.3 dB(A)	**L90.0: 39.8 dB(A)**	**LMin: 38.3 dB(A)**	**LMax: 50.6 dB(A)**

831_Data.006
Globals 1/3 Leq Spectrum - Linear

Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB
25	44.3 dB	80	47.4 dB	250	36.8 dB	800	33.9 dB	2500	19.5 dB	8000	16.6 dB
31.5	43.7 dB	100	50.2 dB	315	32.2 dB	1000	30.3 dB	3150	17.6 dB	10000	16.9 dB
40	45.1 dB	125	49.2 dB	400	32.2 dB	1250	27.7 dB	4000	16.0 dB	12500	17.4 dB
50	45.3 dB	160	43.8 dB	500	33.3 dB	1600	25.7 dB	5000	15.8 dB	16000	18.1 dB
63	47.7 dB	200	42.7 dB	630	34.4 dB	2000	23.8 dB	6300	16.1 dB	20000	19.8 dB

Figure A6

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Acoustic Test Results

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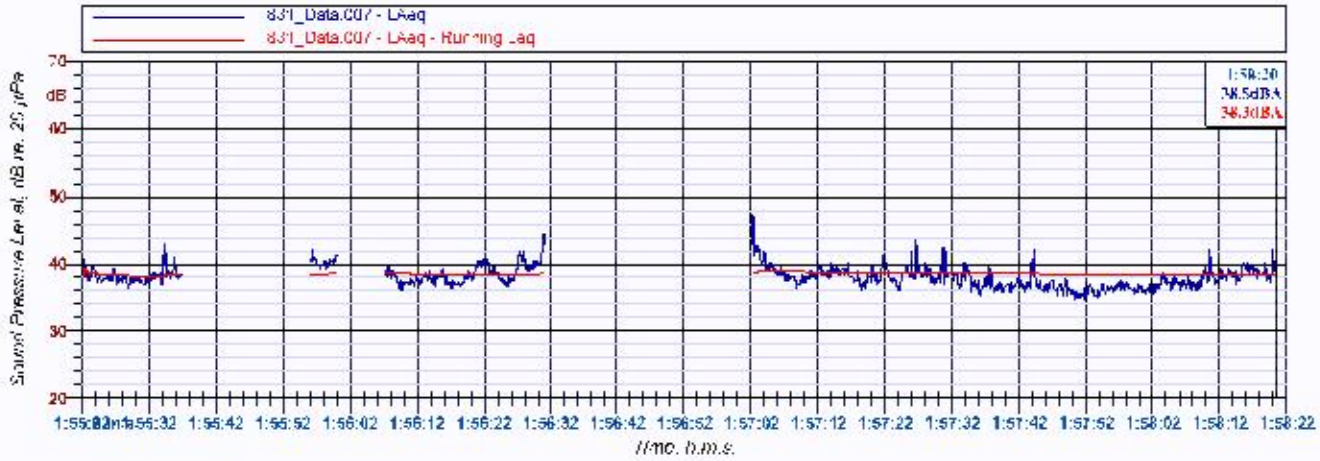
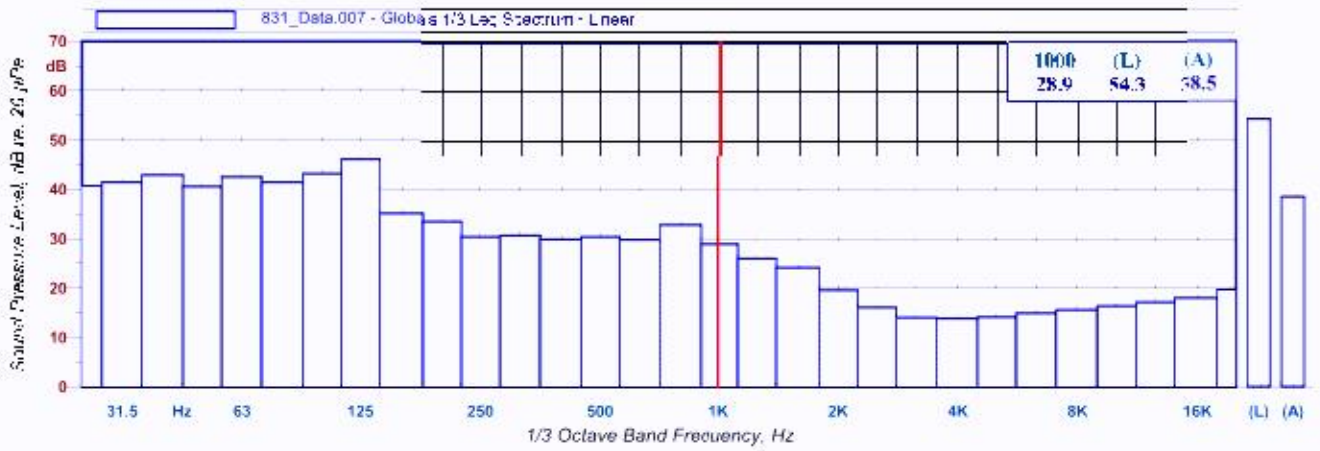
Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Horshfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location F	**Meteorology:**	Temperature: 20 - 21 °F Wind Speed / Dir.: 0 - 6 MPH / SW Humidity: 78%
Date:	10/27/2020		
Start Time:	1:55:22 AM		
End Time:	1:58:20 AM	**Calibration Check:**	Calibration Frequency: 1 kHz Initial Calibration: 93.8 dB Final Calibration: 93.7 dB Last Cal. Check: 10/27/20 @ 2:36 AM
Run Time:	178.4 seconds		

Measurements: File N. 7: Ambient Measurement while Verizon 2 South Chillers Running; Some Traffic Noise & Faint Noise from Fans





L1.0: 42.3 dB(A)	**L50.0: 37.9 dB(A)**	**L95.0: 36.0 dB(A)**	**Leq: 38.3 dB(A)**
L10.0: 39.9 dB(A)	**L90.0: 36.3 dB(A)**	**LMin: 34.8 dB(A)**	**LMax: 46.7 dB(A)**

831_Data.007
Globals 1/3 Leq Spectrum - Linear

Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB
25	40.7 dB	80	41.5 dB	250	30.3 dB	800	32.8 dB	2500	16.1 dB	8000	15.6 dB
31.5	41.5 dB	100	43.3 dB	315	30.6 dB	1000	28.9 dB	3150	14.1 dB	10000	16.4 dB
40	42.9 dB	125	46.1 dB	400	29.9 dB	1250	26.0 dB	4000	13.8 dB	12500	17.2 dB
50	40.5 dB	160	35.2 dB	500	30.4 dB	1600	24.2 dB	5000	14.1 dB	16000	18.0 dB
63	42.6 dB	200	33.5 dB	630	29.8 dB	2000	19.6 dB	6300	14.9 dB	20000	19.7 dB

Figure A7

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Acoustic Test Results

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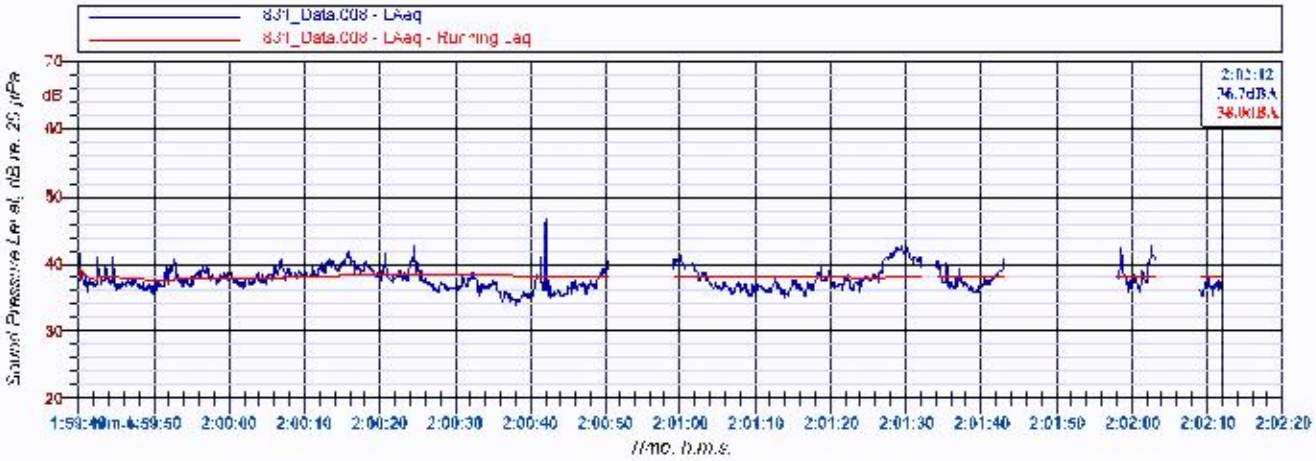
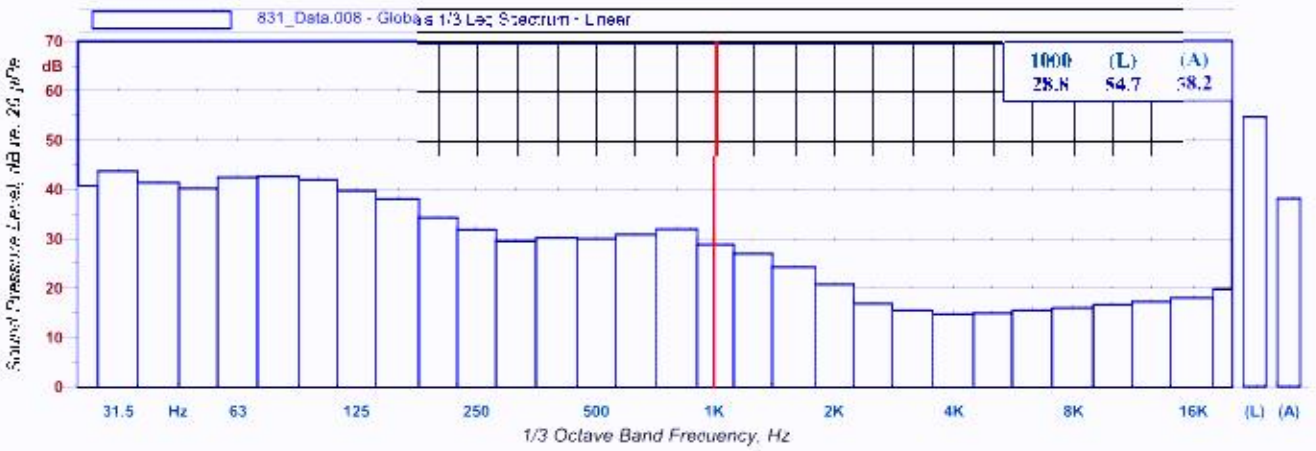
Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Horshfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location E	**Meteorology:**	Temperature: 20 - 21 °F Wind Speed / Dir.: 0 - 6 MPH / SW Humidity: 78%
Date:	10/27/2020		
Start Time:	1:59:40 AM		
End Time:	2:02:12 AM	**Calibration Check:**	Calibration Frequency: 1 kHz Initial Calibration: 93.8 dB Final Calibration: 93.7 dB Last Cal. Check: 10/27/20 @ 2:36 AM
Run Time:	152.0 seconds		

Measurements: File N. 8: Ambient Measurement while Verizon 2 South Chillers Running; Some Traffic Noise





L1.0: 42.0 dB(A)	L50.0: 37.4 dB(A)	L95.0: 35.5 dB(A)	Leq: 38.0 dB(A)
L10.0: 39.9 dB(A)	L90.0: 36.0 dB(A)	LMin: 33.9 dB(A)	LMax: 45.4 dB(A)

831_Data.008
Globals 1/3 Leq Spectrum - Linear

Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB
25	40.7 dB	80	42.7 dB	250	31.8 dB	800	32.0 dB	2500	16.9 dB	8000	16.0 dB
31.5	43.7 dB	100	42.0 dB	315	29.5 dB	1000	28.8 dB	3150	15.5 dB	10000	16.7 dB
40	41.3 dB	125	39.8 dB	400	30.2 dB	1250	27.0 dB	4000	14.7 dB	12500	17.3 dB
50	40.2 dB	160	38.1 dB	500	30.0 dB	1600	24.3 dB	5000	15.0 dB	16000	18.0 dB
63	42.5 dB	200	34.3 dB	630	30.9 dB	2000	20.8 dB	6300	15.5 dB	20000	19.8 dB

Figure A8

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Acoustic Test Results

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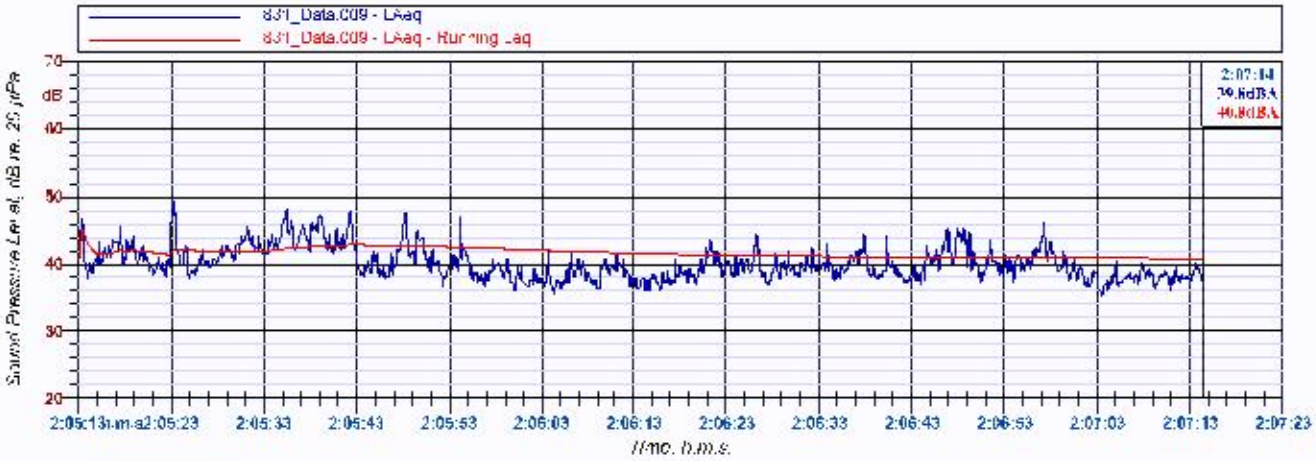
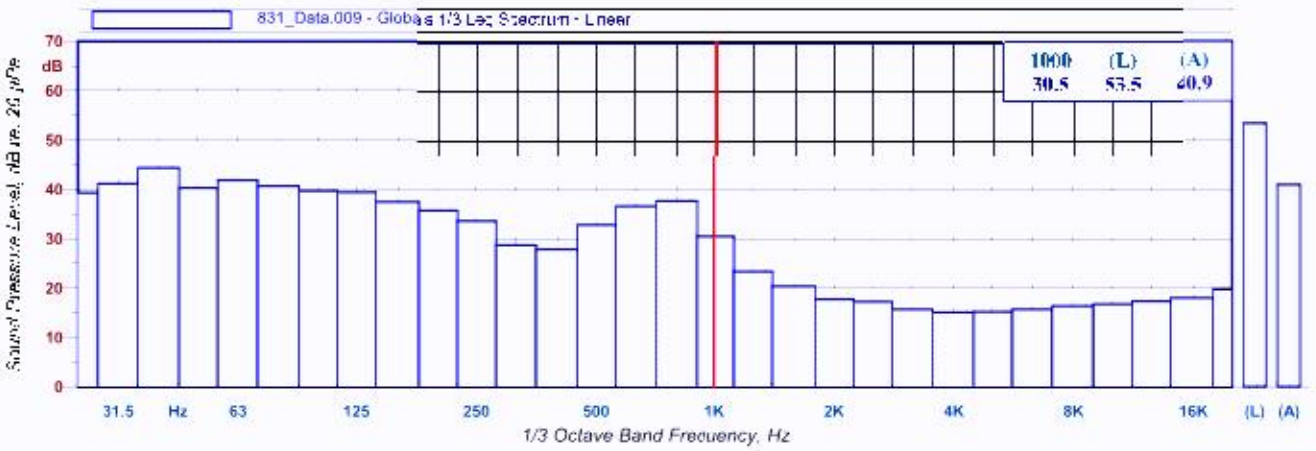
Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Harshfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location I	**Meteorology:**	Temperature: 20 - 21 °F Wind Speed / Dir.: 0 - 6 MPH / SW Humidity: 78%
Date:	10/27/2020		
Start Time:	2:05:13 AM		
End Time:	2:07:14 AM	**Calibration Check:**	Calibration Frequency: 1 kHz Initial Calibration: 93.8 dB Final Calibration: 93.7 dB Last Cal. Check: 10/27/20 @ 2:36 AM
Run Time:	121.5 seconds		

Measurements: File N. 9: Ambient Measurement while Verizon 2 South Chillers Running;
Some Traffic Noise Nearby and from I69





L1.0: 46.8 dB(A)	L50.0: 39.6 dB(A)	L95.0: 37.1 dB(A)	Leq: 40.8 dB(A)
L10.0: 43.4 dB(A)	L90.0: 37.5 dB(A)	LMin: 35.5 dB(A)	LMax: 49.4 dB(A)

831_Data.009
Globals 1/3 Leq Spectrum - Linear

Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB
25	39.3 dB	80	40.7 dB	250	33.6 dB	800	37.7 dB	2500	17.2 dB	8000	16.4 dB
31.5	41.1 dB	100	39.8 dB	315	28.8 dB	1000	30.5 dB	3150	15.7 dB	10000	16.6 dB
40	44.4 dB	125	39.4 dB	400	27.9 dB	1250	23.4 dB	4000	15.1 dB	12500	17.3 dB
50	40.3 dB	160	37.5 dB	500	32.8 dB	1600	20.3 dB	5000	15.3 dB	16000	18.1 dB
63	41.8 dB	200	35.8 dB	630	36.6 dB	2000	17.8 dB	6300	15.7 dB	20000	19.8 dB

Figure A9

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Acoustic Test Results

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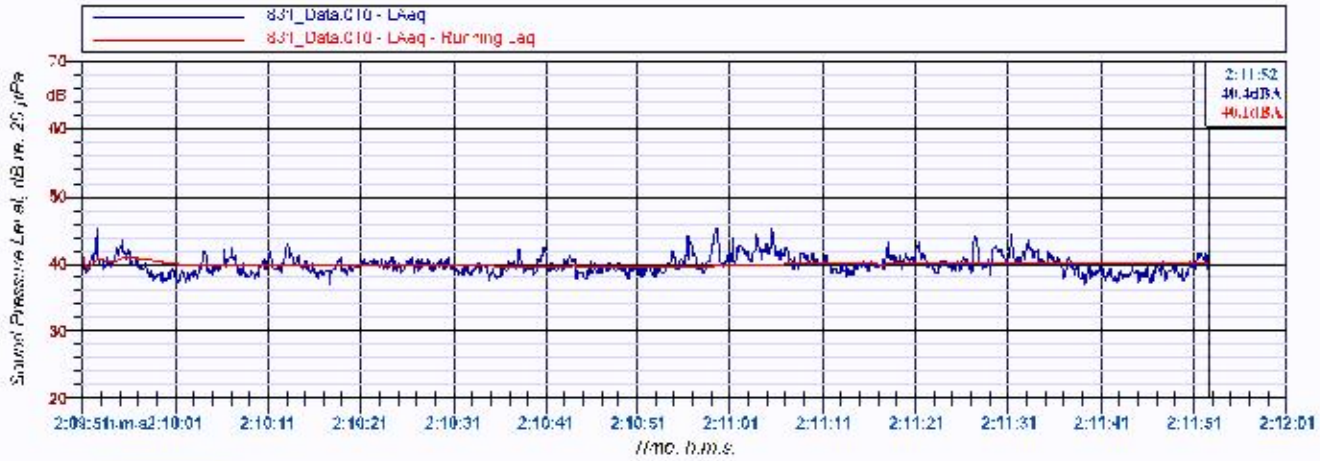
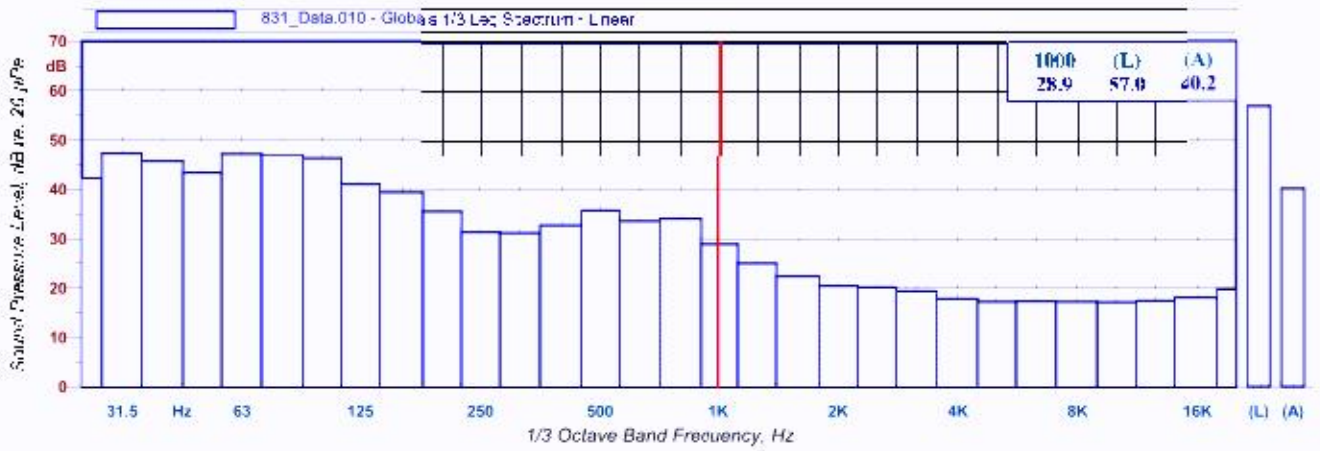
Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Hershfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location H	**Meteorology:**	Temperature: 20 - 21 °F Wind Speed / Dir.: 0 - 6 MPH / SW Humidity: 78%
Date:	10/27/2020		
Start Time:	2:09:51 AM	**Calibration Check:**	Calibration Frequency: 1 kHz Initial Calibration: 93.8 dB Final Calibration: 93.7 dB Last Cal. Check: 10/27/20 @ 2:36 AM
End Time:	2:11:52 AM		
Run Time:	121.7 seconds		

Measurements: File N. 10: Ambient Measurement while Verizon 2 South Chillers Running;
Some Traffic Noise Nearby and from I69





L1.0: 43.5 dB(A)	**L50.0: 39.7 dB(A)**	**L95.0: 38.1 dB(A)**	**Leq: 40.1 dB(A)**
L10.0: 41.6 dB(A)	**L90.0: 38.4 dB(A)**	**LMin: 37.3 dB(A)**	**LMax: 45.7 dB(A)**

831_Data.010
Globals 1/3 Leq Spectrum - Linear

Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB
25	42.2 dB	80	46.9 dB	250	31.4 dB	800	34.1 dB	2500	20.1 dB	8000	17.3 dB
31.5	47.3 dB	100	46.4 dB	315	31.1 dB	1000	28.9 dB	3150	19.4 dB	10000	17.1 dB
40	45.8 dB	125	41.1 dB	400	32.7 dB	1250	25.1 dB	4000	17.8 dB	12500	17.4 dB
50	43.4 dB	160	39.5 dB	500	35.7 dB	1600	22.4 dB	5000	17.3 dB	16000	18.1 dB
63	47.2 dB	200	35.6 dB	630	33.6 dB	2000	20.5 dB	6300	17.3 dB	20000	19.8 dB

Figure A10

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Acoustic Test Results

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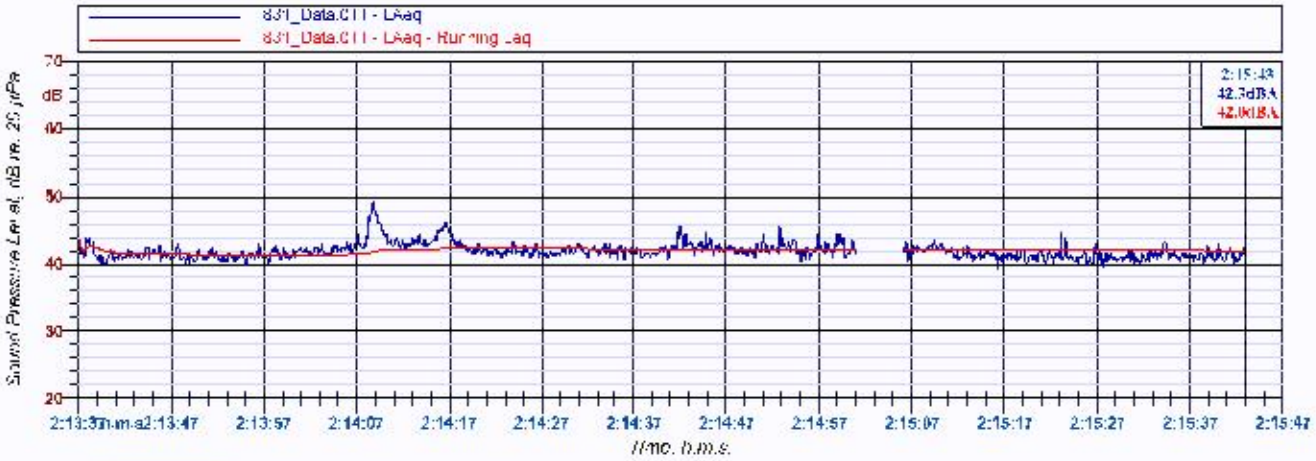
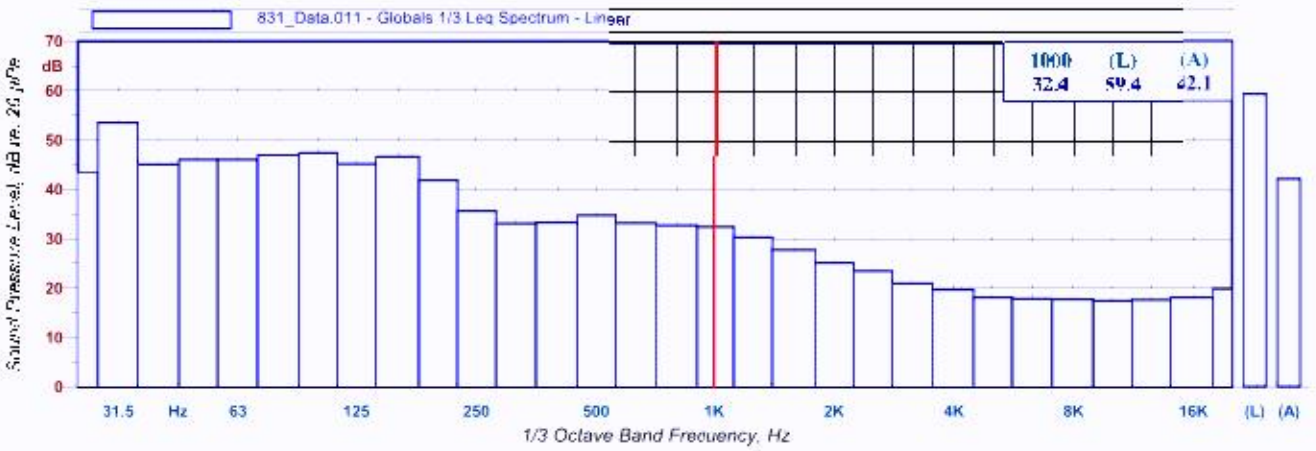
Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Hershfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location J	**Meteorology:**	Temperature: 20 - 21 °F Wind Speed / Dir.: 0 - 6 MPH / SW Humidity: 78%
Date:	10/27/2020		
Start Time:	2:13:37 AM		
End Time:	2:15:43 AM	**Calibration Check:**	Calibration Frequency: 1 kHz Initial Calibration: 93.8 dB Final Calibration: 93.7 dB Last Cal. Check: 10/27/20 @ 2:36 AM
Run Time:	126.1 seconds		

Measurements: File N. 11: Ambient Measurement while Verizon 2 South Chillers Running;
Some Traffic Noise and Verizon Chiller Fans





L1.0: 46.1 dB(A)	L50.0: 41.7 dB(A)	L95.0: 40.6 dB(A)	Leq: 42.0 dB(A)
L10.0: 43.1 dB(A)	L90.0: 40.8 dB(A)	LMin: 39.8 dB(A)	LMax: 49.0 dB(A)

831_Data.011
Globals 1/3 Leq Spectrum - Linear

Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB
25	43.3 dB	80	46.9 dB	250	35.6 dB	800	32.7 dB	2500	23.5 dB	8000	17.7 dB
31.5	53.5 dB	100	47.5 dB	315	33.1 dB	1000	32.4 dB	3150	21.0 dB	10000	17.5 dB
40	45.0 dB	125	45.2 dB	400	33.3 dB	1250	30.3 dB	4000	19.7 dB	12500	17.6 dB
50	46.0 dB	160	46.6 dB	500	34.8 dB	1600	27.8 dB	5000	18.2 dB	16000	18.2 dB
63	46.0 dB	200	41.9 dB	630	33.2 dB	2000	25.2 dB	6300	17.8 dB	20000	19.9 dB

Figure A11

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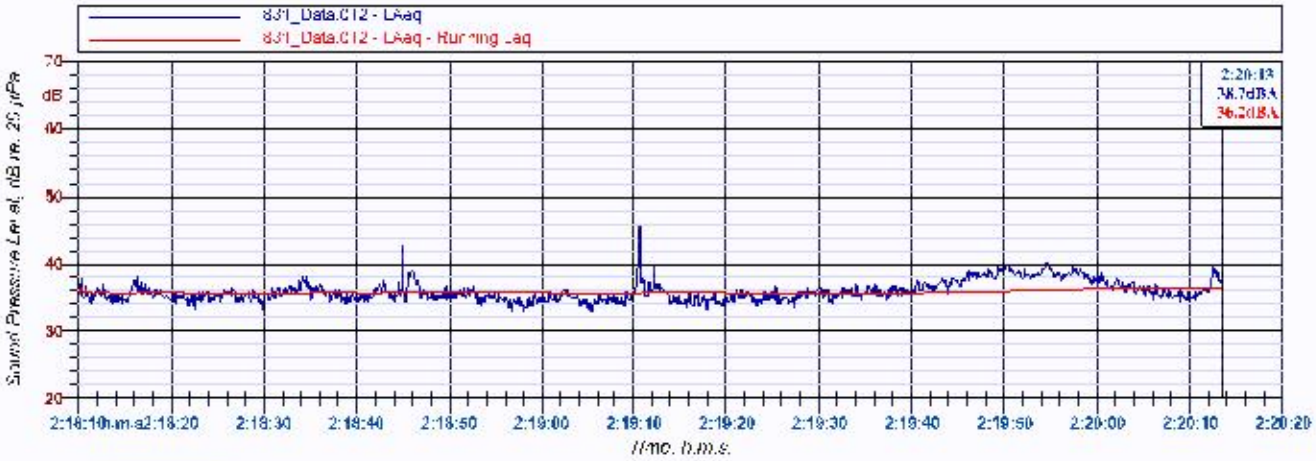
Acoustic Test Results

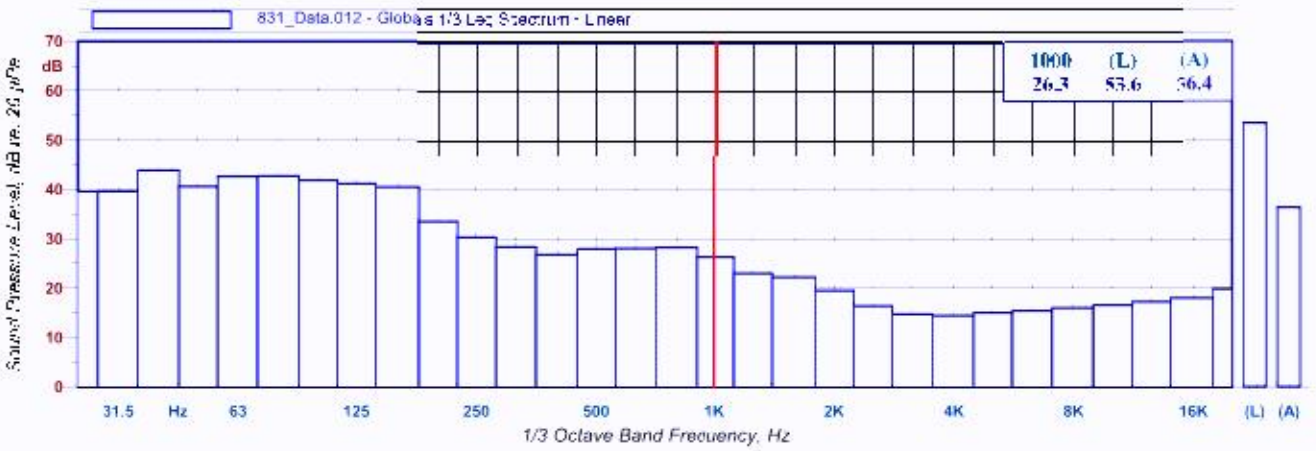
Minneapolis, Minnesota | o: 952.831.4646 | esi-engineering.com

Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Horshfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location K	**Meteorology:**	Temperature: 20 - 21 °F Wind Speed / Dir.: 0 - 6 MPH / SW Humidity: 78%
Date:	10/27/2020		
Start Time:	2:18:10 AM	**Calibration Check:**	Calibration Frequency: 1 kHz Initial Calibration: 93.8 dB Final Calibration: 93.7 dB Last Cal. Check: 10/27/20 @ 2:36 AM
End Time:	2:20:13 AM		
Run Time:	123.5 seconds		

Measurements: File N. 12: Ambient Measurement while Verizon 2 South Chillers Running;
Faint Fan Noise from Verizon Chillers





L1.0: 39.6 dB(A)	L50.0: 35.5 dB(A)	L95.0: 34.3 dB(A)	Leq: 36.2 dB(A)
L10.0: 38.3 dB(A)	L90.0: 34.5 dB(A)	LMin: 33.2 dB(A)	LMax: 44.7 dB(A)

831_Data.012
Globals 1/3 Leq Spectrum - Linear

Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB
25	39.6 dB	80	42.7 dB	250	30.3 dB	800	28.2 dB	2500	16.4 dB	8000	16.0 dB
31.5	39.6 dB	100	41.9 dB	315	28.3 dB	1000	26.3 dB	3150	14.8 dB	10000	16.6 dB
40	43.9 dB	125	41.2 dB	400	26.8 dB	1250	23.0 dB	4000	14.5 dB	12500	17.3 dB
50	40.5 dB	160	40.5 dB	500	28.0 dB	1600	22.2 dB	5000	15.0 dB	16000	18.0 dB
63	42.7 dB	200	33.5 dB	630	28.0 dB	2000	19.5 dB	6300	15.4 dB	20000	19.8 dB

Figure A12

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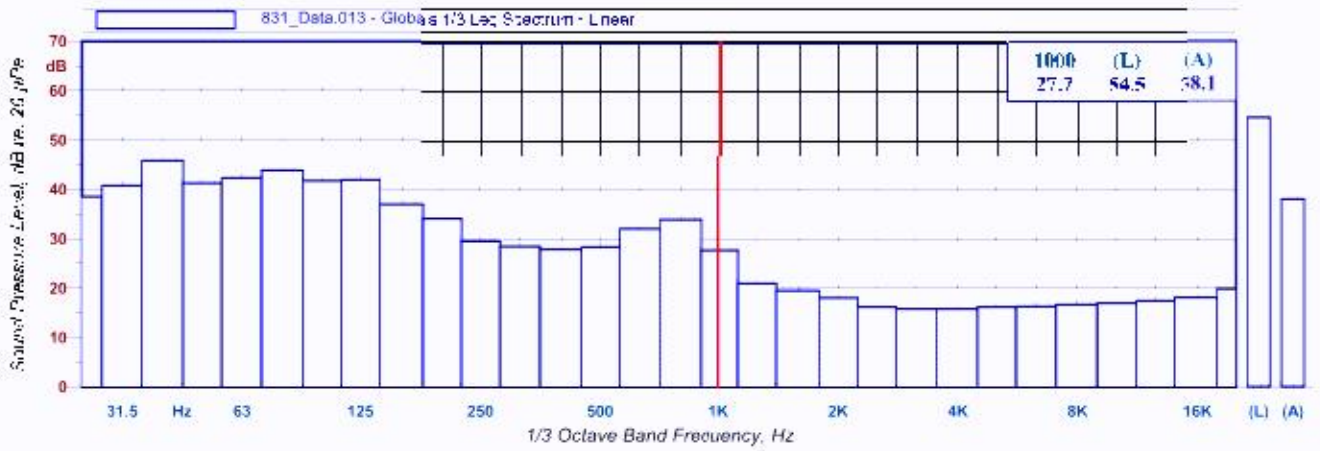
Acoustic Test Results

Minneapolis, Minnesota | o: 952.831.4646 | esi-engineering.com

Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Hershfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location L	**Meteorology:**	Temperature: 20 - 21 °F Wind Speed / Dir.: 0 - 6 MPH / SW Humidity: 78%
Date:	10/27/2020		
Start Time:	2:21:50 AM	**Calibration Check:**	Calibration Frequency: 1 kHz Initial Calibration: 93.8 dB Final Calibration: 93.7 dB Last Cal. Check: 10/27/20 @ 2:36 AM
End Time:	2:23:51 AM		
Run Time:	121.2 seconds		

Measurements: File N. 13: Ambient Measurement while Verizon 2 South Chillers Running;
Some Traffic Noise from 169



L1.0: 43.9 dB(A)	**L50.0: 35.8 dB(A)**	**L95.0: 33.5 dB(A)**	**Leq: 37.9 dB(A)**
L10.0: 41.3 dB(A)	**L90.0: 33.8 dB(A)**	**LMin: 32.2 dB(A)**	**LMax: 45.9 dB(A)**

831_Data.013
Globals 1/3 Leq Spectrum - Linear

Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB
25	38.6 dB	80	43.9 dB	250	29.5 dB	800	33.9 dB	2500	16.2 dB	8000	16.6 dB
31.5	40.8 dB	100	41.8 dB	315	28.5 dB	1000	27.7 dB	3150	15.8 dB	10000	17.0 dB
40	45.9 dB	125	42.0 dB	400	27.8 dB	1250	20.9 dB	4000	15.8 dB	12500	17.4 dB
50	41.3 dB	160	37.0 dB	500	28.3 dB	1600	19.5 dB	5000	16.2 dB	16000	18.1 dB
63	42.3 dB	200	34.1 dB	630	32.0 dB	2000	18.0 dB	6300	16.3 dB	20000	19.9 dB

Figure A13

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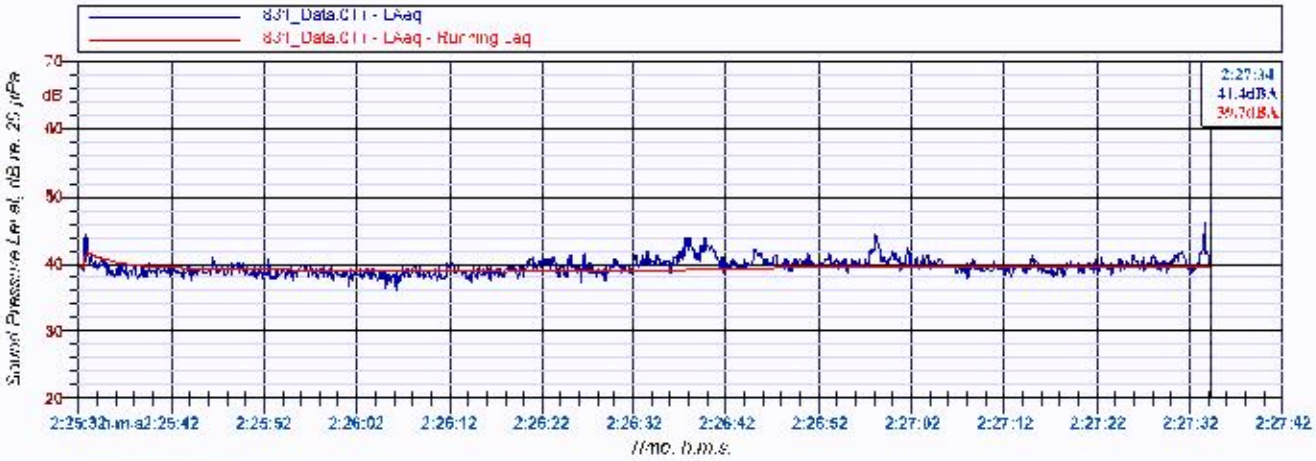
Acoustic Test Results

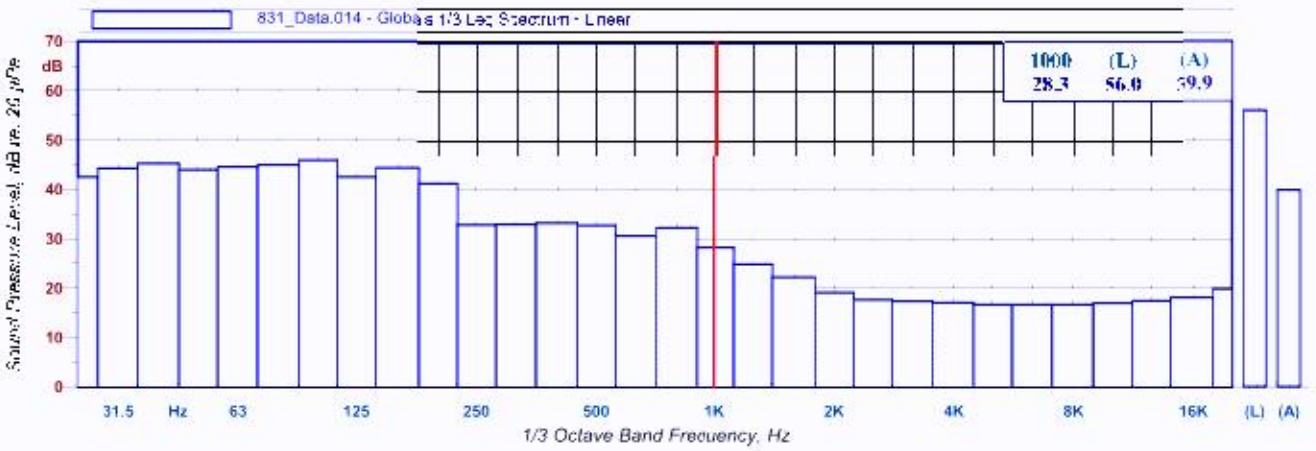
Minneapolis, Minnesota | o: 952.831.4646 | esi-engineering.com

Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Hershfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location M	**Meteorology:**	Temperature: 20 - 21 °F Wind Speed / Dir.: 0 - 6 MPH / SW Humidity: 78%
Date:	10/27/2020		
Start Time:	2:25:32 AM	**Calibration Check:**	Calibration Frequency: 1 kHz Initial Calibration: 93.8 dB Final Calibration: 93.7 dB Last Cal. Check: 10/27/20 @ 2:36 AM
End Time:	2:27:34 AM		
Run Time:	122.2 seconds		

Measurements: File N. 14: Ambient Measurement while Verizon 2 South Chillers Running;
Faint Fan Noise from Verizon Chillers





L1.0: 42.9 dB(A)	L50.0: 39.5 dB(A)	L95.0: 38.2 dB(A)	Leq: 39.7 dB(A)
L10.0: 40.9 dB(A)	L90.0: 38.4 dB(A)	LMin: 36.9 dB(A)	LMax: 45.3 dB(A)

831_Data.014
Globals 1/3 Leq Spectrum - Linear

Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB
25	42.5 dB	80	44.9 dB	250	32.8 dB	800	32.3 dB	2500	17.7 dB	8000	16.7 dB
31.5	44.3 dB	100	46.0 dB	315	32.9 dB	1000	28.3 dB	3150	17.3 dB	10000	17.0 dB
40	45.3 dB	125	42.5 dB	400	33.2 dB	1250	24.9 dB	4000	17.0 dB	12500	17.4 dB
50	44.0 dB	160	44.4 dB	500	32.7 dB	1600	22.2 dB	5000	16.6 dB	16000	18.1 dB
63	44.6 dB	200	41.2 dB	630	30.6 dB	2000	19.1 dB	6300	16.7 dB	20000	19.9 dB

Figure A14

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Acoustic Test Results

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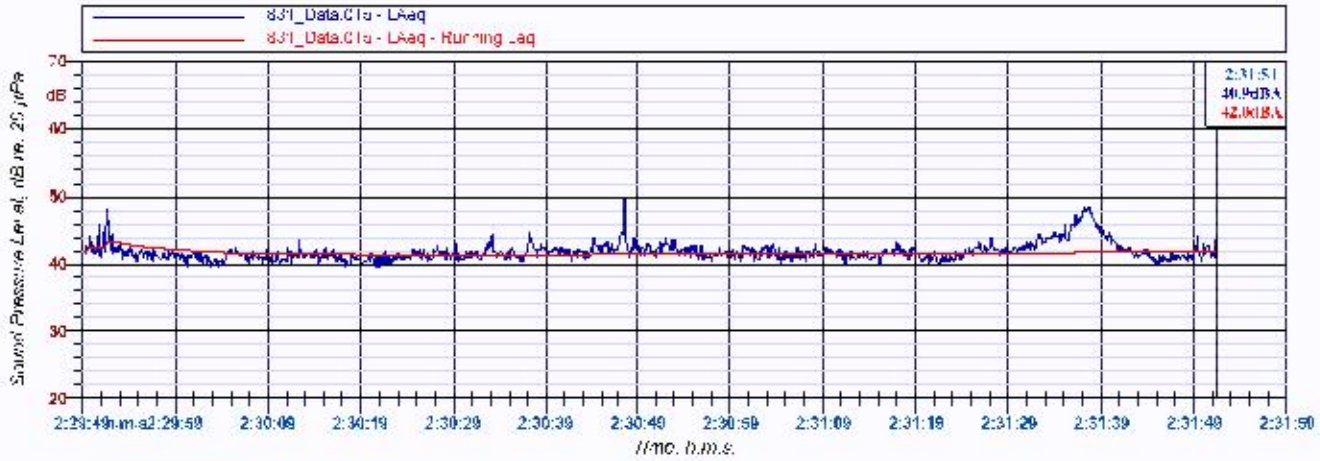
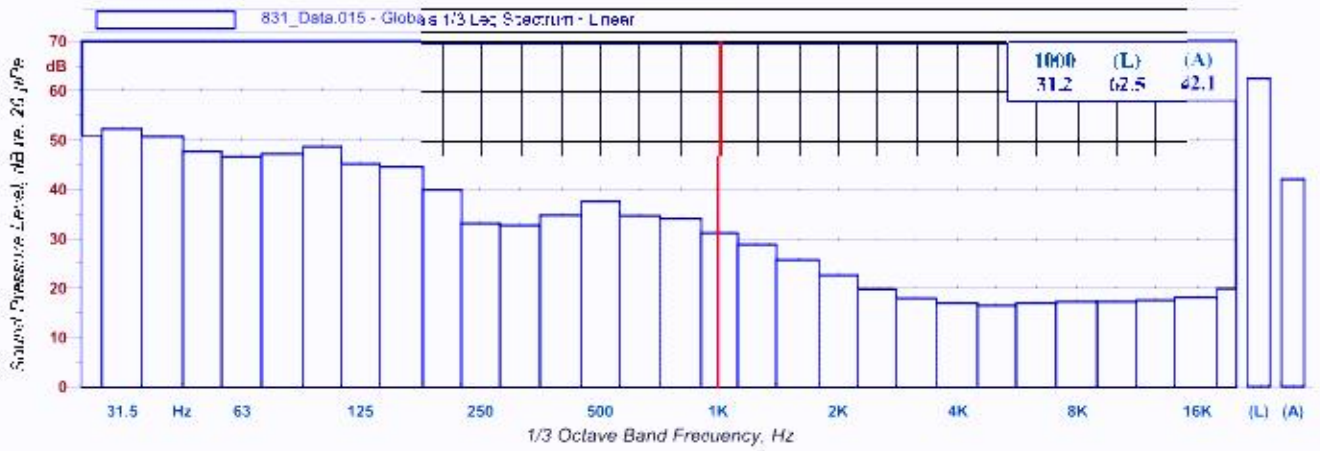
Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Hershfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location N	**Meteorology:**	Temperature: 20 - 21 °F
Date:	10/27/2020		Wind Speed / Dir.: 0 - 6 MPH / SW
Start Time:	2:29:49 AM		Humidity: 78%
End Time:	2:31:51 AM	**Calibration Check:**	Calibration Frequency: 1 kHz
Run Time:	122.5 seconds		Initial Calibration: 93.8 dB
			Final Calibration: 93.7 dB
			Last Cal. Check: 10/27/20 @ 2:36 AM

Measurements: File N. 15: Ambient Measurement while Verizon 2 South Chillers Running;
Traffic Noise and from Verizon Chiller Fans





L1.0: 47.2 dB(A)	**L50.0: 41.5 dB(A)**	**L95.0: 40.5 dB(A)**	**Leq: 42.0 dB(A)**
L10.0: 43.1 dB(A)	**L90.0: 40.7 dB(A)**	**LMin: 39.7 dB(A)**	**LMax: 48.6 dB(A)**

831_Data.015
Globals 1/3 Leq Spectrum - Linear

Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB
25	50.8 dB	80	47.2 dB	250	33.1 dB	800	34.1 dB	2500	19.8 dB	8000	17.3 dB
31.5	52.3 dB	100	48.7 dB	315	32.7 dB	1000	31.2 dB	3150	17.9 dB	10000	17.3 dB
40	50.7 dB	125	45.2 dB	400	34.8 dB	1250	28.8 dB	4000	17.0 dB	12500	17.5 dB
50	47.7 dB	160	44.6 dB	500	37.6 dB	1600	25.7 dB	5000	16.5 dB	16000	18.1 dB
63	46.6 dB	200	39.9 dB	630	34.7 dB	2000	22.6 dB	6300	17.0 dB	20000	19.8 dB

Figure A15

esi engineering

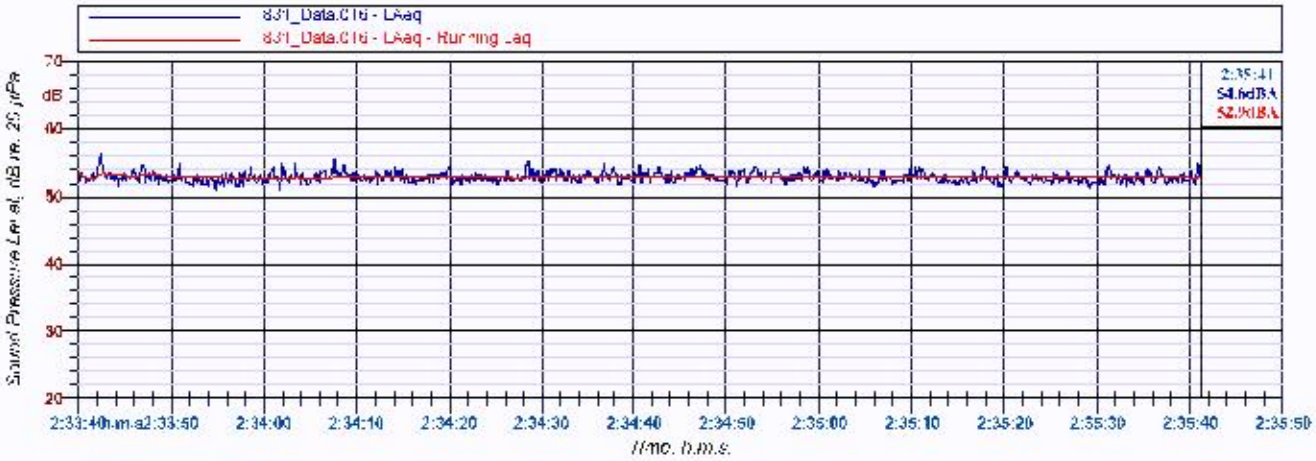
Acoustic Test Results

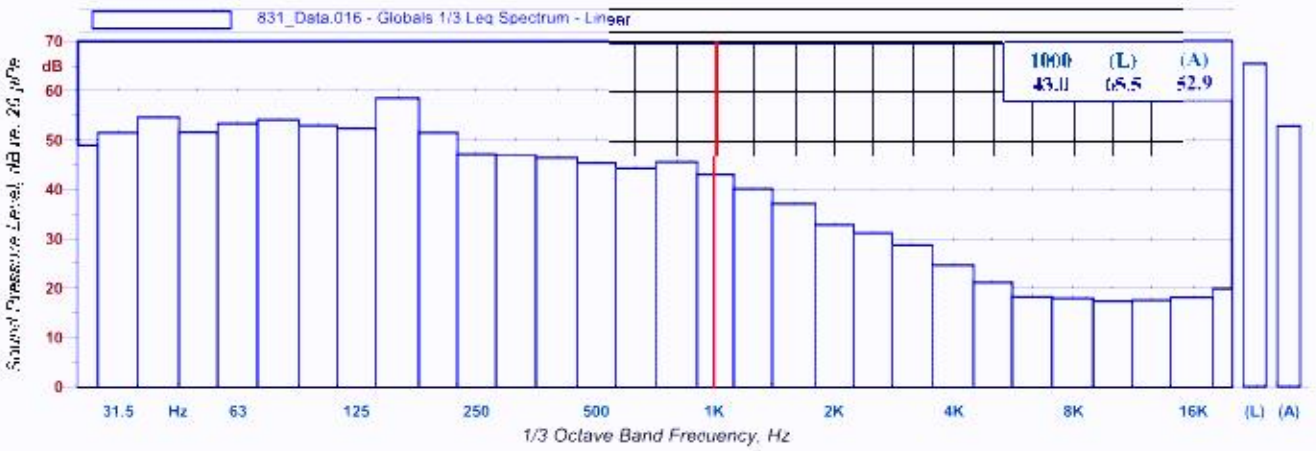
Minneapolis, Minnesota | o: 952.831.4646 | esi-engineering.com

Project No:	P2646	**Analyzer:**	Larson Davis 831 s/n 3553
Project:	Morrison Hershfield - Verizon MSC	**Preamplifier:**	Larson Davis PRM831 s/n 029391
Location:	Bloomington, Minnesota	**Microphone:**	Larson Davis 377C20 s/n 315625
Engineer:	A.J. Baxter & A.A.J. Schmitt	**Calibrator:**	Bruel & Kjaer 4231 s/n 3009047
		Last Calibrated:	November 6, 2019

Location:	Location O	**Meteorology:**	Temperature: 20 - 21 °F Wind Speed / Dir.: 0 - 6 MPH / SW Humidity: 78%
Date:	10/27/2020		
Start Time:	2:33:40 AM		
End Time:	2:35:41 AM	**Calibration Check:**	Calibration Frequency: 1 kHz Initial Calibration: 93.8 dB Final Calibration: 93.7 dB Last Cal. Check: 10/27/20 @ 2:36 AM
Run Time:	121.2 seconds		

Measurements: File N. 16: Ambient Measurement while Verizon 2 South Chillers Running;
Verizon Chiller Fans Near South Gate





L1.0: 54.4 dB(A)	**L50.0: 52.7 dB(A)**	**L95.0: 52.0 dB(A)**	**Leq: 52.9 dB(A)**
L10.0: 53.6 dB(A)	**L90.0: 52.2 dB(A)**	**LMin: 51.1 dB(A)**	**LMax: 55.6 dB(A)**

831_Data.016
Globals 1/3 Leq Spectrum - Linear

Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB	Hz	dB
25	49.0 dB	80	54.2 dB	250	47.1 dB	800	45.5 dB	2500	31.1 dB	8000	17.9 dB
31.5	51.5 dB	100	52.9 dB	315	46.8 dB	1000	43.0 dB	3150	28.7 dB	10000	17.4 dB
40	54.5 dB	125	52.4 dB	400	46.4 dB	1250	40.1 dB	4000	24.7 dB	12500	17.6 dB
50	51.6 dB	160	58.5 dB	500	45.4 dB	1600	37.1 dB	5000	21.1 dB	16000	18.1 dB
63	53.4 dB	200	51.5 dB	630	44.3 dB	2000	32.8 dB	6300	18.3 dB	20000	19.9 dB

Figure A16