Michael Baker INTERNATIONAL

We Make a Difference

MEMORANDUM

To: Danny Nguyen, IMG Construction Management

From: Zhe Chen, Michael Baker International

Date: August 29, 2022

Subject: Mission Village Shopping Center Project – Noise Technical Memorandum

PURPOSE

The purpose of this technical memorandum is to evaluate potential short- and long-term noise and groundborne vibration impacts as a result of the proposed Mission Village Shopping Center Project (project), located in the City of Jurupa Valley (City), California.

PROJECT LOCATION

The City is located in the County of Riverside (County) and east side of Interstate 15 (I-15). State Route 60 (SR-60) traverses the City in a west-east orientation.

The project site encompasses approximately 8.3 acres (APNs 182-031-001, 182-031-002, and 182-022-002) generally bounded by Mission Boulevard to the north and Stobbs Way to the west. Access to the site occurs from Mission Boulevard, Stobbs Way, and the adjacent property to the east.

EXISTING SITE CONDITIONS

The project site is currently developed with retail buildings and associated surface parking lot. The project site is designated Commercial Retail (CR)[1] in the City of Jurupa Valley General Plan (General Plan) and zoned C-1/C-P (General Commercial)[2] in the City's Municipal Code.

PROJECT DESCRIPTION

The project would involve demolition of existing buildings and surface parking lot on-site and construction of a shopping center with a surface parking lot. The proposed shopping center would be approximately 78,325 square feet in total, consisting of two retail spaces totaling 34,600 square feet, a 18,000-square-foot grocery store, a 18,000-square-foot fitness center, a 2,900-square-foot fast food restaurant with drive-through, a 3,825-square-foot carwash facility, a 1,000-square-foot restaurant, and 408 parking

[1] City of Jurupa Valley, *Land Use Element*, 2017, https://www.jurupavalley.org/DocumentCenter/View/217/2017-Master-General-Plan-PDF, accessed August 25, 2022.

[2] City of Jurupa Valley, *Zoning Map*, January 2019, https://www.jurupavalley.org/DocumentCenter/View/526/Zoning-Map-PDF, accessed August 25, 2022.

spaces. The project would provide 277 regular parking spaces, 55 compact parking spaces, 17 accessible parking spaces, 24 electric vehicle parking spaces, 33 clean air vehicle parking spaces, one family parking space, and one veteran's parking space in a surface parking lot on-site.

Project construction would occur over approximately 10 months, beginning in November 2022. Construction of the project would include the following phases: demolition, grading, building construction, paving, and architectural coatings. It is anticipated that the project would be completed and operational in 2023.

FUNDAMENTALS OF SOUND AND ENVIRONMENTAL NOISE

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air, and is characterized by both its amplitude and frequency (or pitch). The human ear does not hear all frequencies equally. In particular, the ear deemphasizes low and very high frequencies. To better approximate the sensitivity of human hearing, the A-weighted decibel scale (dBA) has been developed. Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dBA higher than another is perceived to be twice as loud and 20 dBA higher is perceived to be four times as loud, and so forth. Everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). On this scale, the human range of hearing extends from approximately 3 dBA to around 140 dBA.

Noise is generally defined as unwanted or excessive sound, which can vary in intensity by over one million times within the range of human hearing; therefore, a logarithmic scale, known as the decibel scale (dB), is used to quantify sound intensity. Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks, and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Noise generated by mobile sources typically attenuates (is reduced) at a rate between 3 dBA and 4.5 dBA per doubling of distance. The rate depends on the ground surface and the number or type of objects between the noise source and the receiver. Hard and flat surfaces, such as concrete or asphalt, have an attenuation rate of 3 dBA per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, have an attenuation rate of about 4.5 dBA per doubling of distance. Noise generated by stationary sources typically attenuates at a rate between 6 dBA and about 7.5 dBA per doubling of distance.

There are several metrics used to characterize community noise exposure, which fluctuate constantly over time. One such metric, the equivalent sound level (L_{eq}), represents a constant sound that, over the specified period, has the same sound energy as the time-varying sound. Noise exposure over a longer period is often evaluated based on the Day-Night Sound Level (L_{dn}). This is a measure of 24-hour noise levels that incorporates a 10-dBA penalty for sounds occurring between 10:00 p.m. and 7:00 a.m. The penalty is intended to reflect the increased human sensitivity to noises occurring during nighttime hours, particularly at times when people are sleeping and there are lower ambient noise conditions. Typical L_{dn} noise levels for light and medium density residential areas range from 55 dBA to 65 dBA. Similarly, Community Noise Equivalent Level (CNEL) is a measure of 24-hour noise levels that incorporates a 5-dBA penalty for sounds occurring between 7:00 p.m. and 10:00 p.m. and a 10-dBA penalty for sounds occurring between 10:00 p.m. and 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively.

FUNDAMENTALS OF ENVIRONMENTAL GROUNDBORNE VIBRATION

Sources of earth-borne vibrations include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides, etc.) or man-made causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions). Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

Table 1
Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration Levels

Peak Particle Velocity (inches/second)	Approximate Vibration Velocity Level (VdB)	Human Reaction	Effect on Buildings
0.006–0.019	64–74	Range of threshold of perception.	Vibrations unlikely to cause damage of any type.
0.08	87	Vibrations readily perceptible.	Recommended upper level to which ruins and ancient monuments should be subjected.
0.1	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities.	Virtually no risk of architectural damage to normal buildings.
0.2	94	Vibrations may begin to annoy people in buildings.	Threshold at which there is a risk of architectural damage to normal dwellings.
0.4–0.6	98–104	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges.	Architectural damage and possibly minor structural damage.

Source: California Department of Transportation, *Transportation Related Earthborne Vibrations,* 2002.

Ground vibration can be a concern in instances where buildings shake and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. Common sources for groundborne vibration are planes, trains, and construction activities such as earth-moving which requires the use of heavy-duty earth moving equipment. For the purposes of this analysis, a PPV descriptor with units of inches per section (inch-per-second) is used to evaluate construction-generated vibration for building damage and human complaints.

REGULATORY SETTING

State of California

State Office of Planning and Research

The State Office of Planning and Research's (OPR) *Noise Element Guidelines* include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of

incompatible land uses due to noise. The *Noise Element Guidelines* contain a land use compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of the CNEL. The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

California Government Code §65302

California Government Code §65302 encourages each local government entity to implement a noise element as part of its general plan. In addition, the OPR has developed guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure. The recommendations established by OPR are listed in Table 2, *Land Use Compatibility for Community Noise Environments*.

Table 2
Land Use Compatibility for Community Noise Environments

Land Use Category	Community Noise Exposure (CNEL)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential-Low Density, Single-Family, Duplex, Mobile Homes	50 – 60	55 - 70	70 – 75	75 – 85
Residential – Multiple Family	50 – 65	60 – 70	70 – 75	70 – 85
Transient Lodging – Motel, Hotels	50 – 65	60 – 70	70 – 80	80 – 85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 – 70	60 – 70	70 – 80	80 – 85
Auditoriums, Concert Halls, Amphitheaters	NA	50 – 70	NA	65 – 85
Sports Arenas, Outdoor Spectator Sports	NA	50 – 75	NA	70 – 85
Playgrounds, Neighborhood Parks	50 – 70	NA	67.5 – 77.5	72.5 – 85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 – 70	NA	70 – 80	80 – 85
Office Buildings, Business Commercial and Professional	50 – 70	67.5 – 77.5	75 – 85	NA
Industrial, Manufacturing, Utilities, Agriculture	50 – 75	70 – 80	75 – 85	NA
CNEL = community noise equivalent level; NA = not applicable				
NORMALLY ACCEPTABLE: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements. CONDITIONALLY ACCEPTABLE: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features have been included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice. NORMALLY UNACCEPTABLE: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise-insulation features must be included in the design. CLEARLY UNACCEPTABLE: New construction or development should generally not be undertaken.				
Source: Office of Planning and Research, California, *General Plan Guidelines,* October 2003.				

Local

City of Jurupa Valley

2017 General Plan

The City of Jurupa Valley adopted its first locally prepared General Plan on September 7, 2017. The General Plan is the primary tool to guide the development and character of Jurupa Valley for the next five to ten years. The General Plan Advisory Committee developed a Community Values Statement which describes the fundamentals goals of the City and provided input and assets, issues and needs related to the elements of the General Plan. The elements contained in the General Plan are Air Quality, Community Safety, Services and Facilities, Economics Sustainability, Environmental Justice, Healthy Communities,

Housing, Land Use, Mobility, Noise, and Open Space/Conservation. The Noise Element contains policies that protect residents and land uses from noise and vibration impacts while allowing development of a mix of compatible land uses. The element also includes policies to reduce the effects of noise from trucks and rail operations on Jurupa Valley residents. The applicable policies are listed in the following.

Noise Element

NE 1: Land Use Compatibility

Policy NE 1.1: **Land Use/Noise Compatibility**. Utilize the Land Use Compatibility for Community Noise Environments, *Figure 7-3* (Table 2), to determine the compatibility of proposed development, including General Plan amendments, specific plan amendments, town center plans, and rezonings, with existing land uses and/or noise exposure due to transportation sources.

Policy NE 1.2: **New Development and Stationary Noise Source**s. New development of noise-sensitive land uses near existing stationary noise sources may be permitted only where their location or design allows the development to meet the standards list in *Figure 7-3* (Table 2).

Policy NE 1.3: **New or Modified Stationary Noise Sources**. Noise created by new stationary noise sources, or by existing noise sources that undergo modifications that may increase noise levels, shall be mitigated so as not exceed the noise level standards of *Figure 7-3* (Table 2). This policy does not apply to noise levels associated with agricultural operations existing in 2017.

Policy NE 1.6: **Protection of Noise-Sensitive Uses**. Protect noise sensitive land uses from high levels of noise by restricting noise producing land uses from these areas. If the noise producing land uses cannot be relocated, then measures such as building techniques, setbacks, landscaping, and noise walls should be considered.

Policy NE 1.8: **Airport Noise Compatibility**. Ensure that new land use development within Airport Influence Areas complies with airport land use noise compatibility criteria contained in the applicable Airport Land Use Compatibility (ALUC) plan for the area.

Policy NE 1.9: **Acoustic Site Planning and Design**. Incorporate acoustic site planning into the design and placement of new development, particularly large scale, mixed use, or master planned development, including building orientation, berming, special noise-resistant walls, window and door assemblies, and other appropriate measures.

NE 2: Mobile Noise Sources

Policy NE 2.2: **Commercial Truck Delivers**. Require commercial or industrial truck delivery hours be limited to least-sensitive times of the day when adjacent to noise-sensitive land uses, unless there is no feasible alternative or there are overriding transportation benefits, as determined by the Planning Director.

Policy NE 2.3: **Off-Road Vehicles**. Restrict the use of motorized trail bikes, mini-bikes, and other off-road vehicles except where designated for that purpose. Enforce strict operating hours for these vehicles where they are located to minimize noise impacts on sensitive land uses adjacent to public trails and parks.

Policy NE 2.6: **Noise Contours**. Check all proposed development projects for possible location within roadway, railroad, and airport noise contours.

Policy NE 2.7: **Airport Compatibility**. Comply with applicable noise mitigation policies contained in the Airport Land Use Compatibility (ALUC) Plans for Flabob Airport, Riverside Municipal Airport, and the LA/Ontario International Airport.

Policy NE 2.8: **Preferred Noise Mitigation Methods**. When approving new development of noise-sensitive uses or noise-generating uses, the City will require noise mitigation in the order of preference, as listed below, with "1" being most preferred. For example, when mitigating outdoor noise exposure, providing distance between source and recipient is preferred to providing berms and walls. Before approving a less desirable approach, the City approval body must make a finding that more desirable approaches are not effective or that it is not practical to use the preferred approaches consistent with other design criteria based on the General Plan.

1. Mitigating Noise Generation

    a. Design the site of the noise-producing project so that buildings or other solid structures shield neighboring noise-sensitive uses;
    b. Limit the operating times of noise-producing activities;
    c. Provide features, such as walls, with a primary purpose of blocking noise.

2. Mitigating Outdoor Noise Exposure

    a. Provide distance between noise source and recipient;
    b. Provide distance plus planted earthen berms;
    c. Provide distance and planted earthen berms, combined with sound walls;
    d. Provide earthen berms combined with sound walls;
    e. Provide sound walls only;
    f. Integrate buildings and sound walls to create a continuous noise barrier.

Policy NE 2.10: **Noise Walls**. Noise mitigation walls (sound walls) should be used only when it is shown that preferred approaches are not effective or that it is not practical to use the preferred approaches consistent with other design criteria in the General Plan. Where noise walls are used, they should be designed to enhance community character, protect significant views, discourage graffiti, and help create an attractive pedestrian-friendly residential setting through features such as setbacks, changes in vertical and horizontal alignment, detail and texture, public art, walkways or trails, and landscaping. The height of such walls should be minimized, and where sound attenuation requires that a buffer that exceeds 10 feet in height, the sound buffer should consist of a combination of berms and a wall, or two or more retaining walls stepped back to allow intervening landscaping.

NE 3: Stationary Noise Sources

Policy NE 3.1: **Noise Analysi**s. Require that a noise analysis be conducted by an acoustical specialist for all proposed development projects that have the potential to generate significant noise near a noise-sensitive land use, or on or near land designated for noise-sensitive land uses and ensure that recommended mitigation measures are implemented.

Policy NE 3.2: **Truck Loading, Shipping, and Parking**. Require that the loading, shipping or parking facilities of commercial and industrial land uses that abut or are within 200 feet of residential parcels, be located and designed to minimize potential noise impacts upon residents. Overnight commercial truck parking areas shall be regulated in the Zoning Ordinance as a commercial use.

Policy NE 3.3: **Noise Buffer**. Require major stationary noise-generating sources to install noise buffering or reduction mechanisms within their facilities to reduce noise generation levels to the lowest level practical as a condition of the approval or renewal of project entitlements.

Policy NE 3.4: **Construction Equipment**. Require that all construction equipment utilize noise reduction features (i.e., mufflers and engine shrouds) that are at least as effective as those originally installed by the equipment's manufacturer.

Policy NE 3.5: **Construction Noise**. Limit commercial construction activities adjacent to or within 200 feet of residential uses to weekdays, between 7:00 a.m. and 6:00 p.m., and limit high-noise-generating construction activities (e.g., grading, demolition, pile driving) near sensitive receptors to weekdays between 9:00 a.m. and 3:00 p.m.

Policy NE 3.6: **Commercial Truck Idling**. Restrict truck idling near noise sensitive receptors.

Policy NE 3.7: **Automobile-Oriented Uses**. Require that parking structures, terminals, drive-through restaurants, automobile sales and repair, fueling stations, mini-marts, car washes, and similar automobile-oriented uses be sited and designed to minimize potential noise impacts on adjacent land uses.

Policy NE 3.8: **Entertainment Uses**. Minimize the generation of excessive noise from entertainment and restaurant/bar establishments into adjacent residential or noise-sensitive uses.

NE 4: Ground-Borne Vibration

Policy NE 4.1: **Sensitive Land Uses**. Avoid the placement of sensitive land uses adjacent to or within one-quarter mile of vibration-producing land uses.

Policy NE 4.2: **Vibration Producing Land Uses**. Avoid the placement of vibration-producing land uses adjacent to or within one-quarter mile of sensitive receptors.

Policy NE 4.3: **Truck Idling**. Restrict truck idling near sensitive vibration receptors.

Jurupa Valley Municipal Code

The City of Jurupa Valley Noise Ordinance is contained within the Jurupa Valley Municipal Code (Municipal Code) Title 11, Peace, Morals and Safety; Chapter 11.05, Noise Regulations. The Noise Ordinance contains general sound level standards for the intend of establishing City-wide standards regulating noise. The following sections of the City's Municipal Code are applicable to the proposed project.

Section 11.05.020 – Exemptions

Sound emanating from the following sources is exempt from the provisions of this chapter:

Section 11.05.020 (8) Private construction projects located one-quarter (1/4) of a mile or more from an inhabited dwelling;

Section 11.05.020 (9) Private construction projects located within one-quarter (1/4) of a mile from an inhabited dwelling, provided that:

a. Construction does not occur between the hours of six (6:00) p.m. and six (6:00) a.m. during the months of June through September;

b. Construction does not occur between the hours of six (6:00) p.m. and seven (7:00) a.m. during the months of October through May;

Section 11.05.020 (10) Property maintenance, including, but not limited to, the operation of lawnmowers, leaf blowers, etc., provided such maintenance occurs between the hours of seven (7:00) a.m. and eight (8:00) p.m.

Section 11.05.040 – General sound level standards.

No person shall create any sound, or allow the creation of any sound, on any property that causes the exterior sound level on any other occupied property to exceed the sound level standards set forth in Table 1 (Table 3, *Sound Level Standards [dB Lmax]*) of this section or that violates the special sound source standards set forth in Section 11.05.060.

Table 3
Sound Level Standards (dB Lmax)

General Plan Foundation Component	General Plan Land Use Designation	General Plan Land Use Designation Name	Density	Maximum Decibel Level	
				7:00 a.m. – 10:00 p.m.	10:00 p.m. – 7:00 a.m.
Community Development	EDR	Estate density residential	2 AC	55	45
	VLDR	Very low density residential	1 AC	55	45
	LDR	Low density residential	1/2 AC	55	45
	MDR	Medium density residential	2 – 5	55	45
	MHDR	Medium high density residential	5 – 8	55	45
	HDR	High density residential	8 – 14	55	45
	VHDR	Very high density residential	14 – 20	55	45
	HTDR	Highest density residential	20+	55	45
	CR	Retail commercial		65	55
	CO	Office commercial		65	55
	CT	Tourist commercial		65	55
	CC	Community Center		65	55
	I	Light Industrial		75	55
	HI	Heavy Industrial		75	75
	BP	Business park		65	45
	PF	Public Facility		65	45
	SP	Specific plan – residential		55	45
		Specific plan – Commercial		65	55
		Specific plan – Light industrial		75	55
		Specific plan – Heavy industrial		75	75
Rural Community	EDR	Estate density residential	2 AC	55	45
		Very low density residential	AC	55	45
		Low density residential	1/2 AC	55	45
Rural	RR	Rural residential	5 AC	45	45
	RM	Rural mountainous	10 AC	45	45
	RD	Rural desert	0 AC	45	45
Agriculture	AG	Agriculture	10 AC	45	45
Open Space	C	Conservation		45	45
	CH	Conservation habitat		45	45
	REC	Recreation		45	45
	RUR	Rural	20 AC	45	45
	W	Watershed		45	45
	MR	Mineral resources		75	45

Source: Jurupa Valley Municipal Code, Chapter 11.05, Noise Regulations, *Table 1, Sound Level Standards (Db Lmax)*, 2012.

Section 11.05.060 - Special sound sources standards.

The general sound level standards set forth in Section 11.05.040 apply to sound emanating from all sources, including the following special sound sources, and the person creating, or allowing the creation of, the sound is subject to the requirements of that section. The following special sound sources are also subject to the following additional standards, the failure to comply with which constitute separate violations of this chapter:

1) Motor vehicles.

   a) Off-highway vehicles.

      i) No person shall operate an off-highway vehicle unless it is equipped with a USDA-qualified spark arrester and a constantly operating and properly maintained muffler. A muffler is not considered constantly operating and properly maintained if it is equipped with a cutout, bypass or similar device.

      ii) No person shall operate an off-highway vehicle unless the noise emitted by the vehicle is not more than ninety-six (96) dBA if the vehicle was manufactured on or after January 1, 1986, or is not more than one hundred and one (101) dBA if the vehicle was manufactured before January 1, 1986. For purposes of this subsection, emitted noise shall be measured a distance of twenty (20) inches from the vehicle tailpipe using test procedures established by the Society of Automotive Engineers under Standard J-1287.

   b) Sound systems. No person shall operate a motor vehicle sound system, whether affixed to the vehicle or not, between the hours of ten (10:00) p.m. and eight (8:00) a.m., such that the sound system is audible to the human ear inside any inhabited dwelling. No person shall operate a motor vehicle sound system, whether affixed to the vehicle or not, at any other time such that the sound system is audible to the human ear at a distance greater than one hundred (100) feet from the vehicle. Sound level measurements may be used, but are not required to establish a violation of this subsection.

2) Power tools and equipment. No person shall operate any power tools or equipment between the hours of ten (10:00) p.m. and eight (8:00) a.m. such that the power tools or equipment are audible to the human ear inside an inhabited dwelling other than a dwelling in which the power tools or equipment may be located. No person shall operate any power tools or equipment at any other time such that the power tools or equipment are audible to the human ear at a distance greater than one hundred (100) feet from the power tools or equipment. Sound level measurements may be used, but are not required to establish a violation of this subsection.

3) Audio equipment. No person shall operate any audio equipment, whether portable or not, such that the equipment is audible to the human ear at a distance greater than one hundred (100) feet from the equipment. Sound level measurements may be used, but are not required to establish a violation of this subsection.

4) Sound-amplifying equipment and live music. No person shall install, use or operate sound-amplifying equipment, or perform, or allow to be performed, live music if the sound emanating from sound-amplifying equipment or live music is audible to the human ear at a distance greater than one hundred (100) feet from the equipment or music. To the extent that these requirements conflict with any conditions of approval attached to an underlying land use permit, these requirements shall control. Sound level measurements may be used, but are not required to establish a violation of this subsection.

Section 11.05.070 – Exceptions

Exceptions may be requested from the standards set forth in Section 11.10.040 or 11.10.060 of this chapter and may be characterized as construction-related or continuous-events exceptions.

1) Application and processing.

    a) Construction-related exceptions. An application for a construction-related exception shall be made to and considered by the Building Official of the city on forms provided by the Building and Safety Division and shall be accompanied by the appropriate filing fee. No public hearing is required.

    b) Continuous events exceptions. An application for a continuous events exception shall be made to the Community Development Director on forms provided by the Planning Department and shall be accompanied by the appropriate filing fee. Upon receipt of an application for a continuous events exception, the Community Development Director shall set the matter for public hearing before the Planning Commission, notice of which shall be given as provided in Section 9.240.250 of this Code. Notwithstanding the above, an application for a continuous events exception that is associated with an application for a land use permit shall be processed concurrently with the land use permit in the same manner that the land use permit is required to be processed.

2) Requirements for approval. The appropriate decision-making body or officer shall not approve an exception application unless the applicant demonstrates that the activities described in the application would not be detrimental to the health, safety or general welfare of the community. In determining whether activities are detrimental to the health, safety or general welfare of the community, the appropriate decision-making body or officer shall consider such factors as the proposed duration of the activities and their location in relation to sensitive receptors. If an exception application is approved, reasonable conditions may be imposed to minimize the public detriment, including, but not limited to, restrictions on sound level, sound duration and operating hours.

3) Appeals. The Building Official's decision on an application for a construction-relation exception is considered final. After making a decision on an application for a continuous-events exception, the appropriate decision-making body or officer shall mail notice of the decision to the applicant. Within ten (10) calendar days after the mailing of such notice, the applicant or interested person may appeal the decision pursuant to and in accordance with the provisions of Chapter 2.40 of this Code.

EXISTING NOISE SETTING

Noise Sensitive Receptors

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, historic sites, cemeteries, and recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

The nearest sensitive receptors are residential uses located approximately 120 feet north of the project site and 140 feet south of the project site, and an elementary school (Rustic Lane Elementary School) located approximately 50 feet southwest of the project site.

Existing Stationary Noise Levels

The project area is located within an urbanized area. The primary sources of stationary noise in the project vicinity are urban-related activities (i.e., mechanical equipment, parking areas, etc.). The noise associated with these sources may represent a single-event noise occurrence, short-term, or long-term/continuous noise.

Existing Ambient Noise Levels

In order to quantify existing ambient noise levels in the project area, Michael Baker International (Michael Baker) conducted three noise measurements on December 8, 2021; refer to Table 4, *Noise Measurements* and Appendix A, *Noise Data*. The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the project site. The ten-minute measurements were taken between 10:30 a.m. and 12:00 p.m. Short-term (L_{eq}) measurements are considered representative of the noise levels throughout the day. The noise measurements were taken during "off-peak" (9:00 a.m. through 3:00 p.m.) traffic noise hours as this provides a more conservative baseline. During rush hour traffic, vehicle speeds and heavy truck volumes are often low. Free-flowing traffic conditions just before or after rush hour often yield higher noise levels.[3]

Table 4
Noise Measurements

Site No.	Location	L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)	Peak (dBA)	Time
1	In front of 6366 Stobbs Way, left side of the mailbox.	60.5	45.9	84.8	99.5	10:58 a.m.
2	Southeast corner of 6353 Mission Boulevard, along sidewalk of the Mission Boulevard	71.8	51.5	88.4	106.4	11:15 a.m.
3	In front of 6412 Stobbs Way, along the eastern fence of Rustic Lane Elementary School.	57.0	43.5	78.8	92.9	11:35 a.m.

Source: Michael Baker International, December 8, 2021.

Meteorological conditions consisted of clear skies, warm temperatures, with light wind speeds (0 to 2 miles per hour), and low humidity. Measured daytime noise levels ranged from 57.0 to 71.8 dBA L_{eq}. The sources of peak noise are the traffic along Mission Boulevard and dogs barking. Noise monitoring equipment used for the ambient noise survey consisted of a Brüel & Kjær Hand-held Analyzer Type 2250 equipped with a Type 4189 pre-polarized microphone. The monitoring equipment complies with applicable requirements of the American National Standards Institute (ANSI) for Type I (precision) sound level meters.

[3] California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) THRESHOLDS

The environmental analysis in this memorandum is patterned after the Initial Study Checklist recommended by the *CEQA Guidelines*. The issues presented in the Initial Study Checklist have been utilized as thresholds of significance in this section. Accordingly, a project may have a significant adverse impact related to noise and vibration if it would do any of the following:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies (refer to Impact NOI-1);

- Generation of excessive groundborne vibration or groundborne noise levels (refer to Impact NOI-2); and/or

- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels (refer to Impact NOI-3).

IMPACT ANALYSIS

Impact NOI-1 Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant Impact. It is difficult to specify noise levels that are generally acceptable to everyone; what is annoying to one person may be unnoticed by another. Standards may be based on documented complaints in response to documented noise levels, or based on studies of the ability of people to sleep, talk, or work under various noise conditions. However, all such studies recognize that individual responses vary considerably. Standards usually address the needs of the majority of the general population. The City's General Plan Noise Element and Municipal Code establish guidelines and regulations for controlling both construction and operational noise in the City.

Construction Noise Impacts

Construction of the proposed project would occur over approximately 10 months and would include demolition, grading, building construction, paving, and architectural coatings. Ground-borne noise and other types of construction-related noise impacts would typically occur during the earthwork phase. This phase of construction has the potential to create the highest levels of noise. Typical noise levels generated by construction equipment are shown in Table 5, *Maximum Noise Levels Generated by Construction Equipment*. Operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be due to random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts).

Table 5
Maximum Noise Levels Generated by Construction Equipment

Type of Equipment	Reference L_{max} at 50 Feet (dBA)	L_{max} at 120 Feet (dBA)
Backhoe	78	70
Compressor	78	70
Concrete Mixer Truck	79	71
Concrete Saw	90	82
Crane	79	71
Dozer	82	74
Forklift	78	70
Generator	81	73
Grader	85	77
Loader	79	71
Paver	77	69
Roller	80	72
Tractor	84	76
Welder	74	66

Source: Federal Highway Administration, *Roadway Construction Noise Model* (*FHWA-HEP-05-054*), January 2006.

As construction is proposed up to the project property lines, the nearest sensitive receptors would be located approximately 120 feet north of the of the project site. As shown in Table 5, these sensitive uses may be exposed to elevated noise levels during project construction. It should be noted that the noise levels identified in Table 5 are maximum sound levels (L_{max}), which are the highest individual sound occurring at an individual time period. The City's Municipal Code does not establish quantitative construction noise standards. Instead, the Municipal Code have established unallowable hours of construction (6:00 a.m. to 6:00 p.m. during the months of June through September and 7:00 a.m. to 6:00 p.m. during the months of October through May), of which the proposed project would adhere. Thus, construction activities would be conducted during allowable daytime hours, per the City's Municipal Code. These permitted hours of construction are required in recognition that construction activities undertaken during daytime hours are a typical part of living in an urban environment and do not cause a significant disruption.

Long-Term Operational Noise Impacts

Off-Site Mobile Noise

Future development generated by the proposed project would result in additional traffic on adjacent roadways, thereby increasing vehicular noise in the vicinity of existing and proposed land uses. According to the *Highway Traffic Noise Analysis and Abatement Policy and Guidance*, a doubling of traffic volumes would result in a 3 dB increase in traffic noise levels, which is barely detectable by the human ear.[4] According to the *Mission Village Shopping Center Transportation Impact Analysis* (Transportation Impact Analysis) developed by Translutions, Inc. (dated May 2022)[5], the proposed project would generate 4,659

[4] U.S. Department of Transportation, *Highway Traffic Noise Analysis and Abatement Policy and Guidance*, updated August 24, 2017, https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm, accessed August 25, 2022.

[5] Translutions, Inc., *Mission Village Shopping Center Transportation Impact Analysis*, May 2022.

daily trips, including 239 a.m. peak hour trips and 428 p.m. peak hour trips during weekdays, and 534 Saturday peak hour trips. Table 5, *Existing and Project Traffic Volumes* depicts existing and project generated peak hour intersection traffic volumes in the project vicinity. As shown in Table 5, existing peak hour intersection traffic volumes would range from 625 to 2,034 during the weekday a.m. peak hour, 490 to 2,182 during the weekday p.m. peak hour, and 359 to 2,301 during Saturday peak hour. As the project would generate 239 a.m. peak hour trips and 428 p.m. peak hour trips during weekdays, and 534 Saturday peak hour trips, the project would not double peak hour intersection traffic volumes. Thus, any increase in traffic noise along local roadways would be imperceptible and impacts would be less than significant.

Table 5
Existing and Project Traffic Volumes

Segment	Existing	Project	Doubling of Traffic Volumes?
Peak Hour Intersection Traffic Volumes			
Mission Boulevard/Golden West Avenue/Canal Street	1,870 a.m.	144 a.m.	No
	2,182 p.m.	257 p.m.	No
	1,927 Sat	320 Sat	No
Mission Boulevard/Stobbs Way	1,602 a.m.	233 a.m.	No
	1,845 p.m.	393 p.m.	No
	1,605 Sat	480 Sat	No
Mission Boulevard/Opal Street	2,034 a.m.	174 a.m.	No
	2,158 p.m.	331 p.m.	No
	2,301 Sat	394 Sat	No
Mission Boulevard/Pacific Avenue	1,916 a.m.	72 a.m.	No
	2,166 p.m.	129 p.m.	No
	1,849 Sat	159 Sat	No
Stobbs Way/Opal Street	625 a.m.	95 a.m.	No
	490 p.m.	187 p.m.	No
	359 Sat	226 Sat	No

Sources: Existing and project traffic data is from the *Mission Village Shopping Center Transportation Impact*, prepared by Translutions, Inc., May 2022.

Cumulative Mobile Source Impacts

A project's contribution to a cumulative traffic noise increase would be considered significant when the combined effect exceeds perception level (i.e., auditory level increase) threshold. The combined effect accounts for the traffic noise increase generated by a project combined with the traffic noise increase generated by related projects in the City. In addition, although there may be a significant noise increase due to the proposed project in combination with other related projects (combined effects), it must also be demonstrated that the project has an incremental effect. In other words, a significant portion of the noise increase must be due to the proposed project. A significant impact would result only if both the combined (including an exceedance of the applicable exterior standard at a sensitive use) and incremental effects criteria have been exceeded. Noise by definition is a localized phenomenon and reduces as distance from the source increases. Consequently, only the proposed project and growth due to projects occurring in the project site's general vicinity would contribute to cumulative noise impacts.

According to the Transportation Impact Analysis Appendix E, cumulative projects would generate a total of 43,972 daily trips. According to the Transportation Impact Analysis, the project would generate 4,659 daily

trips, which would be approximately 10.6 percent of the total cumulative projects' daily trips. Due to the low level of project-generated daily trips compared to cumulative projects, the project would not cause an audible (3 dBA) increase to traffic noise levels, and an incremental effect would not occur. Therefore, the proposed project, in combination with cumulative background traffic noise levels, would result in less than significant cumulative impacts.

Stationary Noise

Stationary noise sources associated with the proposed project would include mechanical equipment, slow-moving trucks, back-up alarms, drive-thru operations, and parking lot activities. These noise sources are typically intermittent and short in duration and would be comparable to existing sources of noise experienced in the site vicinity.

Mechanical Equipment

Heating Ventilation and Air Conditioning (HVAC) units would be installed on the roofs of the proposed buildings of the shopping center. Typically, mechanical equipment noise is 55 dBA at 50 feet from the source.[6] Based upon the Inverse Square Law, sound levels decrease by 6 dBA for each doubling of distance from the source.[7] The nearest sensitive receptors are single-family residential uses located approximately 200 feet to the south of the closest proposed building on-site. At this distance, potential noise from HVAC units would be approximately 43 dBA. Therefore, HVAC noise levels would not be audible above existing ambient noise levels; refer to Table 3. Additionally, noise levels from mechanical equipment would not exceed the City's noise standards of 55 dBA during daytime and 45 dBA during nighttime for residential uses as established in Municipal Code Section 11.05.040; refer to Table 4. Therefore, the nearest residents would not be directly exposed to substantial noise from on-site mechanical equipment. Impacts in this regard would be less than significant.

Slow-Moving Trucks

The proposed project may involve occasional deliveries and trash/recycling pickups from slow-moving trucks. Typically, a medium 2-axle truck used to make deliveries can generate a maximum noise level of 75 dBA at a distance of 50 feet.[8] These are levels generated by a truck that is operated by an experienced driver with typically applied accelerations. Higher noise levels may be generated by the excessive application of power. Lower levels may be achieved, but would not be considered representative of a nominal truck operation. Truck deliveries to the project site would be less than 15 trips per day and generally consist of small and medium trucks or vans. Therefore, truck deliveries would not generate excessive noise levels over an extended period of time. Impacts resulting from truck delivery activities would be less than significant.

Back-Up Alarms

The project would provide three truck loading docks for the proposed retail and grocery stores located on the south side of the project site. Medium- and heavy-duty trucks reversing into truck loading docks would

[6] Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, July 6, 2010.

[7] Cyril M. Harris, *Noise Control in Buildings*, 1994.

[8] Measurements taken by Michael Baker International, 2006.

produce noise from back-up alarms (also known as back-up beepers). Back-up beepers produce a typical volume of 97 dBA at one meter (i.e., 3.28 feet) from the source.[9] The nearest sensitive receptors (i.e., residences to the south of the project site) would be located approximately 180 feet south of the truck loading docks where trucks would be reversing/parking. At this distance, exterior noise levels from back-up beepers would be approximately 62 dBA. In addition, the project would construct a six-foot-high wall along the southern boundary of the project site, which would completely block the line-of-sight between the loading docks and the nearest sensitive receptors and would provide a noise attenuation of 8 dBA[10] from back-up beeper noise, resulting in an exterior noise level of approximately 54 dBA. Therefore, bark-up alarm noise levels would not be audible above existing ambient noise levels; refer to Table 3. Additionally, noise from back-up alarms would not exceed the City's noise standards of 55 dBA during daytime for residential uses as established in Municipal Code Section 11.05.040; refer to Table 4. Thus, noise impacts from back-up alarms associated with the project would be less than significant.

Drive-Thru Operations

The project includes a restaurant with a two-lane drive-thru. Noise levels from drive-thru operations would be primarily from the drive-thru speakerphone, located on the northern portion of the project site. According to the *Drive-Thru Sound Levels* white paper prepared by HM Electronics (May 24, 2010), the typical noise level associated with active drive-thru operations is 54 dBA L_{eq} at a distance of 32 feet.[11] The closest sensitive receptors to the project site are residential uses located approximately 120 feet to the north of the project site boundary, which would be approximately 160 feet from the proposed drive-thru speakerphone (at a distance of 160 feet, 54 dBA L_{eq} would be reduced to 40 dBA L_{eq}). Speakerphone noise would be masked by background noise from traffic along Mission Boulevard. Therefore, speakerphone noise levels would not be audible above existing ambient noise levels; refer to Table 3. Further, drive-thru noise levels would not exceed the City's noise standards of 55 dBA during daytime for residential uses as established in Municipal Code Section 11.05.040; refer to Table 4. Therefore, impacts would be less than significant in this regard.

Parking Lot Activities

The proposed project would include a surface parking lot. Traffic associated with parking lots is typically not of sufficient volume to exceed community noise standards, which are based on a time-averaged scale such as the CNEL scale. However, the instantaneous maximum sound levels generated by a car door slamming, engine starting up and car pass-bys may be an annoyance to adjacent noise-sensitive receptors. Estimates of the maximum noise levels associated with the parking lot activities attributed to the project are presented in Table 6, *Maximum Noise Levels Generated by Parking Lots*.

[9] Environmental Health Perspectives, *Vehicle Motion Alarms: Necessity, Noise Pollution, or Both?* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3018517/, accessed August 26, 2022.

[10] Federal Highway Administration, *Roadway Construction Noise Model User's Guide Appendix A*, January 2006.

[11] HM Electronics, Inc., *Memo, Re: Drive-Thru Sound Pressure Levels From the Menu Board or Speaker Post*, May 24, 2010.

Table 6
Maximum Noise Levels Generated by Parking Lots

Noise Source	Maximum Noise Levels at 50 Feet from Source
Car door slamming	61 dBA L_{eq}
Car starting	60 dBA L_{eq}
Car idling	53 dBA L_{eq}
Source: Kariel, H. G., *Noise in Rural Recreational Environments*, Canadian Acoustics 19(5), 3-10, 1991.	

As shown in Table 6, parking lot activities can result in noise levels up to 61 dBA at a distance of 50 feet. It is noted that parking lot noise are instantaneous noise levels compared to noise standards in the CNEL scale, which are averaged over time. As a result, actual noise levels over time resulting from parking lot activities would be far lower than what is identified in Table 6. The proposed parking lot would have intermittent parking lot noise due to the movement of vehicles. The nearest sensitive receptors would be located approximately 240 feet to the north of the surface parking lot. At this distance, noise levels from parking activities would range from 39 to 47 dBA. Therefore, parking lot noise levels would not be audible above existing ambient noise levels; refer to Table 3. Additionally, parking lot noise would be partially masked by background noise from traffic along Mission Boulevard. Therefore, noise associated with parking activities would not be audible to nearest sensitive receptors. Impacts would be less than significant in this regard.

Mitigation Measures: No mitigation is required.

Impact NOI-2 Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact With Mitigation.

Project construction can generate varying degrees of groundborne vibration, depending on the construction procedure and the construction equipment used. Operation of some heavy-duty construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of the construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Groundborne vibrations from construction activities rarely reach levels that damage structures.

The Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Manual* identifies various vibration damage criteria for different building classes. This evaluation uses the FTA architectural damage threshold for continuous vibrations at engineered concrete and masonry buildings of 0.2 inch-per-second PPV. As the nearest structures to the project site are commercial structures, this threshold is considered appropriate. The types of construction vibration impact include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural. The vibration produced by construction equipment, is illustrated in Table 7, *Typical Vibration Levels for Construction Equipment*.

Table 7
Typical Vibration Levels for Construction Equipment

Equipment	Reference peak particle velocity at 25 feet (inch-per-second)	Approximate peak particle velocity at 100 feet (inch-per-second)[1]
Jackhammer	0.035	0.0044
Large bulldozer	0.089	0.0111
Loaded trucks	0.076	0.0095
Small bulldozer	0.003	0.0004

Notes:
1. Calculated using the following formula:

$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

where: PPV (equip) = the peak particle velocity in inch-per-second of the equipment adjusted for the distance
PPV (ref) = the reference vibration level in inch-per-second from Table 7-4 of the FTA *Transit Noise and Vibration Impact Assessment Manual*
D = the distance from the equipment to the receiver

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

Groundborne vibration decreases rapidly with distance. As indicated in Table 7, based on the FTA data, vibration velocities from typical heavy construction equipment operations that would be used during project construction range from 0.003 to 0.089 inch/second PPV at 25 feet from the source of activity. The nearest structure is located approximately 100 feet to the southwest of the project site. As shown in Table 7, the vibration velocities at the nearest structure ranges from 0.0004 to 0.0111 inch/second PPV. As such, the construction activities would not be capable of exceeding the 0.2 inch/second PPV significance threshold for vibration to the nearest structure and a less than significant impact would occur in this regard.

Operational Vibration Impacts

Operation of the project would not include or require equipment, facilities, or activities that would result in perceptible groundborne vibration. According to the FTA, it is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. As such, it can be reasonably inferred that project operations would not create perceptible vibration impacts to the nearest sensitive receptors. A less than significant impact would occur in this regard.

Mitigation Measures: No mitigation is required.

Impact NOI-3 For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Less Than Significant Impact. The public airport nearest to the project site is the Flabob Airport located approximately 1.3 miles to the southeast of the project site. According to the Riverside County Airport

Land Use Commission (ALUC), the project site is not located within the Flabob Airport noise contours.[12] Additionally, the project site is not located within the vicinity of a private airstrip. Thus, the project would not expose substantial numbers of people to excessive noise levels from airports and impacts would be less than significant.

Mitigation Measures: No mitigation is required.

[12] Riverside County Airport Land Use Commission, *Background Data: Flabob Airport and Environs*, https://www.rcaluc.org/Portals/13/PDFGeneral/plan/newplan/38-%20Vol.%202%20Flabob.pdf, accessed August 25, 2022.

REFERENCES

Documents

1. California Department of Transportation, *Transportation Related Earthborne Vibrations*, 2002.

2. City of Jurupa Valley, *2017 General Plan*, September 2017.

3. City of Jurupa Valley, *City of Jurupa Valley Zoning Map*, January 3, 2019.

4. Cyril M. Harris, *Noise Control in Buildings*, 1994.

5. Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, July 6, 2010.

6. Environmental Health Perspectives, *Vehicle Motion Alarms: Necessity, Noise Pollution, or Both?* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3018517/, accessed August 26, 2022.

7. Federal Highway Administration, *Roadway Construction Noise Model (FHWA-HEP-05-054)*, January 2006.

8. Federal Highway Administration, *Roadway Construction Noise Model User's Guide Appendix A*, January 2006.

9. Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

10. HM Electronics, Inc., *Memo, Re: Drive-Thru Sound Pressure Levels From the Menu Board or Speaker Post*, May 24, 2010.

11. Kariel, H. G., *Noise in Rural Recreational Environments*, Canadian Acoustics 19(5), 3-10, 1991.

12. Riverside County Airport Land Use Commission, *Background Data: Flabob Airport and Environs*, https://www.rcaluc.org/Portals/13/PDFGeneral/plan/newplan/38-%20Vol.%202%20Flabob.pdf, accessed January 6, 2022.

13. Translutions, Inc., *Mission Village Shopping Center Transportation Impact Analysis*, May 2022.

14. U.S. Department of Transportation, *Highway Traffic Noise Analysis and Abatement Policy and Guidance*, updated August 24, 2017, https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm, accessed August 25, 2022.

Websites / Programs

1. Google Earth, 2022.

Appendix A
Noise Data

Site Number: NM-1			
Recorded By: Winnie Woo, Tina Yuan			
Job Number: 186614			
Date: 12/8/2021			
Time: 10:58 a.m.			
Location: In front of 6366 Stobbs Way, left side of the mailbox.			
Source of Peak Noise: Dog Barking, traffic thru Stobbs Way.			
Noise Data			
Leq (dB)	**Lmax(dB)**	**Lmin (dB)**	**Peak (dB)**
60.5	84.8	45.9	99.5

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Brüel & Kjær**	**2250**	**3011133**	**09/09/2021**	
	Microphone	**Brüel & Kjær**	**4189**	**3086765**	**09/09/2021**	
	Preamp	**Brüel & Kjær**	**ZC 0032**	**25380**	**09/09/2021**	
	Calibrator	**Brüel & Kjær**	**4231**	**2545667**	**09/09/2021**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Clear
	Note: dBA Offset = -0.01		**Sensor Height (ft):** 5 ft
	Wind Ave Speed (mph / m/s)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (inches)**
	2 mph	58	30.04

Photo of Measurement Location

2250

Instrument:		2250
Application:		BZ7225 Version 4.7.6
Start Time:		12/08/2021 10:58:36
End Time:		12/08/2021 11:08:36
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		142.13

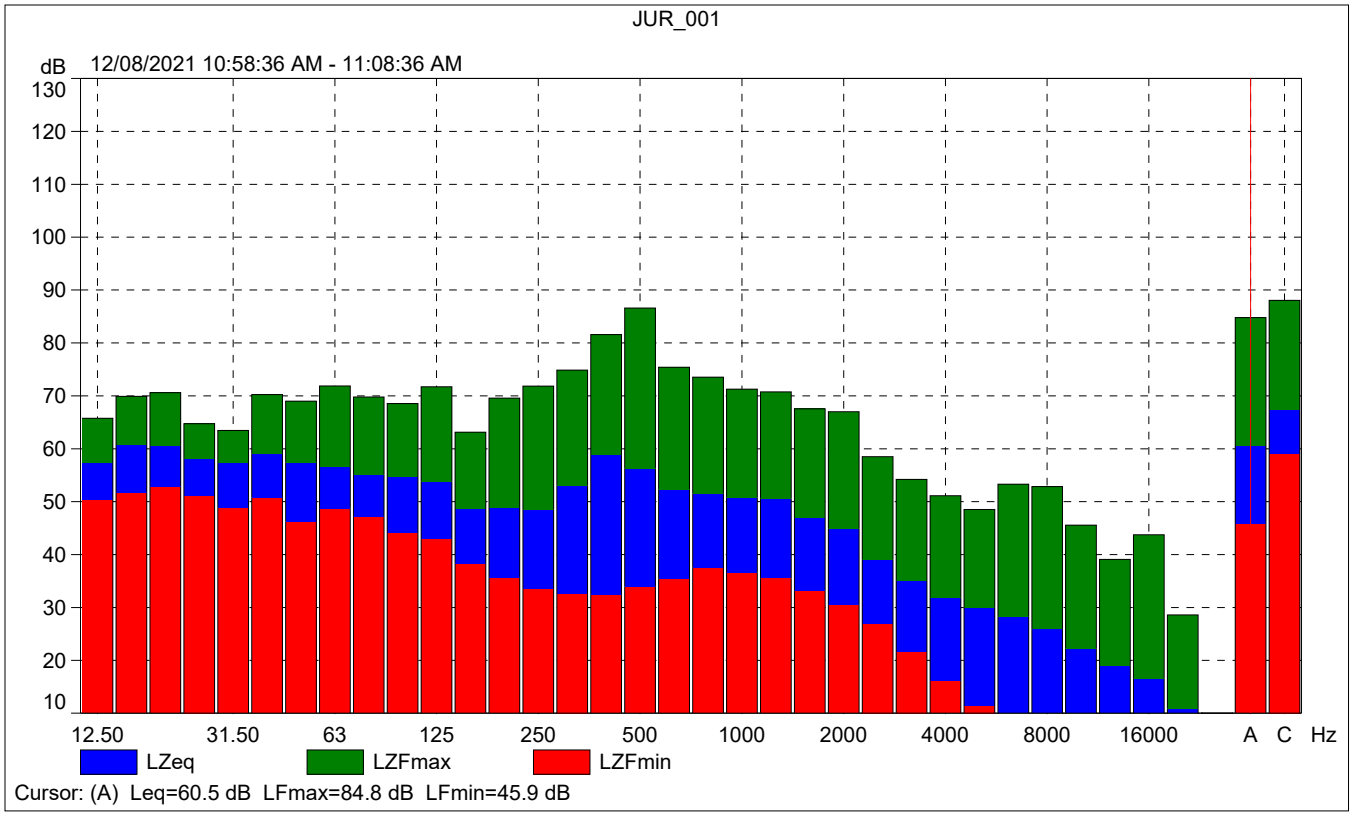
	Time	Frequency
Broadband (excl. Peak):	FSI	AC
Broadband Peak:		C
Spectrum:	FS	Z

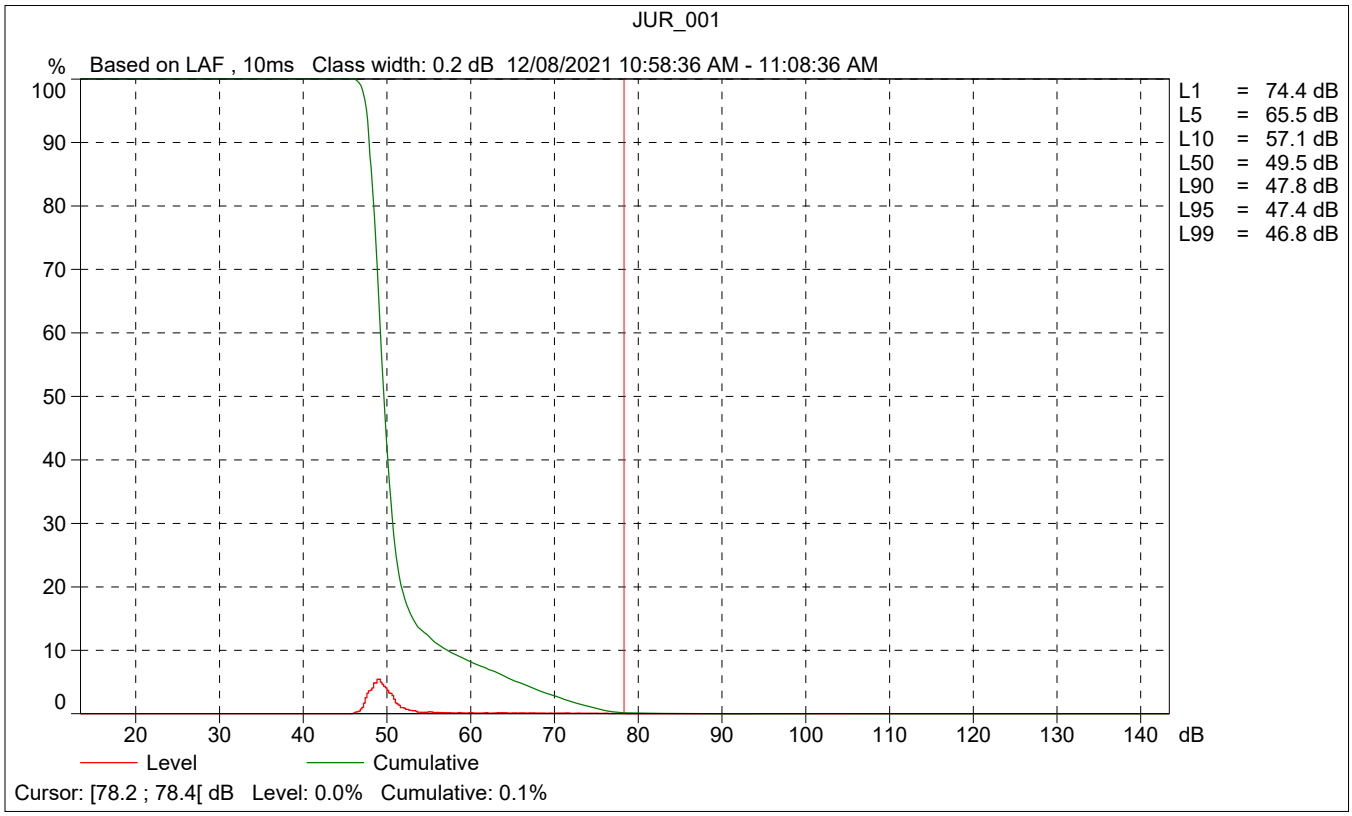
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		UA-1650
Sound Field Correction:		Free-field

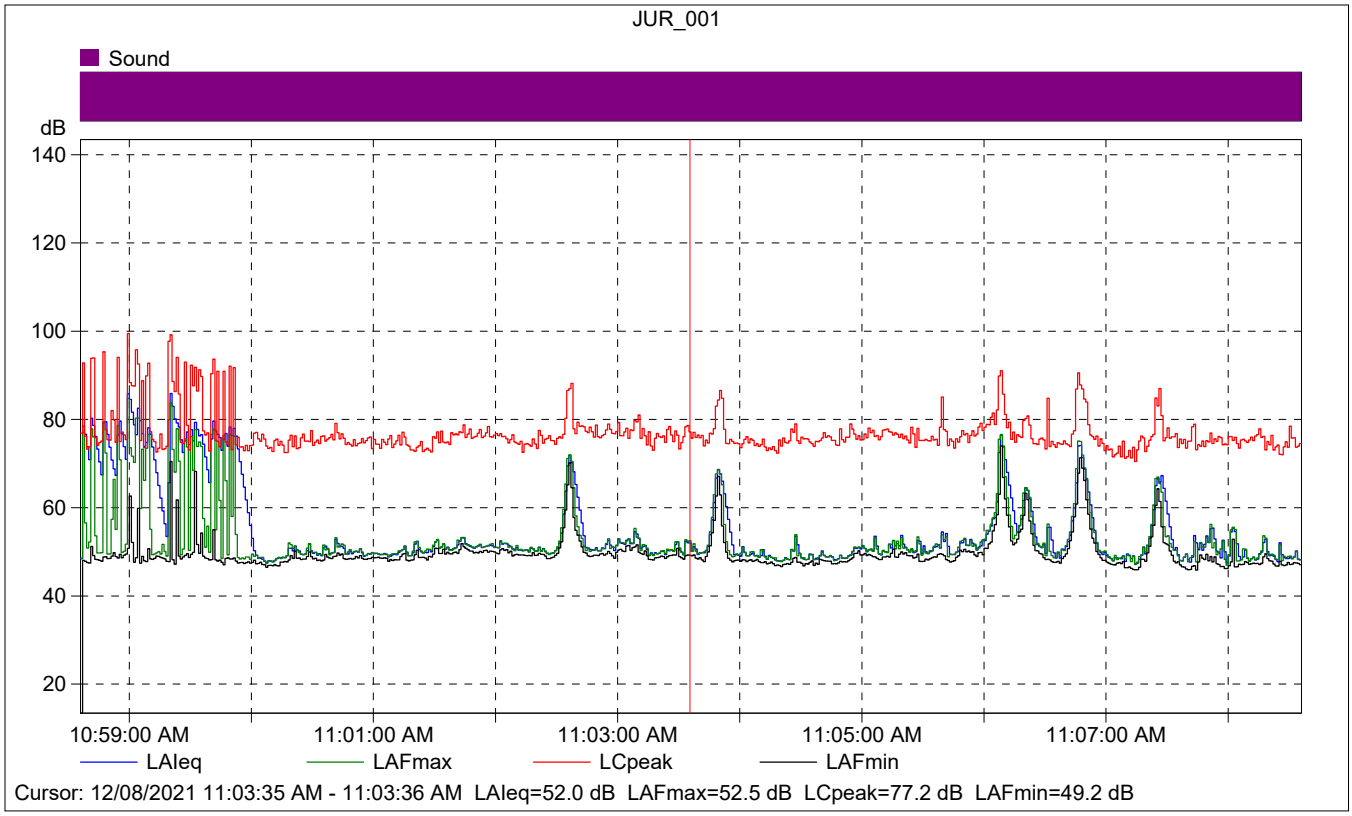
Calibration Time:		12/08/2021 10:57:24
Calibration Type:		External reference
Sensitivity:		43.5732565820217 mV/Pa

JUR_001

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	60.5	84.8	45.9
Time	10:58:36 AM	11:08:36 AM	0:10:00				
Date	12/08/2021	12/08/2021					

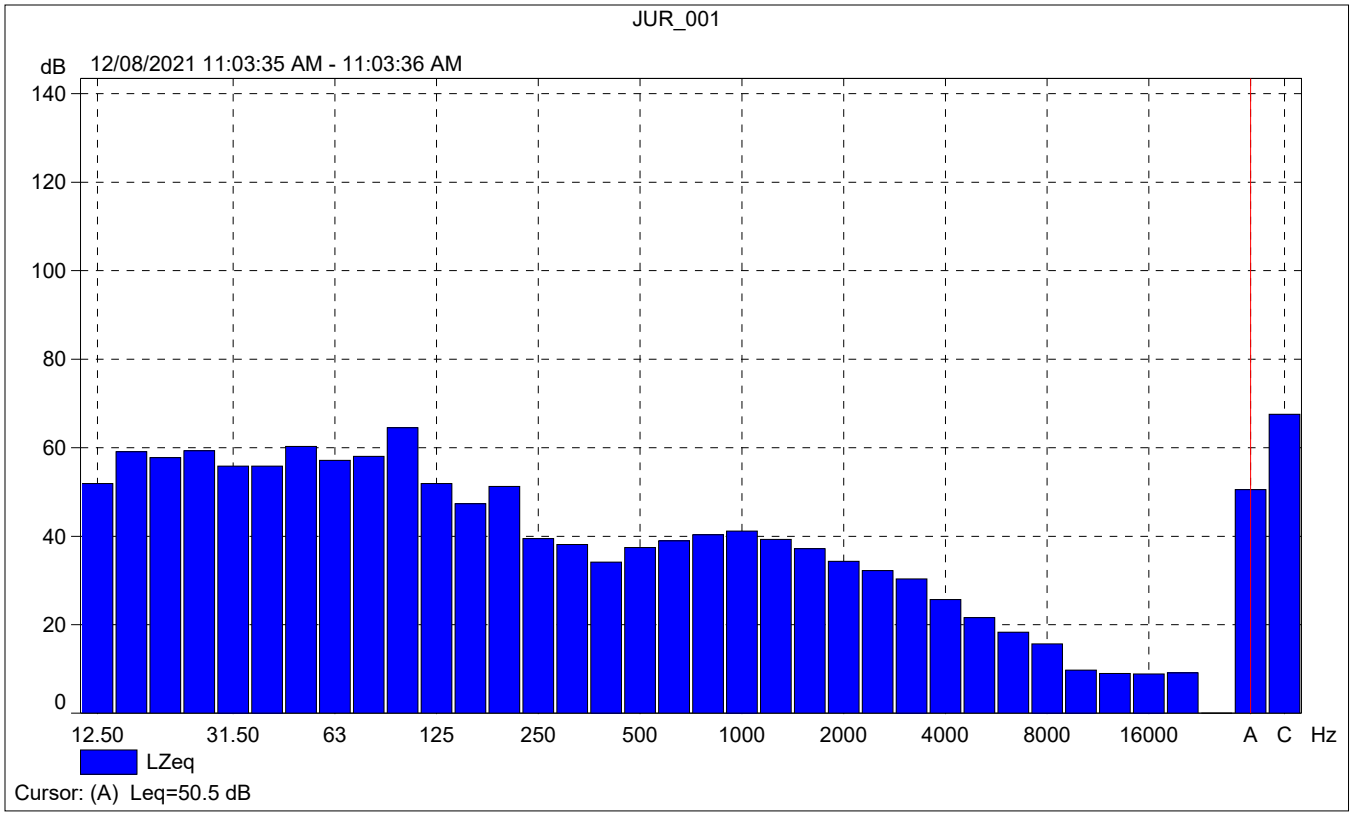

JUR_001
dB
12/08/2021 10:58:36 AM - 11:08:36 AM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=60.5 dB LFmax=84.8 dB LFmin=45.9 dB

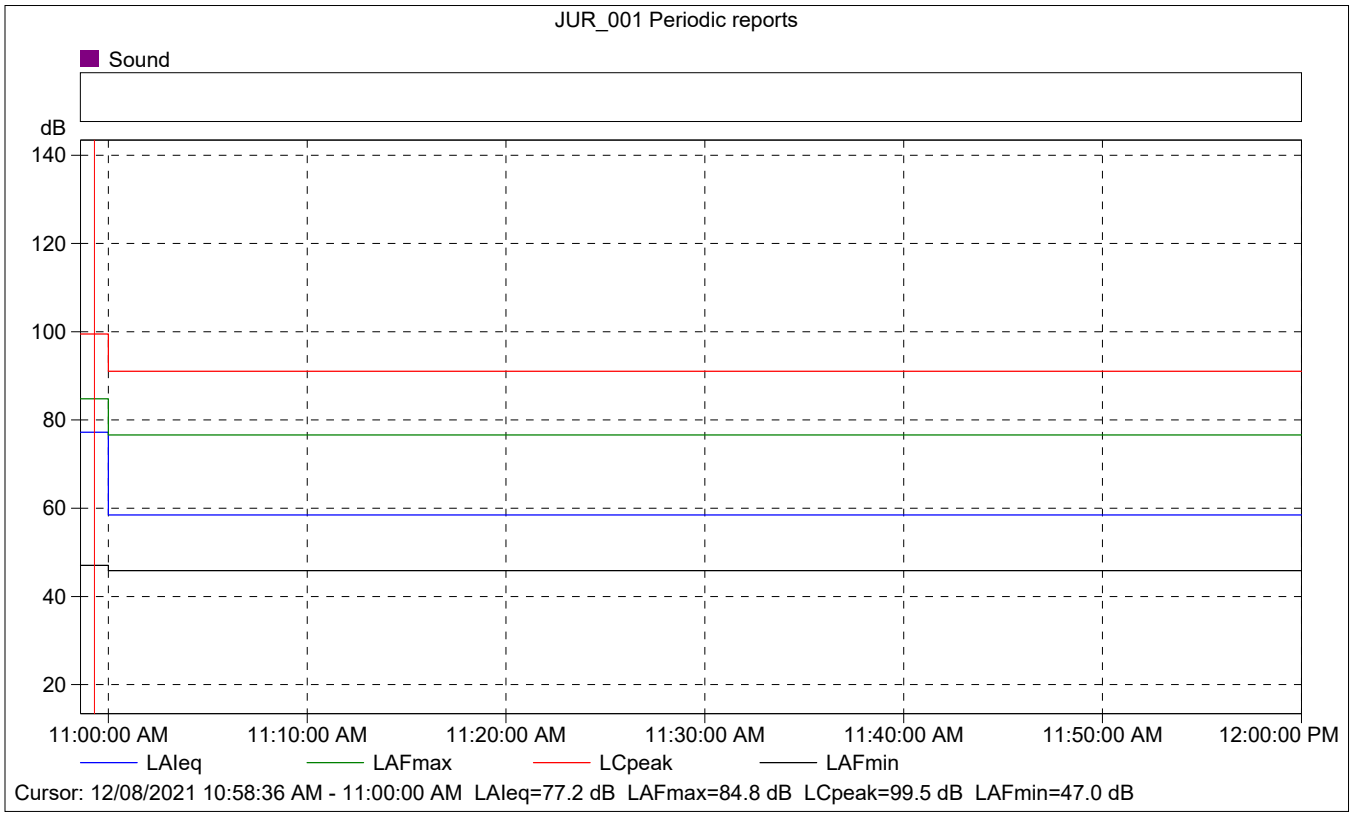

JUR_001
%
Based on LAF , 10ms Class width: 0.2 dB 12/08/2021 10:58:36 AM - 11:08:36 AM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 74.4 dB
L5 = 65.5 dB
L10 = 57.1 dB
L50 = 49.5 dB
L90 = 47.8 dB
L95 = 47.4 dB
L99 = 46.8 dB
Level
Cumulative
Cursor: [78.2 ; 78.4[dB Level: 0.0% Cumulative: 0.1%



JUR_001

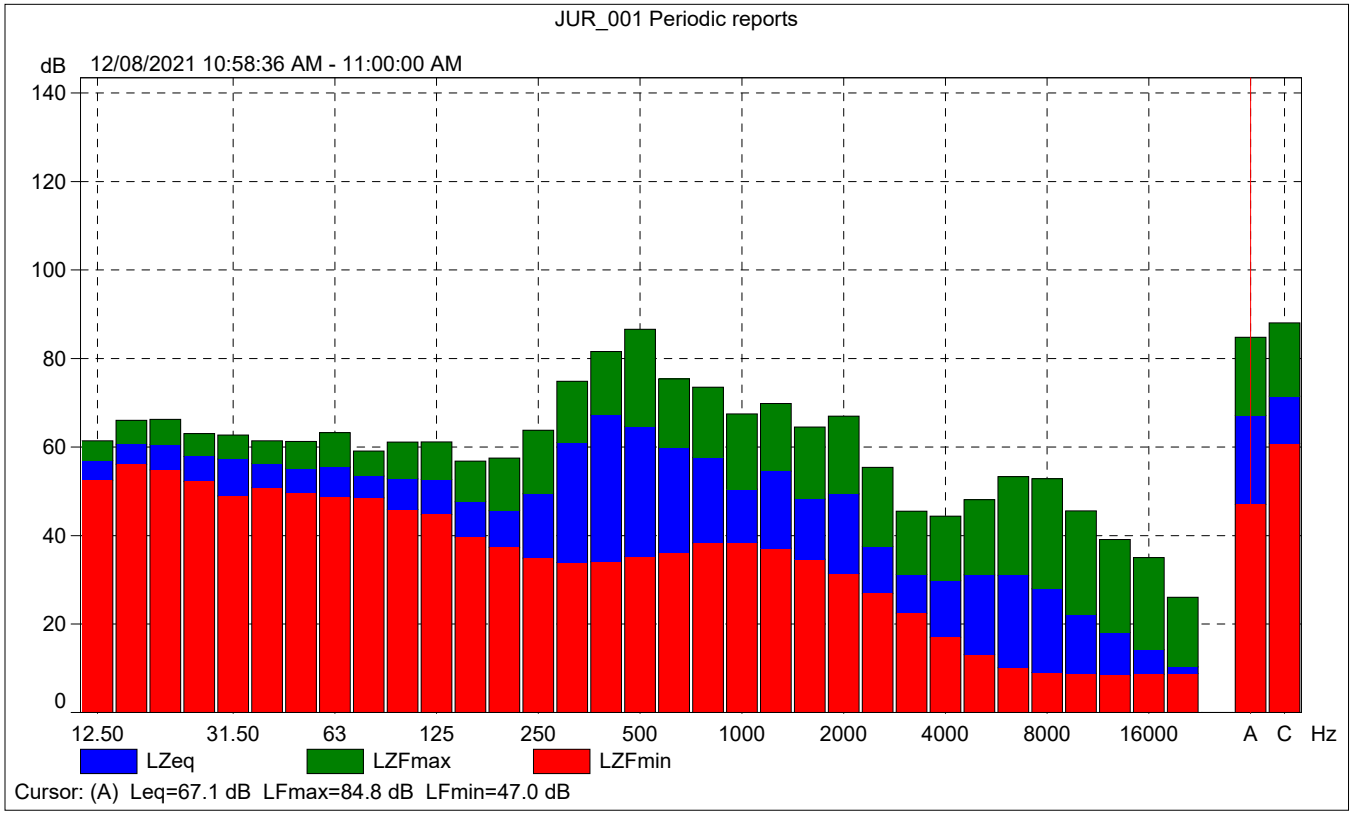
	Start time	Elapsed time	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			52.0	52.5	49.2
Time	11:03:35 AM	0:00:01			
Date	12/08/2021				

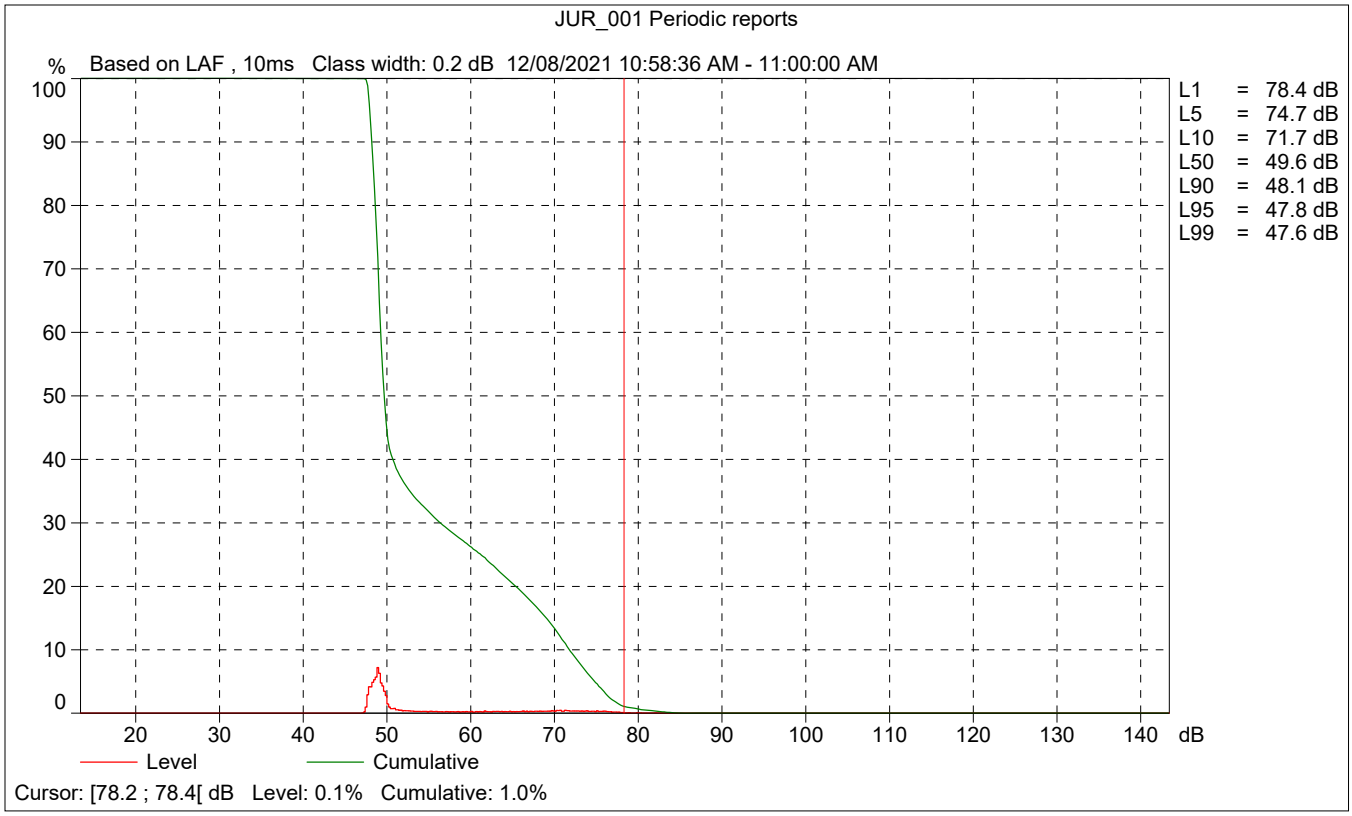

JUR_001
dB
12/08/2021 11:03:35 AM - 11:03:36 AM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
Cursor: (A) Leq=50.5 dB


JUR_001 Periodic reports
Sound
dB
140
120
100
80
60
40
20
11:00:00 AM
11:10:00 AM
11:20:00 AM
11:30:00 AM
11:40:00 AM
11:50:00 AM
12:00:00 PM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 12/08/2021 10:58:36 AM - 11:00:00 AM LAIeq=77.2 dB LAFmax=84.8 dB LCpeak=99.5 dB LAFmin=47.0 dB

JUR_001 Periodic reports

	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	77.2	84.8	47.0
Time	10:58:36 AM	0:01:24				
Date	12/08/2021					




JUR_001 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 12/08/2021 10:58:36 AM - 11:00:00 AM
100
90
80
70
60
50
40
30
20
10
0
20 30 40 50 60 70 80 90 100 110 120 130 140 dB
L1 = 78.4 dB
L5 = 74.7 dB
L10 = 71.7 dB
L50 = 49.6 dB
L90 = 48.1 dB
L95 = 47.8 dB
L99 = 47.6 dB
Level
Cumulative
Cursor: [78.2 ; 78.4[dB Level: 0.1% Cumulative: 1.0%

Site Number: NM-2			
Recorded By: Winnie Woo, Tina Yuan			
Job Number: 186614			
Date: 12/8/2021			
Time: 11:15 a.m.			
Location: Southeast corner of 6353 Mission Boulevard, along sidewalk of the Mission Boulevard			
Source of Peak Noise: Traffic along Mission Boulevard, Dog Barking, Car repair work nearby			
Noise Data			
Leq (dB)	**Lmax(dB)**	**Lmin (dB)**	**Peak (dB)**
71.8	88.4	51.5	106.4

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Brüel & Kjær**	**2250**	**3011133**	**09/09/2021**	
	Microphone	**Brüel & Kjær**	**4189**	**3086765**	**09/09/2021**	
	Preamp	**Brüel & Kjær**	**ZC 0032**	**25380**	**09/09/2021**	
	Calibrator	**Brüel & Kjær**	**4231**	**2545667**	**09/09/2021**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Clear
	Note: dBA Offset = -0.01		**Sensor Height (ft):** 5 ft
	Wind Ave Speed (mph / m/s)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (inches)**
	2 mph	58	30.04

Photo of Measurement Location

2250

Instrument:		2250
Application:		BZ7225 Version 4.7.6
Start Time:		12/08/2021 11:15:03
End Time:		12/08/2021 11:25:03
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		142.13

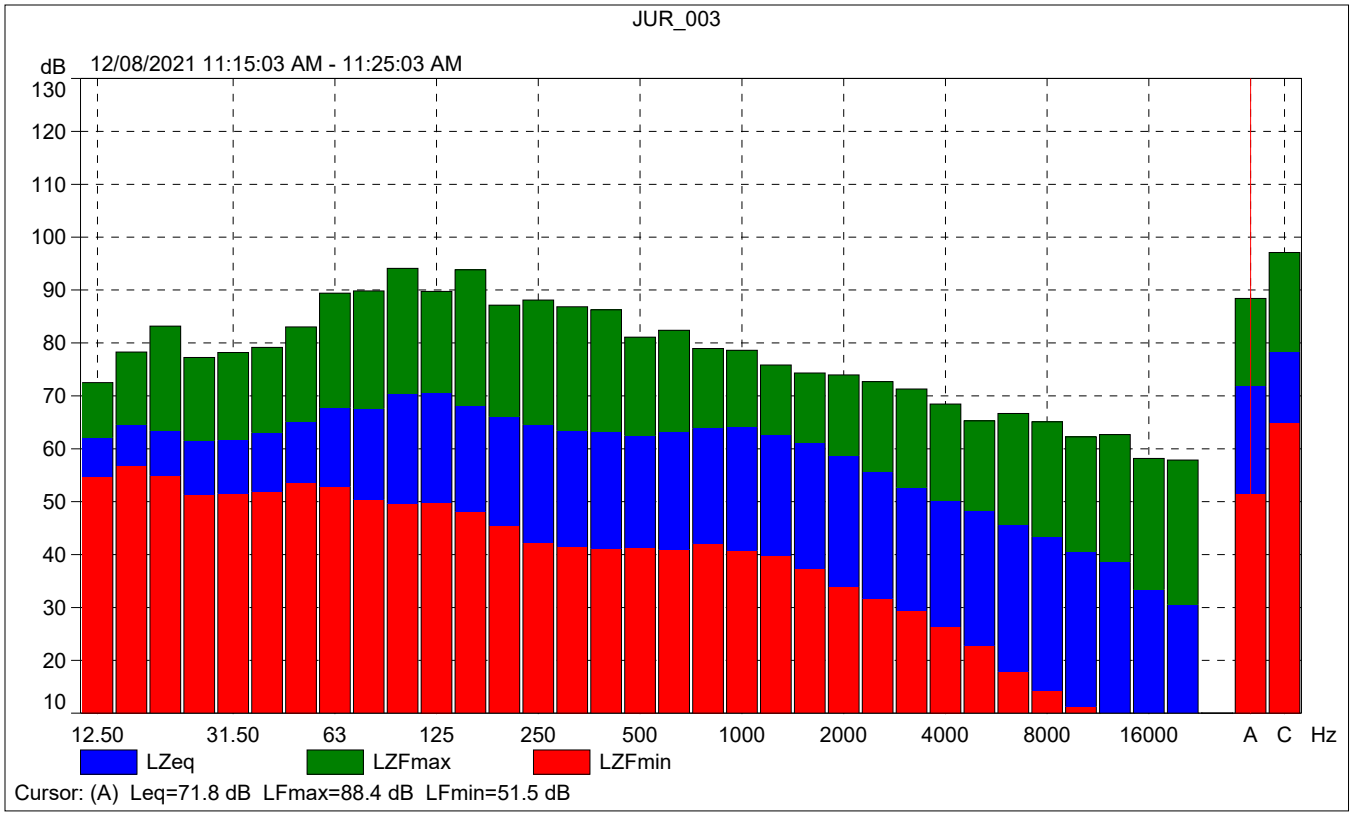
	Time	Frequency
Broadband (excl. Peak):	FSI	AC
Broadband Peak:		C
Spectrum:	FS	Z

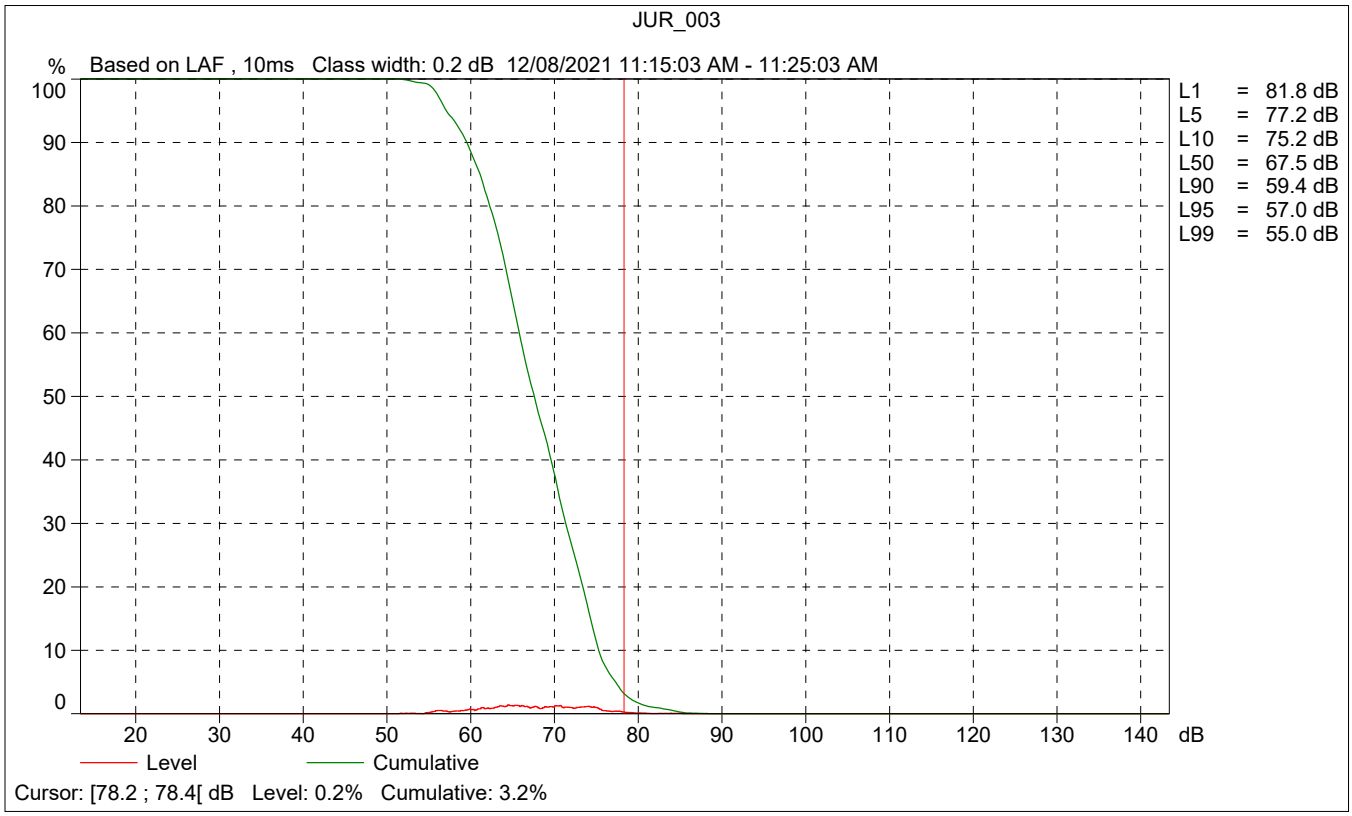
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		UA-1650
Sound Field Correction:		Free-field

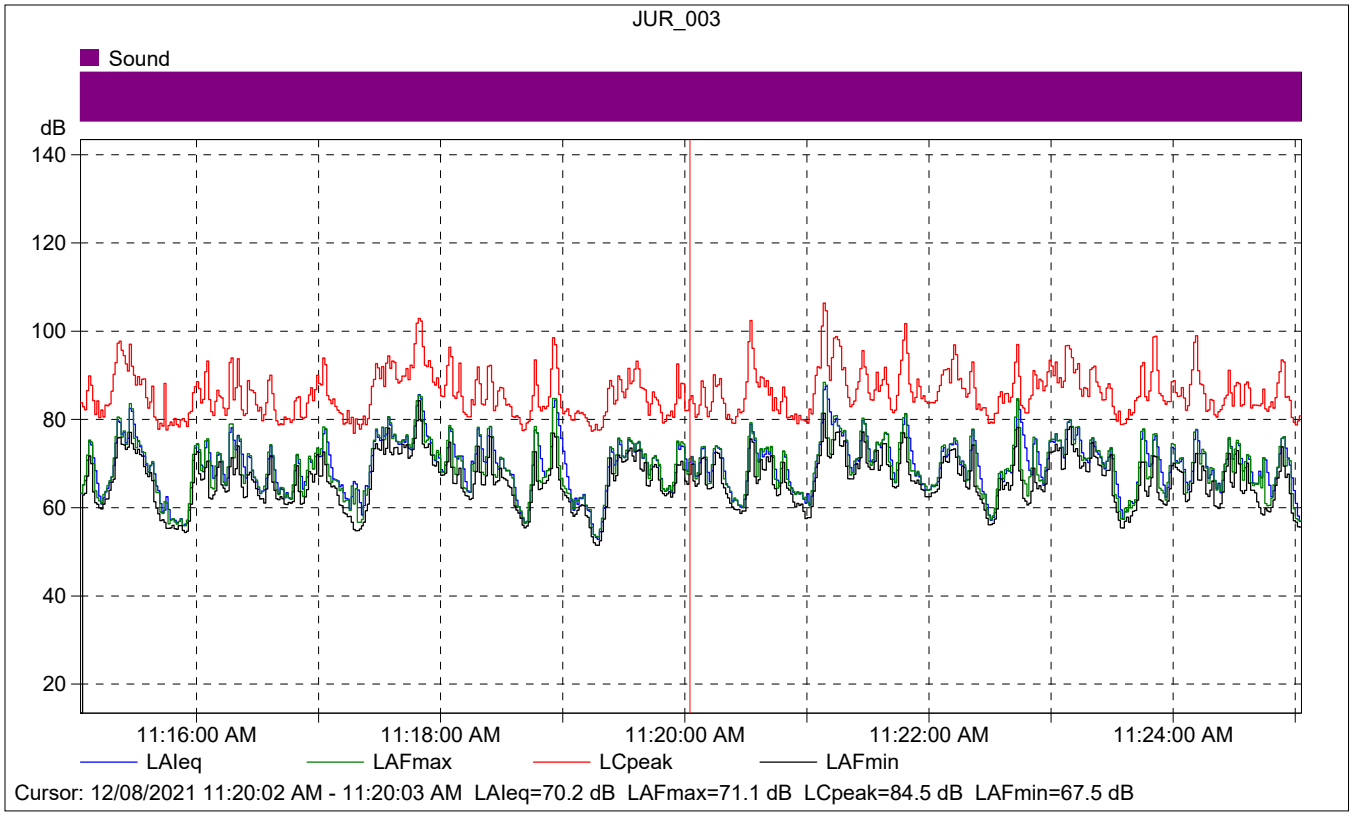
Calibration Time:		12/08/2021 10:57:24
Calibration Type:		External reference
Sensitivity:		43.5732565820217 mV/Pa

JUR_003

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	71.8	88.4	51.5
Time	11:15:03 AM	11:25:03 AM	0:10:00				
Date	12/08/2021	12/08/2021					

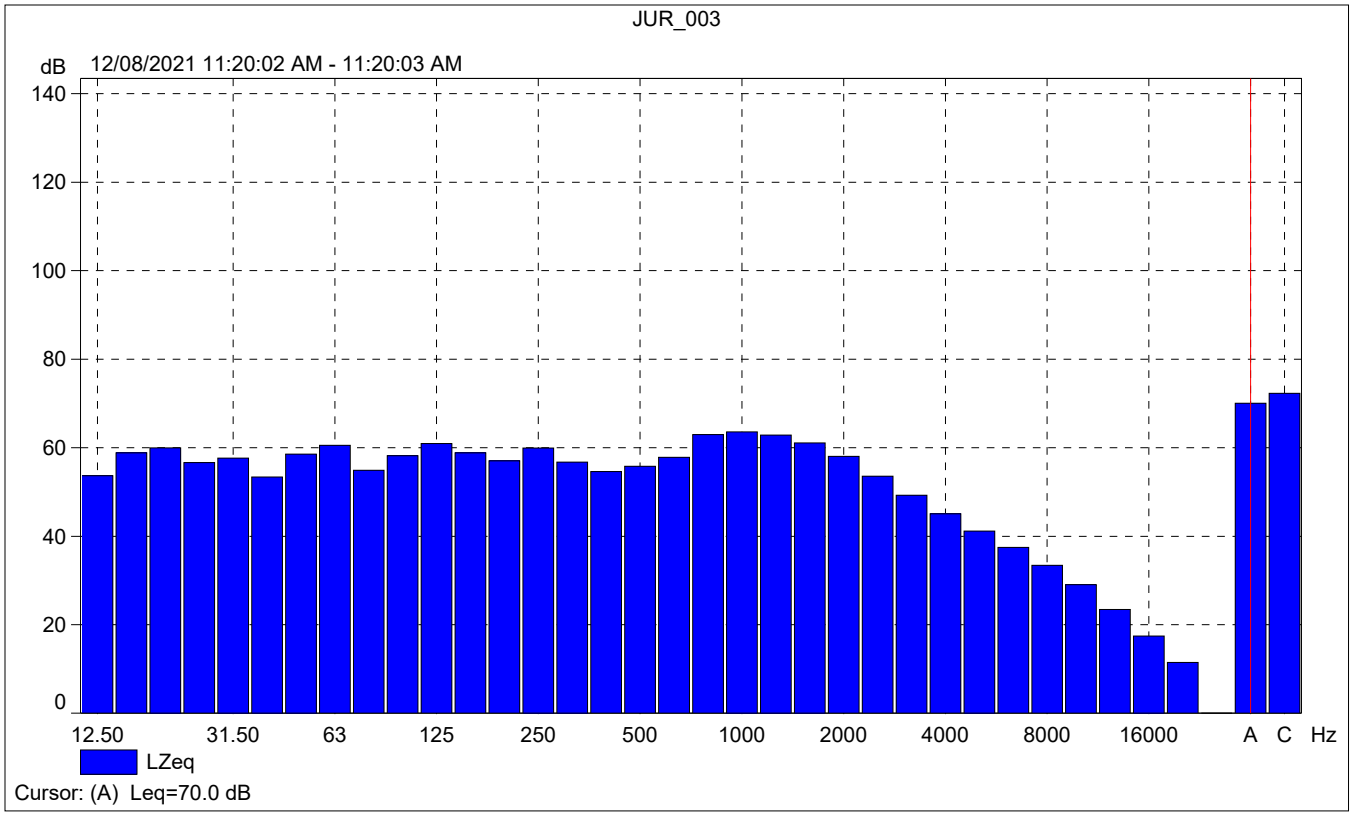

JUR_003
dB
12/08/2021 11:15:03 AM - 11:25:03 AM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=71.8 dB LFmax=88.4 dB LFmin=51.5 dB

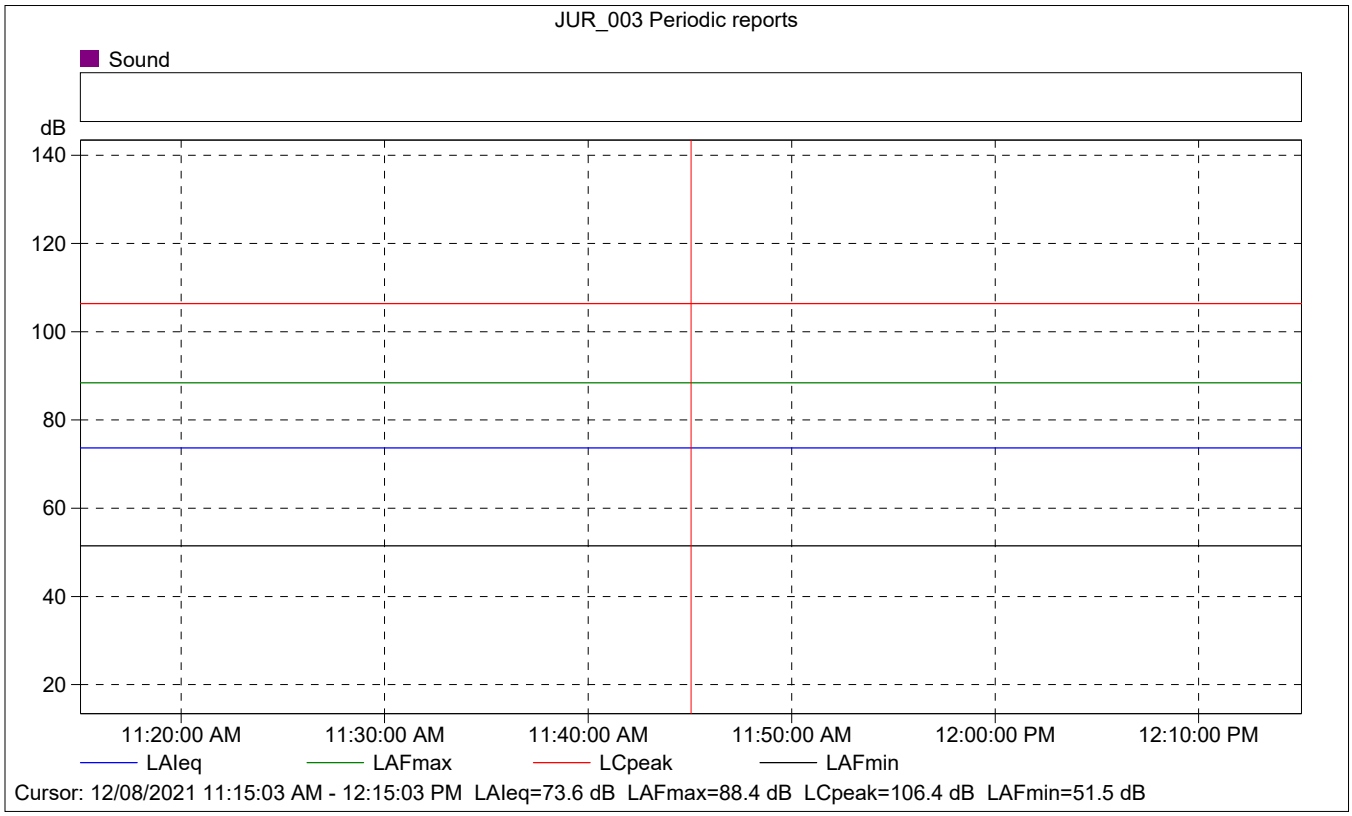

JUR_003
%
Based on LAF , 10ms Class width: 0.2 dB 12/08/2021 11:15:03 AM - 11:25:03 AM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 81.8 dB
L5 = 77.2 dB
L10 = 75.2 dB
L50 = 67.5 dB
L90 = 59.4 dB
L95 = 57.0 dB
L99 = 55.0 dB
Level
Cumulative
Cursor: [78.2 ; 78.4[dB Level: 0.2% Cumulative: 3.2%



JUR_003

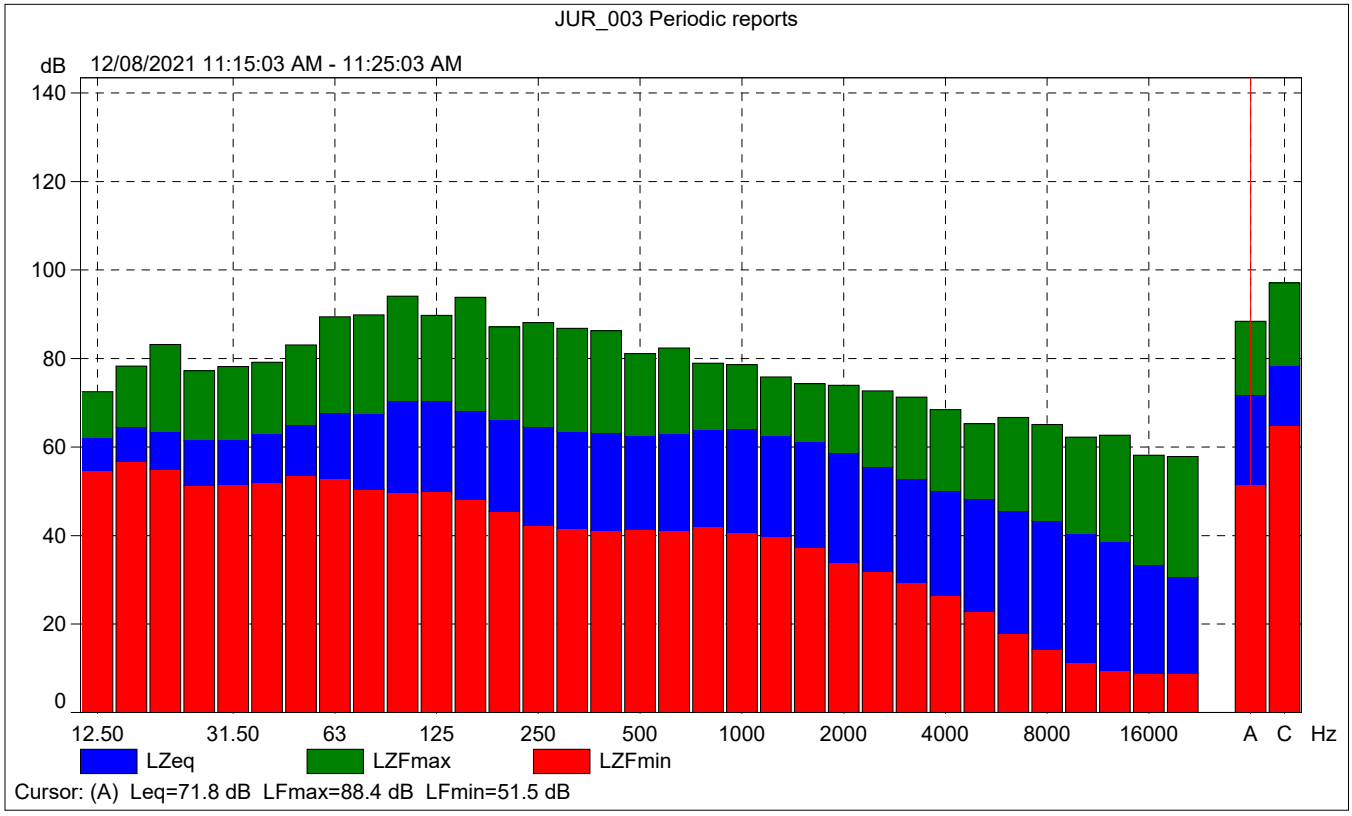
	Start time	Elapsed time	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			70.2	71.1	67.5
Time	11:20:02 AM	0:00:01			
Date	12/08/2021				

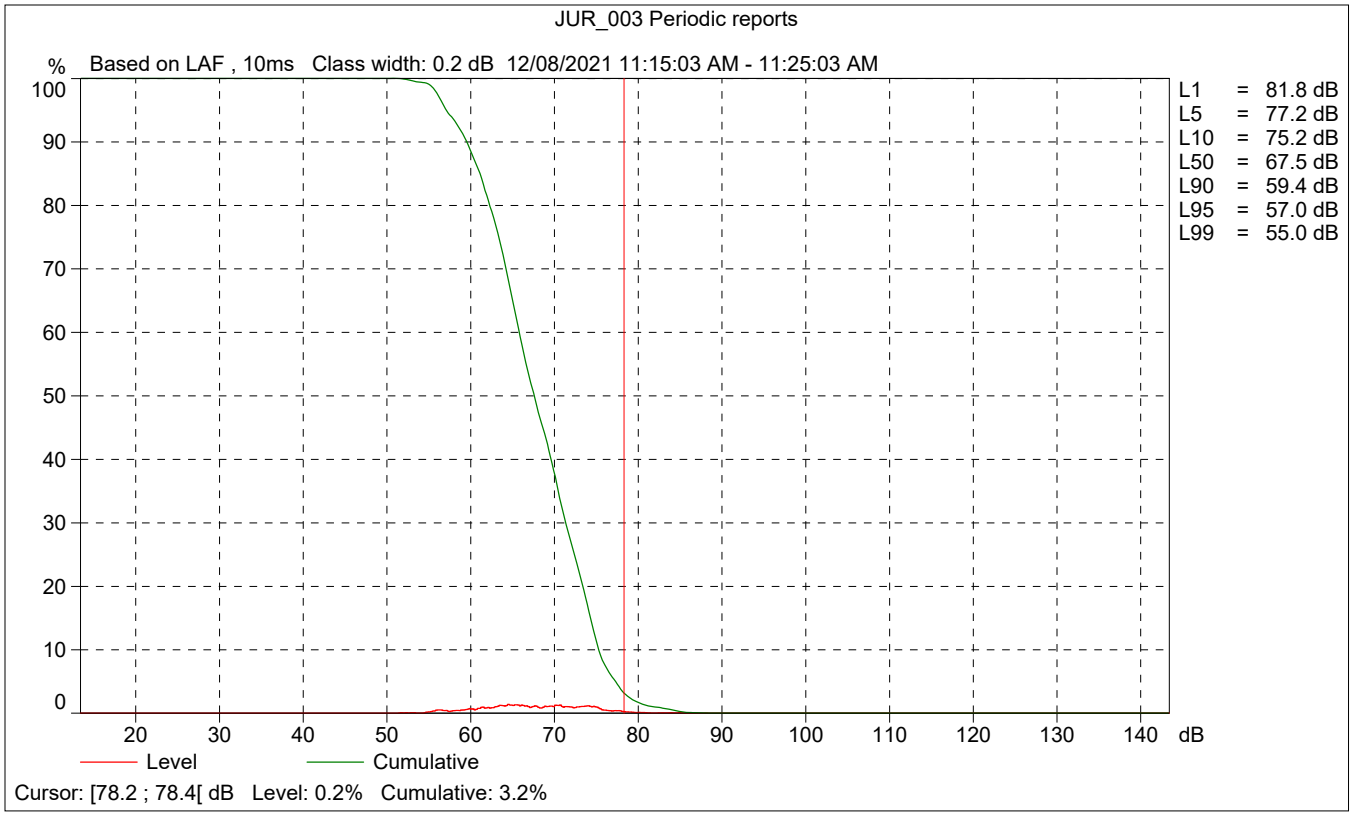

JUR_003
dB
12/08/2021 11:20:02 AM - 11:20:03 AM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
Cursor: (A) Leq=70.0 dB


JUR_003 Periodic reports
Sound
dB
140
120
100
80
60
40
20
11:20:00 AM
11:30:00 AM
11:40:00 AM
11:50:00 AM
12:00:00 PM
12:10:00 PM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 12/08/2021 11:15:03 AM - 12:15:03 PM LAIeq=73.6 dB LAFmax=88.4 dB LCpeak=106.4 dB LAFmin=51.5 dB

JUR_003 Periodic reports

	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	73.6	88.4	51.5
Time	11:15:03 AM	0:10:00				
Date	12/08/2021					




JUR_003 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 12/08/2021 11:15:03 AM - 11:25:03 AM
100
90
80
70
60
50
40
30
20
10
0
20 30 40 50 60 70 80 90 100 110 120 130 140 dB
L1 = 81.8 dB
L5 = 77.2 dB
L10 = 75.2 dB
L50 = 67.5 dB
L90 = 59.4 dB
L95 = 57.0 dB
L99 = 55.0 dB
Level
Cumulative
Cursor: [78.2 ; 78.4[dB Level: 0.2% Cumulative: 3.2%

Site Number: NM-3			
Recorded By: Winnie Woo, Tina Yuan			
Job Number: 186614			
Date: 12/8/2021			
Time: 11:35 a.m.			
Location: In front of 6412 Stobbs Way, along the eastern fence of Rustic Lane Elementary School.			
Source of Peak Noise: Traffic thru the Stobbs way and truck pass by.			
Noise Data			
Leq (dB)	**Lmax(dB)**	**Lmin (dB)**	**Peak (dB)**
57.0	78.8	43.5	92.9

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Brüel & Kjær**	**2250**	**3011133**	**09/09/2021**	
	Microphone	**Brüel & Kjær**	**4189**	**3086765**	**09/09/2021**	
	Preamp	**Brüel & Kjær**	**ZC 0032**	**25380**	**09/09/2021**	
	Calibrator	**Brüel & Kjær**	**4231**	**2545667**	**09/09/2021**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Clear
	Note: dBA Offset = -0.01		**Sensor Height (ft):** 5 ft
	Wind Ave Speed (mph / m/s)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (inches)**
	2 mph	58	30.04

Photo of Measurement Location

2250

Instrument:		2250
Application:		BZ7225 Version 4.7.6
Start Time:		12/08/2021 11:34:52
End Time:		12/08/2021 11:44:52
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		142.13

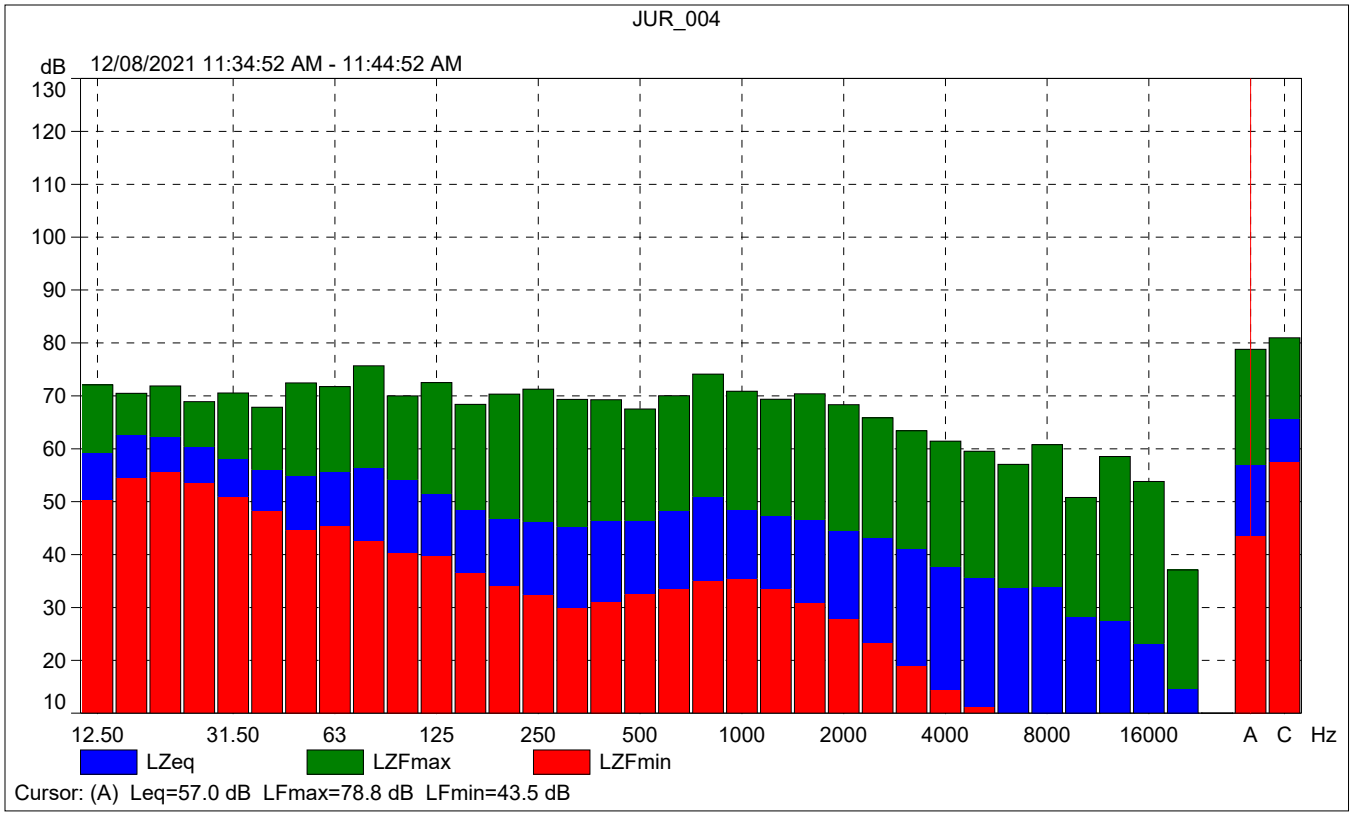
	Time	Frequency
Broadband (excl. Peak):	FSI	AC
Broadband Peak:		C
Spectrum:	FS	Z

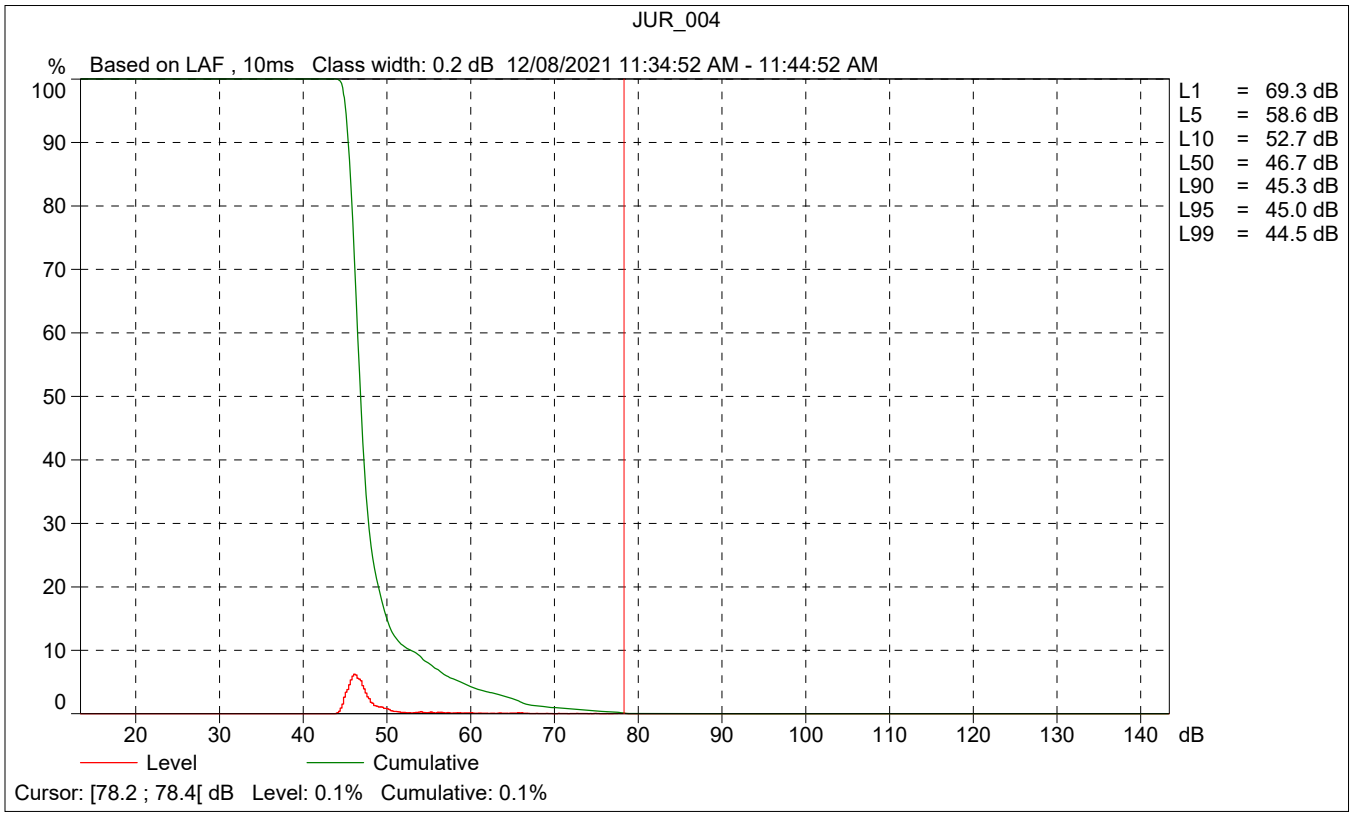
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		UA-1650
Sound Field Correction:		Free-field

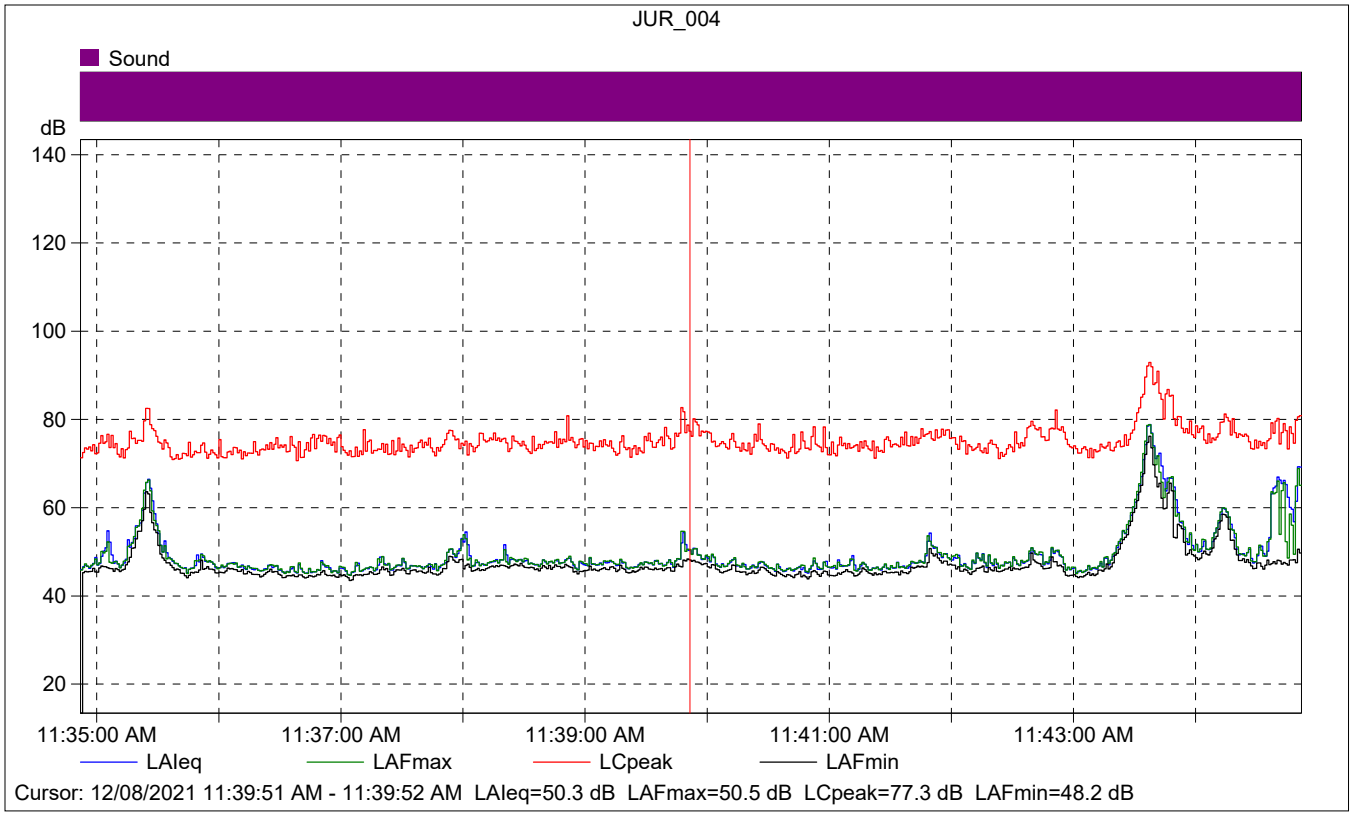
Calibration Time:		12/08/2021 10:57:24
Calibration Type:		External reference
Sensitivity:		43.5732565820217 mV/Pa

JUR_004

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	57.0	78.8	43.5
Time	11:34:52 AM	11:44:52 AM	0:10:00				
Date	12/08/2021	12/08/2021					

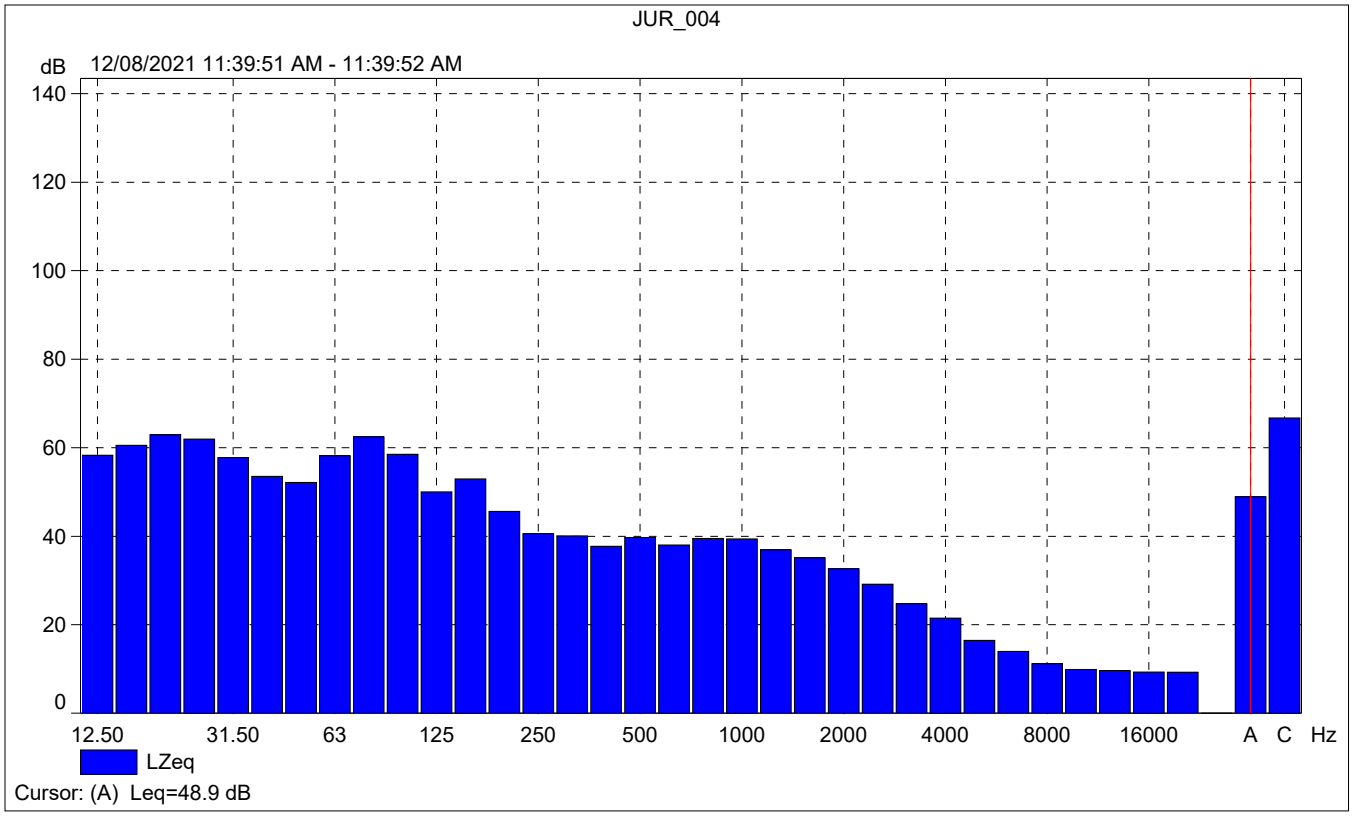

JUR_004
dB
12/08/2021 11:34:52 AM - 11:44:52 AM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=57.0 dB LFmax=78.8 dB LFmin=43.5 dB

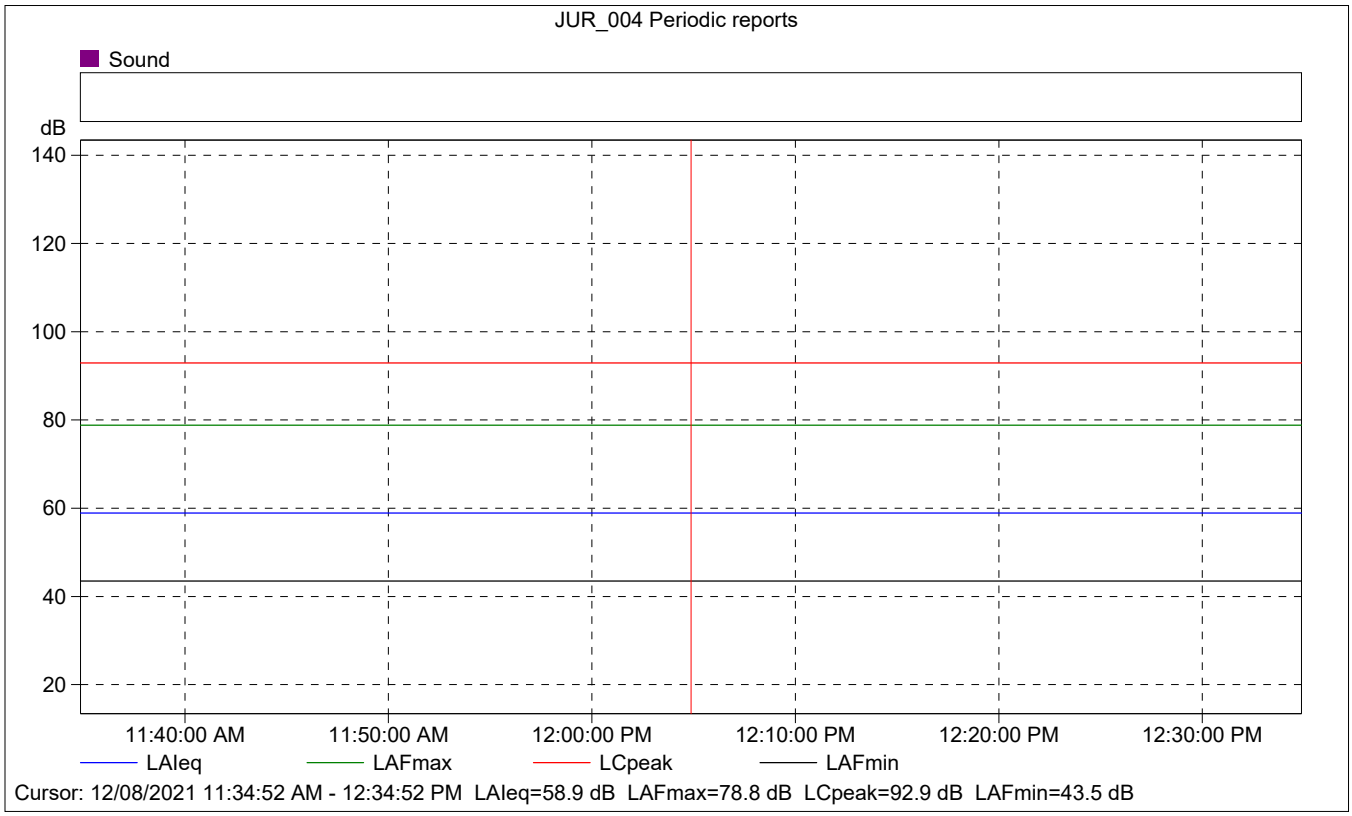

JUR_004
%
Based on LAF , 10ms Class width: 0.2 dB 12/08/2021 11:34:52 AM - 11:44:52 AM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 69.3 dB
L5 = 58.6 dB
L10 = 52.7 dB
L50 = 46.7 dB
L90 = 45.3 dB
L95 = 45.0 dB
L99 = 44.5 dB
Level
Cumulative
Cursor: [78.2 ; 78.4[dB Level: 0.1% Cumulative: 0.1%



JUR_004

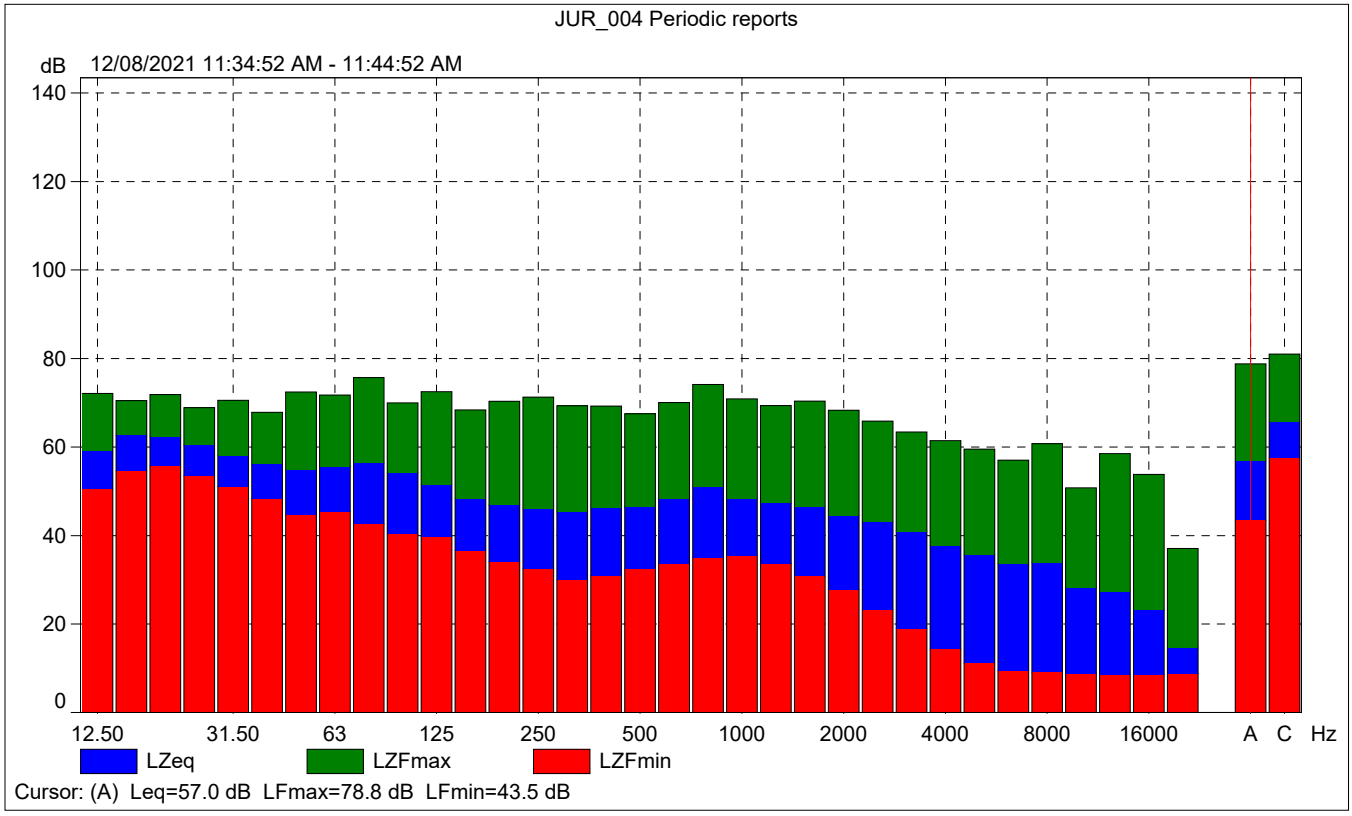
	Start time	Elapsed time	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			50.3	50.5	48.2
Time	11:39:51 AM	0:00:01			
Date	12/08/2021				

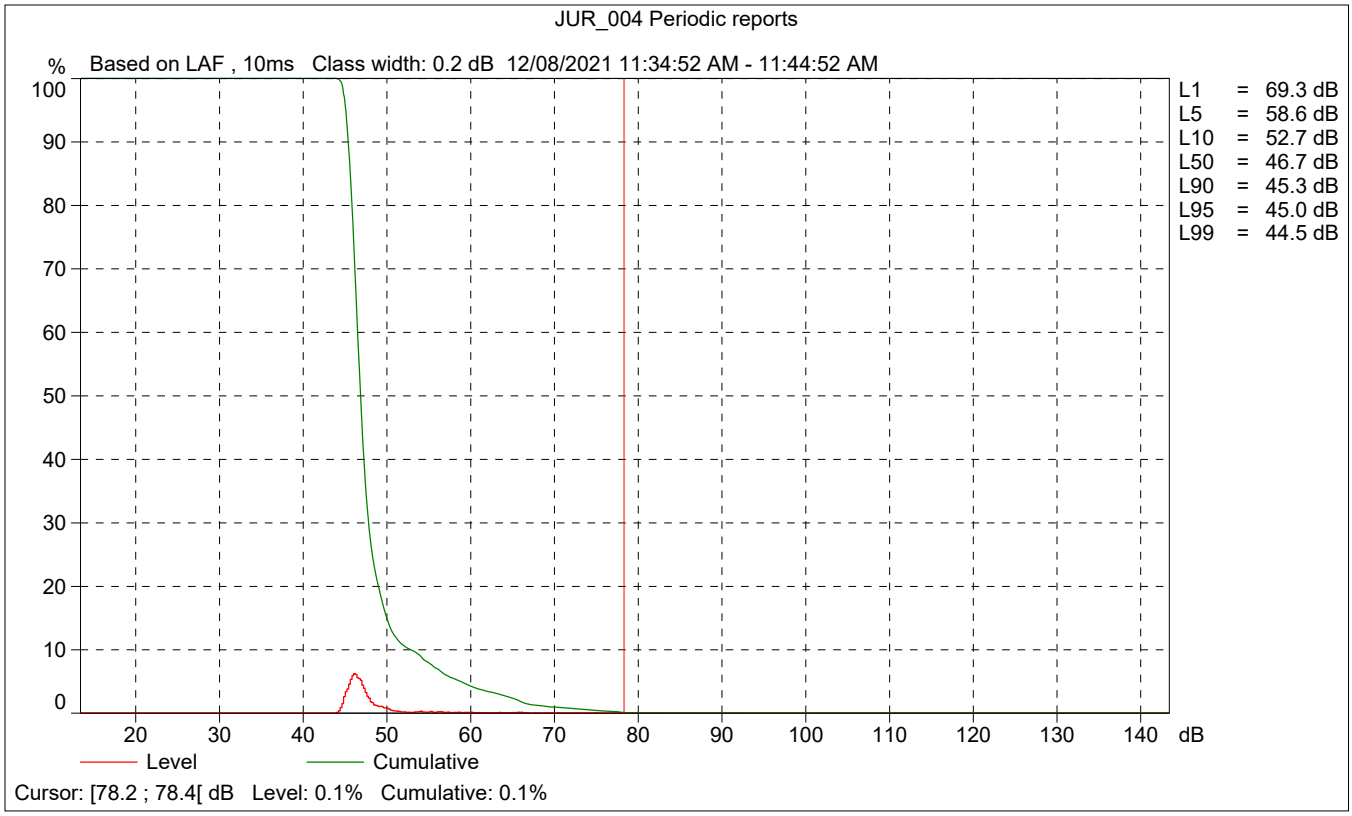

JUR_004
dB
12/08/2021 11:39:51 AM - 11:39:52 AM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
Cursor: (A) Leq=48.9 dB


JUR_004 Periodic reports
Sound
dB
140
120
100
80
60
40
20
11:40:00 AM
11:50:00 AM
12:00:00 PM
12:10:00 PM
12:20:00 PM
12:30:00 PM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 12/08/2021 11:34:52 AM - 12:34:52 PM LAIeq=58.9 dB LAFmax=78.8 dB LCpeak=92.9 dB LAFmin=43.5 dB

JUR_004 Periodic reports

	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	58.9	78.8	43.5
Time	11:34:52 AM	0:10:00				
Date	12/08/2021					




JUR_004 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 12/08/2021 11:34:52 AM - 11:44:52 AM
100
90
80
70
60
50
40
30
20
10
0
20 30 40 50 60 70 80 90 100 110 120 130 140 dB
L1 = 69.3 dB
L5 = 58.6 dB
L10 = 52.7 dB
L50 = 46.7 dB
L90 = 45.3 dB
L95 = 45.0 dB
L99 = 44.5 dB
Level
Cumulative
Cursor: [78.2 ; 78.4[dB Level: 0.1% Cumulative: 0.1%