11.9 Noise Data

This page intentionally left blank.

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 179396
Project Name: Victoria Boulevard Apartments
Scenario: Future Without Project

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: *Victoria Boulevard Apartments Traffic Impact Analysis,* prepared by Ganddini Group Inc. (Dated April 29, 2020)
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.50%	12.90%	9.60%
Medium-Duty Trucks	84.80%	4.90%	10.30%
Heavy-Duty Trucks	86.50%	2.70%	10.80%

Analysis Condition				Design		Vehicle Mix		Distance from Centerline of Roadway					
		Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour				Calc
Roadway, Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL	Dist
Del Obispo Street													
South of Pacific Coast Highway (PCH)	4	14	20,300	40	0.5	1.8%	0.7%	63.4	-	79	170	366	100
PCH to Stonehill Drive	4	14	17,800	40	0.5	1.8%	0.7%	62.9	-	72	155	335	100
Stonehill Drive													
Del Obpiso Street to Doheny Park Road	4	0	38,600	40	0.5	1.8%	0.7%	66.1	55	119	256	552	100
Pacific Coast Highway													
West of Del Obispo Street	6	0	42,200	50	0.5	1.8%	0.7%	69.0	86	185	400	861	100
Del Obispo Street to Camino Las Ramblas	3	0	49,400	50	0.5	1.8%	0.7%	69.4	92	198	426	919	100
South of Doheny Park Road	4	0	15,100	50	0.5	1.8%	0.7%	64.4	-	91	195	421	100
Doheny Park Road													
North of PCH	4	12	11,100	35	0.5	1.8%	0.7%	59.5	-	-	93	199	100
Camino Las Ramblas to Las Vegas Ave	4	12	18,300	35	0.5	1.8%	0.7%	61.7	-	60	129	278	100
Las Vegas Avenue to Domingo Avenue	4	12	21,300	35	0.5	1.8%	0.7%	62.3	-	66	143	308	100
Domingo Avenue to Victoria Boulevard	4	12	20,800	35	0.5	1.8%	0.7%	62.2	-	65	141	303	100
Victoria Boulevard to Camino Capistrano	4	14	20,300	35	0.5	1.8%	0.7%	62.1	-	64	139	299	100
Camino Capistrano to Stonehill Drive	4	14	24,900	35	0.5	1.8%	0.7%	63.0	-	74	159	342	100
North of Stonehill Drive	4	12	25,700	35	0.5	1.8%	0.7%	63.1	-	75	162	349	100
Las Vegas Avenue													
Cul de sac to Doheny Park Road	2	0	700	30	0.5	1.8%	0.7%	46.3	-	-	-	-	100
Doheny Park Road to Camino Las Ramblas	2	0	10,400	30	0.5	1.8%	0.7%	58.0	-	34	74	159	100

Domingo Avenue													
Cul de sac to Doheny Park Road	2	0	700	30	0.5	1.8%	0.7%	46.3	-	-	-	-	100
Doheny Park Road to Sepulveda Avenue	2	0	400	30	0.5	1.8%	0.7%	43.9	-	-	-	-	100
Victoria Boulevard													
Cul de sac to Doheny Park Road	2	0	3,000	30	0.5	1.8%	0.7%	52.6	-	-	32	70	100
Doheny Park Road to Sepulveda Avenue	2	0	3,600	30	0.5	1.8%	0.7%	53.4	-	-	36	79	100
Sepulveda Avenue to Camino Capistrano	2	0	2,700	30	0.5	1.8%	0.7%	52.2	-	-	-	65	100
Sepulva Avenue													
Cul de sac to Domingo Avenue	2	0	100	30	0.5	1.8%	0.7%	37.9	-	-	-	-	100
Domingo Avenue to Victoria Boulevard	2	0	400	30	0.5	1.8%	0.7%	43.9	-	-	-	-	100
Victoria Boulevard to Camino Capistrano	2	0	1,200	30	0.5	1.8%	0.7%	48.7	-	-	-	38	100
Camino Capistrano													
Sepulveda Avenue to Victoria Boulevard	2	0	3,200	30	0.5	1.8%	0.7%	52.9	-	-	34	73	100
Camino Las Ramblas to Via Canon	2	0	5,000	30	0.5	1.8%	0.7%	54.9	-	-	45	98	100
Camino Las Ramblas													
Camino Capistrano to I-5 on/off ramp	6	12	45,800	45	0.5	1.8%	0.7%	68.4	78	169	364	785	100
Via Canon													
North of Camino Capistrano	2	0	1,700	35	0.5	1.8%	0.7%	51.2	-	-	-	55	100
South of Camino Capistrano	2	0	3,400	35	0.5	1.8%	0.7%	54.2	-	-	41	88	100

[1] Distance is from the centerline of the roadway segment to the receptor location.
"-" = contour is located within the roadway right-of-way.

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 179396
Project Name: Victoria Boulevard Apartments
Scenario: Future With Project

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: *Victoria Boulevard Apartments Traffic Impact Analysis,* prepared by Ganddini Group Inc. (Dated April 29, 2020)
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.50%	12.90%	9.60%
Medium-Duty Trucks	84.80%	4.90%	10.30%
Heavy-Duty Trucks	86.50%	2.70%	10.80%

Analysis Condition				Design		Vehicle Mix		Distance from Centerline of Roadway					
		Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour				Calc
Roadway, Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL	Dist
Del Obispo Street													
South of Pacific Coast Highway (PCH)	4	14	20,300	40	0.5	1.8%	0.7%	63.4	-	79	170	366	100
PCH to Stonehill Drive	4	14	17,900	40	0.5	1.8%	0.7%	62.9	-	72	156	336	100
Stonehill Drive													
Del Obpiso Street to Doheny Park Road	4	0	38,900	40	0.5	1.8%	0.7%	66.2	56	120	258	555	100
Pacific Coast Highway													
West of Del Obispo Street	6	0	42,600	50	0.5	1.8%	0.7%	69.1	87	187	402	866	100
Del Obispo Street to Camino Las Ramblas	3	0	49,900	50	0.5	1.8%	0.7%	69.5	93	199	429	925	100
South of Doheny Park Road	4	0	15,200	50	0.5	1.8%	0.7%	64.4	-	91	196	423	100
Doheny Park Road													
North of PCH	4	12	11,500	35	0.5	1.8%	0.7%	59.6	-	-	95	204	100
Camino Las Ramblas to Las Vegas Ave	4	12	19,100	35	0.5	1.8%	0.7%	61.8	-	62	133	286	100
Las Vegas Avenue to Domingo Avenue	4	12	22,700	35	0.5	1.8%	0.7%	62.6	-	69	149	321	100
Domingo Avenue to Victoria Boulevard	4	12	21,300	35	0.5	1.8%	0.7%	62.3	-	66	143	308	100
Victoria Boulevard to Camino Capistrano	4	14	21,300	35	0.5	1.8%	0.7%	62.3	-	66	143	309	100
Camino Capistrano to Stonehill Drive	4	14	25,900	35	0.5	1.8%	0.7%	63.2	-	76	163	352	100
North of Stonehill Drive	4	12	26,000	35	0.5	1.8%	0.7%	63.2	-	76	163	351	100
Las Vegas Avenue													
Cul de sac to Doheny Park Road	2	0	700	30	0.5	1.8%	0.7%	46.3	-	-	-	-	100
Doheny Park Road to Camino Las Ramblas	2	0	11,100	30	0.5	1.8%	0.7%	58.3	-	36	77	167	100

Domingo Avenue													
Cul de sac to Doheny Park Road	2	0	700	30	0.5	1.8%	0.7%	46.3	-	-	-	-	100
Doheny Park Road to Sepulveda Avenue	2	0	2,100	30	0.5	1.8%	0.7%	51.1	-	-	-	55	100
Victoria Boulevard													
Cul de sac to Doheny Park Road	2	0	3,000	30	0.5	1.8%	0.7%	52.6	-	-	32	70	100
Doheny Park Road to Sepulveda Avenue	2	0	5,000	30	0.5	1.8%	0.7%	54.9	-	-	45	98	100
Sepulveda Avenue to Camino Capistrano	2	0	2,800	30	0.5	1.8%	0.7%	52.3	-	-	-	66	100
Sepulva Avenue													
Cul de sac to Domingo Avenue	2	0	100	30	0.5	1.8%	0.7%	37.9	-	-	-	-	100
Domingo Avenue to Victoria Boulevard	2	0	1,700	30	0.5	1.8%	0.7%	50.2	-	-	-	48	100
Victoria Boulevard to Camino Capistrano	2	0	1,200	30	0.5	1.8%	0.7%	48.7	-	-	-	38	100
Camino Capistrano													
Sepulveda Avenue to Victoria Boulevard	2	0	3,200	30	0.5	1.8%	0.7%	52.9	-	-	34	73	100
Camino Las Ramblas to Via Canon	2	0	5,300	30	0.5	1.8%	0.7%	55.1	-	-	47	102	100
Camino Las Ramblas													
Camino Capistrano to I-5 on/off ramp	6	12	46,300	45	0.5	1.8%	0.7%	68.5	79	170	367	790	100
Via Canon													
North of Camino Capistrano	2	0	1,700	35	0.5	1.8%	0.7%	51.2	-	-	-	55	100
South of Camino Capistrano	2	0	3,700	35	0.5	1.8%	0.7%	54.5	-	-	43	93	100

[1] Distance is from the centerline of the roadway segment to the receptor location.
"-" = contour is located within the roadway right-of-way.

Michael Baker INTERNATIONAL

We Make a Difference

MEMORANDUM

To: Kristen Bogue, Michael Baker International

From: Eddie Torres, Michael Baker International
Pierre Glaize, Michael Baker International

Date: May 14, 2020

Subject: Victoria Boulevard Apartments – Existing Noise Technical Memorandum

---

PROJECT LOCATION

The City of Dana Point (City) is located in the southern portion of Orange County (County), midway between the cities of San Diego and Los Angeles. The community consists of coastal bluffs and rolling hills located along seven miles of the Pacific Ocean. Surrounding cities include Laguna Niguel and Laguna Beach to the north, San Juan Capistrano to the east, and San Clemente to the south.

The project is located at 26126 Victoria Boulevard in the City, California. The approximately 5.5-acre site is bounded by Victoria Boulevard to the north, Sepulveda Avenue to the west, and Pacific Coast Highway to the south and east

EXISTING SITE CONDITIONS

The project site is currently occupied by the Capistrano Unified School District (CUSD) Maintenance and Bus Yard which consists of several relatively small single-story building scattered throughout the property and abundant parking areas and storage bins. Based on the *Dana Point General Plan* (General Plan) Land Use Map, the project site is designated Community Facilities (CF) and Recreation/Open Space (RIOS). Based on the City's Zoning Map, the project site is zoned as Community Facilities (CF) and Recreation (REC).

PROJECT DESCRIPTION

The project site is currently occupied by the Capistrano Unified School District (CUSD) maintenance and bus yard. The proposed project consists of redeveloping the project site with a 420-unit apartment project, including interior and exterior amenities and a parking structure. The proposed project will provide two full access driveways and one emergency vehicle access driveway. The main access location is proposed at Sepulveda Avenue between Domingo Avenue and Victoria Boulevard. The secondary access is proposed at Victoria Boulevard near the southeast property boundary. The emergency vehicle access is proposed at Sepulveda Avenue near the southwest property boundary. The proposed project is anticipated to be constructed and fully operational by Year 2025.

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.

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*, displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage.

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 (in/sec) is used to evaluate construction-generated vibration for building damage and human complaints.

EXISTING 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 following receptors were identified as sensitive receptors in the near vicinity of the site:

- The closest residential receptors are residential uses located approximately 65 feet to the north-northeast of the project site boundary, across Victoria Boulevard.

- The closest school is the Nobis Preschool located approximately 70 feet to the northeast of the project site boundary, across Victoria Boulevard.

- The closest church is the San Felipe De Jesus Catholic Church located approximately 70 feet to the northwest of the project site boundary, across Sepulveda Avenue.

Existing Stationary Noise Levels

The project is in a highly urbanized area with a mixture of residential, commercial, religious, and retail uses. The primary sources of stationary noise in the project vicinity are urban-related activities (i.e., mechanical equipment, parking areas, and pedestrians). 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 five noise measurements on November 7, 2019; refer to Table 2, *Noise Measurements*. The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the project site. Ten-minute measurements were taken, between 9:30 a.m. and 11:00 a.m., at each site. Short-term (L_{eq}) measurements are considered representative of the noise levels in the project vicinity.

Table 2
Noise Measurements

Site No.	Location	L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)	Peak (dBA)	Time
1	Along the sidewalk adjacent to the Nobis Preschool.	62.2	54.5	73.4	96.2	9:36 a.m.
2	On the sidewalk adjacent to the apartment complex along Via Santa Rosa.	55.1	50.3	71.4	90.4	9:49 a.m.
3	In a dirt path adjacent to Capo Beach Church, along Victoria Boulevard	61.9	49.8	78.0	96.3	10:07 a.m.
4	At the northwest corner of Domingo and Sepulveda Avenue.	60.1	47.3	78.6	100.0	10:23 a.m.
5	In the CUSD bus yard on the southern side of the project site.	60.1	53.7	69.4	89.0	10:47 a.m.

Source: Michael Baker International, November 7, 2019.

Meteorological conditions consisted of clear skies, warm temperatures, with light wind speeds (0 to 5 miles per hour), and low humidity. Measured daytime noise levels ranged from 55.1 to 62.2 dBA L_{eq}. 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. The results of the field measurements, as well as locations, are included in Appendix A, *Noise Measurement Data*.

Existing Mobile Noise Levels

In order to assess the potential for mobile source noise impacts, it is necessary to determine the noise currently generated by vehicles traveling through the project area. The majority of the existing noise in the project area is generated from vehicle traffic along Doheny Park Road, Camino Las Ramblas, Pacific Coast Highway (PCH) and Interstate 5 (I-5). Mobile source noise was modeled using the Federal Highway Administration's Highway Noise Prediction Model (FHWA RD-77-108). The RD-77-108 model calculates the average noise level at specific locations based on traffic volumes, average speeds represented by the posted speed limit, roadway geometry, and site environmental conditions. The majority of vehicular traffic near the project site are along Doheny Park Road, Camino Las Ramblas, PCH, and I-5. These roadways generate the majority of existing noise in the immediate project vicinity. Noise projections are based on modeled existing vehicular traffic as derived from the *Victoria Boulevard Apartments Traffic Impact Analysis* (Traffic Impact Analysis) prepared by Ganddini Group, Inc. (dated April 29, 2020); refer to Appendix A for modeling assumptions and vehicle speeds along the roadway segments. As shown in Table 3, *Existing Traffic Noise Levels*, existing ambient noise levels from mobile sources in the vicinity of the site range from 37.9 to 81.9 dBA Community Noise Equivalent Level (CNEL).

Table 3
Existing Traffic Noise Levels

Roadway Segment	Existing Conditions				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
Del Obispo Street					
South of Pacific Coast Highway (PCH)	15,000	62.1	139	64	-
PCH to Stonehill Drive	16,000	62.4	145	67	-
Stonehill Drive					
Del Obpiso Street to Doheny Park Road	33,000	65.5	231	107	50
Pacific Coast highway					
West of Del Obispo Street	37,000	68.5	366	170	79
Del Obispo Street to Camino Las Ramblas	39,200	68.4	366	170	79
South of Doheny Park Road	14,000	64.0	186	86	-
Doheny Park Road					
North of PCH	9,800	59.0	85	-	-
Camino Las Ramblas to Las Vegas Ave	16,100	61.1	119	55	-
Las Vegas Avenue to Domingo Avenue	18,700	61.8	131	61	-
Domingo Avenue to Victoria Boulevard	18,200	61.6	129	60	-
Victoria Boulevard to Camino Capistrano	17,200	61.4	124	58	-
Camino Capistrano to Stonehill Drive	21,000	62.3	142	66	-
North of Stonehill Drive	24,000	62.8	155	72	-
Las Vegas Avenue					
Cul de sac to Doheny Park Road	700	46.3	-	-	-
Doheny Park Road to Camino Las Ramblas	8,800	57.3	66	-	-
Domingo Avenue					
Cul de sac to Doheny Park Road	600	45.7	-	-	-
Doheny Park Road to Sepulveda Avenue	800	46.9	-	-	-
Victoria Boulevard					

Table 3
Existing Traffic Noise Levels

Roadway Segment	Existing Conditions				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
Cul de sac to Doheny Park Road	2,700	52.2	-	-	-
Doheny Park Road to Sepulveda Avenue	3,700	53.6	37	-	-
Sepulveda Avenue to Camino Capistrano	2,500	51.8	-	-	-
Sepulva Avenue					
Cul de sac to Domingo Avenue	100	37.9	-	-	-
Domingo Avenue to Victoria Boulevard	400	43.9	-	-	-
Victoria Boulevard to Camino Capistrano	1,100	48.3	-	-	-
Camino Capistrano					
Sepulveda Avenue to Victoria Boulevard	2,900	52.5	-	-	-
Camino Las Ramblas to Via Canon	4,400	54.3	42	-	-
Camino Las Ramblas					
Camino Capistrano to I-5 on/off ramp	38,000	67.6	322	149	69
Via Canon					
North of Camino Capistrano	1,500	50.6	-	-	-
South of Camino Capistrano	3,000	53.6	38	-	-
Interstate 5					
East of Camino Las Ramblas	242,000	81.9	2,867	1,331	618
West of Camino Las Ramblas	243,300	81.6	2,742	1,273	591
Camino Las Ramblas SB off-ramp	12,100	66.2	258	120	56

Notes: ADT = average daily traffic; dBA = A-weighted decibels; CNEL = Community Noise Equivalent Level, - = contour is located within the roadway right-of-way.

Source: Noise modeling is based on traffic data within *Victoria Boulevard Apartments Traffic Impact Analysis* (Traffic Impact Analysis) prepared by Ganddini Group, Inc., dated April 29, 2020.

REGULATORY SETTING

State of California

California Noise Control Act of 1973

Sections 46000 through 46080 of the California Health and Safety Code, known as the California Noise Control Act, find that excessive noise is a serious hazard to public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. The act also finds that there is a continuous and increasing bombardment of noise in urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the state to provide an environment for all Californians that is free from noise that jeopardizes their health or welfare.

Office of Planning and Research

The State Office of Planning and Research's *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. Table 4, *Land Use Compatibility for Community Noise Environments*, presents guidelines for determining acceptable and unacceptable community noise exposure limits for various land use categories. 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.

Table 4
Land Use Compatibility for Community Noise Environments

Land Use Category	Community Noise Exposure (L_{dn} or CNEL, dBA)			
	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 – 75	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

Notes: NA: Not Applicable; L_{dn}: average day/night sound level; CNEL: Community Noise Equivalent Level, dBA: A-weighted Decibel

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 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 included in the design.

Clearly Unacceptable – New construction or development should generally not be undertaken.

Source: Office of Planning and Research, *State of California General Plan Guidelines*, October 2017.

City of Dana Point

City of Dana Point General Plan

The *City of Dana Point General Plan* (General Plan) *Noise Element* (Noise Element) is a tool for the City to achieve and maintain environmental noise levels compatible with different types of land use. The Noise Element identifies noise sensitive land uses and noise sources and defines areas of noise impact within the City. In addition, the Noise Element establishes goals, policies, and strategies to ensure that City residents are protected from excessive noise. Table 5, *Noise/Land Use Compatibility Matrix* and Table 6, *Interior and Exterior Noise Standards* shows the City's adopted noise standards and guidelines.

Table 5
Noise/Land Use Compatibility Matrix

Land Use Category		Community Noise Exposure (CNEL)						
Designations	**Uses**	**<55**	**60**	**65**	**70**	**75**	**80**	**80>**
Residential (All except mobile home)	Single Family, Duplex, Multiple Family	A	A	B	B	C	D	D
Residential	Mobile Home	A	A	B	C	C	D	D
Visitor/Recreation Commercial	Hotel, Motel, Transient Lodging	A	A	B	B	C	C	D
Neighborhood Commercial, Community Commercial	Commercial Retail, Bank, Restaurant, Movie Theater	A	A	A	A	B	B	C
Professional/Administrative, Industrial. Business Park	Office Building, Research and Development, Professional Offices, City Office Building	A	A	A	B	B	C	D
Community Facility	Amphitheater, Concert Hall, Auditorium, Meeting Hall	B	B	C	C	D	D	D
Visitor/Recreation Commercial, Community Commercial	Children's Amusement Park, Miniature Golf Course, Go-cart Track; Equestrian Center, Sports Club	A	A	A	B	B	D	D
Community Commercial, Industrial/Business Park, Community Facility	Automobile Service Station, Auto Dealership, Manufacturing. Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B
Community Facility	Hospital, Church, Library, Schools Classroom	A	A	B	C	C	D	D
Open Space	Parks	A	A	A	B	C	D	D
Open Space	Golf Course, Cemeteries, Nature Centers, Wildlife Reserves/Habitat	A	A	A	A	B	C	C
Open Space	Agriculture	A	A	A	A	A	A	A

Notes: CNEL: Community Noise Equivalent Level

Zone A Clearly Compatible: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

Zone B Normally Compatible – New construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.

Zone C Normally Incompatible - 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 included in the design.

Zone D Clearly Incompatible – New construction or development should generally not be undertaken.

Source: City of Dana Point, *City of Dana Point General Plan*, July 9, 1991.

Table 6
Interior and Exterior Noise Standards

Land Use Category		Community Noise Exposure (CNEL)	
Designations	**Uses**	**Interior[1]**	**Exterior[2]**
Residential (All)	Single Family Duplex, Multiple Family	45[3]	65
	Mobile Home	-	65[4]
Neighborhood Commercial, Community Commercial, Visitor/Recreation Commercial, Commercial/Residential, Professional/Administrative, Industrial/Business Park, Open Space, Harbor Marine Land	Hotel, Motel, Transient Lodging	45	-
	Commercial Retail, Bank, Restaurant	55	-
	Office Building, Research and Development, Professional Offices, City Office Building	50	-
	Amphitheater, Concert Hall, Auditorium, Meeting Hall	45	-
	Gymnasium (Multipuporse)	50	-
	Sports Club	55	-
	Manufacturing, Warehousing, Wholesale, Utilities	65	-
	Movie Theaters	45	-
Community Facility	Hospital, Schools classroom	45	65
	Church, Library	45	-
Open Space	Parks	-	65

Notes: CNEL: Community Noise Equivalent Level

1. Indoor environment including: Bathrooms, toilets, closest, corridors
2. Outdoor environmental limited to: Private yard of single family, multi-family private patio or balcony which is served by a means of exit from inside the dwelling, balconies 6 feet deep or less are exempt, mobile home park, park's picnic area, schools' playground.
3. Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided as of Chapter 12, Section 1205 of State of California Uniform Building Code (UBC).
4. Exterior noise levels should be such that interior noise levels will not exceed 45 CNEL.

Source: City of Dana Point, *City of Dana Point General Plan*, July 9, 1991.

In addition, the following Noise Element goals, policies, and strategies would be applicable to the project:

Noise and Land Use Planning Integration

Noise and land use incompatibilities can be avoided for new developments when noise is properly considered in the planning, design, and permitting of a project. The City desires to prevent future land use and noise conflicts through the planning and approval process.

Goal 2: Incorporate noise considerations into land use planning decisions.

Policy 2.1: Establish acceptable limits of noise for various land uses throughout the community, in accordance with Table 6.

Policy 2.2: Ensure acceptable noise levels near schools, hospitals, convalescent homes, and other noise sensitive areas, in accordance with Table 5.

Policy 2.3: Establish standards for all types of noise not already governed by local ordinances or preempted by State or Federal Law.

Policy 2.4: Require noise reduction techniques in site and architectural design and construction where noise reduction is necessary.

Policy 2.5: Discourage location noise sensitive land uses in noisy environments.

Strategy 5

Enforce standards that specify acceptable limit of noise for various land uses throughout the City. Table 5 shows criteria used to assess the compatibility of proposed land uses with the noise environment. These criteria are the bases of specific Noise Standards. These standards, presented in Table 6, define City policy related to land uses and acceptable noise levels.

Strategy 6

Incorporation of noise reduction features during site planning to mitigate anticipated noise impacts on affected noise sensitive land uses. New development will be permitted only if appropriate mitigation measures are included such that the standards contained in the Noise Element are met.

Strategy 7

Enforce the provisions of the State of California Uniform Building Code (UBC) which specifies that the indoor noise levels for multi-family residential living spaces not exceed 45 dB CNEL due to the combined effect of all noise sources. The State requires implementation of this standard when the outdoor noise levels exceed 60 dB CNEL. The Noise Referral Zones (60 dB CNEL) can be used to determine when this standard needs to be addressed. The Uniform Building Code (specifically, the California Administrative Code, Title 24, Part 6, Division T25, Chapter 1, Subchapter 1, Article 4, Sections T25-28) requires that “Interior community noise levels (CNEL/LDN) with windows closed, attributable to exterior sources shall not exceed an annual CNEL or LDN of 45 dB in any habitable room". The code requires that this standard he applied to all new hotels, motels, apartment houses and dwellings other than detached single-family dwellings. The City will also, as a matter of policy, apply this standard to single family dwellings.

City of Dana Point Municipal

Chapter 11.10 *Noise Control* of the *City of Dana Point Municipal Code* (Municipal Code) contains the City’s noise control regulations. The following sections of the Municipal Code are applicable to the proposed project.

11.10.008. – Designated Noise Zone.

The entire City of Dana Point is hereby designated as "Noise Zone 1."

11.10.010 Exterior Noise Standards.

(a) The following noise standards, unless otherwise specifically indicated, shall apply to all or any sound or noise which is received on residential property occupied by another person within a designated noise zone (refer to Table 7, *Exterior Noise Standards*)*:*

Table 7
Exterior Noise Standards

Noise Zone	Noise Level	Time Period
1	55 dB(A)	7:00 a.m. – 10:00 p.m.
	50 dB(A)	10:00 p.m. – 7:00 a.m.

Notes: dB(A)= A-weighted decibels

1. In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by five (5) dB (A).

(b) It is unlawful for any person at any location within the City of Dana Point to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any residential property, to exceed::

1. The noise standard for a cumulative period of more than thirty (30) minutes in any hour; or

2. The noise standard plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour; or

3. The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or

4. The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one minute in any hour; or

5. The noise standard plus twenty (20) dB(A) for any period of time.

(c) In the event the ambient noise level exceeds any of the first four (4) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

11.10.012 Interior Noise Standards.

(a) The following interior noise standards, unless otherwise specifically indicated, shall apply to any sound or noise which is received on residential property occupied by another person within a designated noise zone (refer to Table 8, *Interior Noise Standards*)*:*

Table 8
Interior Noise Standards

Noise Zone	Noise Level	Time Period
1	55 dB(A)	7:00 a.m. – 10:00 p.m.
	45 dB(A)	10:00 p.m. – 7:00 a.m.

Notes: dB(A)= A-weighted decibels

1. In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by five (5) dB (A).

(b) It is unlawful for any person at any location within the City Dana Point to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured within any dwelling unit on any residential property, to exceed:

1. The interior noise standard for a cumulative period of more than five (5) minutes in any hour; or

2. The interior noise standard plus five (5) dB(A) for a cumulative period of more than one minute in any hour; or

3. The interior noise standard plus ten (10) dB(A) for any period of time.

(c) In the event the ambient noise level exceeds either of the first two (2) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the third noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

11.10.014 Special Provisions.

The following activities shall be exempted from the provisions of this Chapter:

(e) Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a Federal holiday, with the exception of work on Pacific Coast Highway between the San Juan Creek Bridge and Crystal Lantern which is defined in Subsection (k) of this Section.

(i) Noise sources associated with the maintenance of real property, provided said activities take place between 7:00 a.m. and 8:00 p.m. on any day except Sunday or a Federal holiday, or between the hours of 9:00 a.m. and 8:00 p.m. on Sunday or a Federal holiday;

REFERENCES

Documents

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

2. City of Dana Point, *General Plan*, adopted July 9, 1991.

3. City of Dana Point, Municipal Code, h http://qcode.us/codes/danapoint/, accessed May 13, 2020.

4. Ganddini Group Inc., *Victoria Boulevard Apartments Traffic Impact Analysis,* April 29, 2020.

5. State Office of Planning and Research, *State of California General Plan Guidelines*, October 2017.

Websites / Programs

1. Google Earth, 2020.

Appendix A
Noise Data


Via Serra
Santa Rosa
Via Santa Rosa
NM1
NM2
NM3
NM4
NM5
Sepulveda Ave
La Playa Ave
Camino Capistrano
Google Earth
© 2020 Google
600 ft
N

2250

Instrument:		2250
Application:		BZ7225 Version 4.7.4
Start Time:		11/07/2019 09:36:16
End Time:		11/07/2019 09:46:16
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		142.09

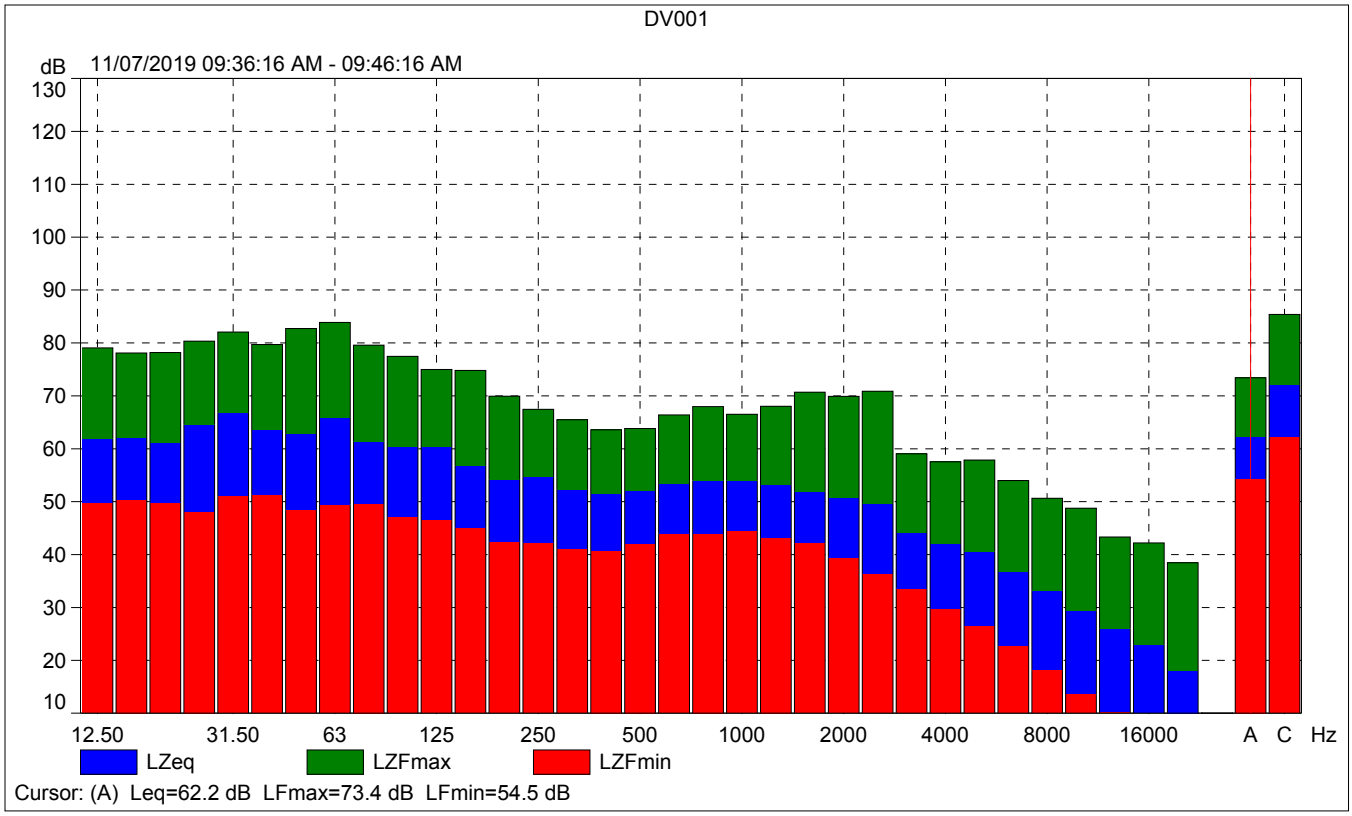
	Time	Frequency
Broadband (excl. Peak):	FSI	AC
Broadband Peak:		C
Spectrum:	FS	Z

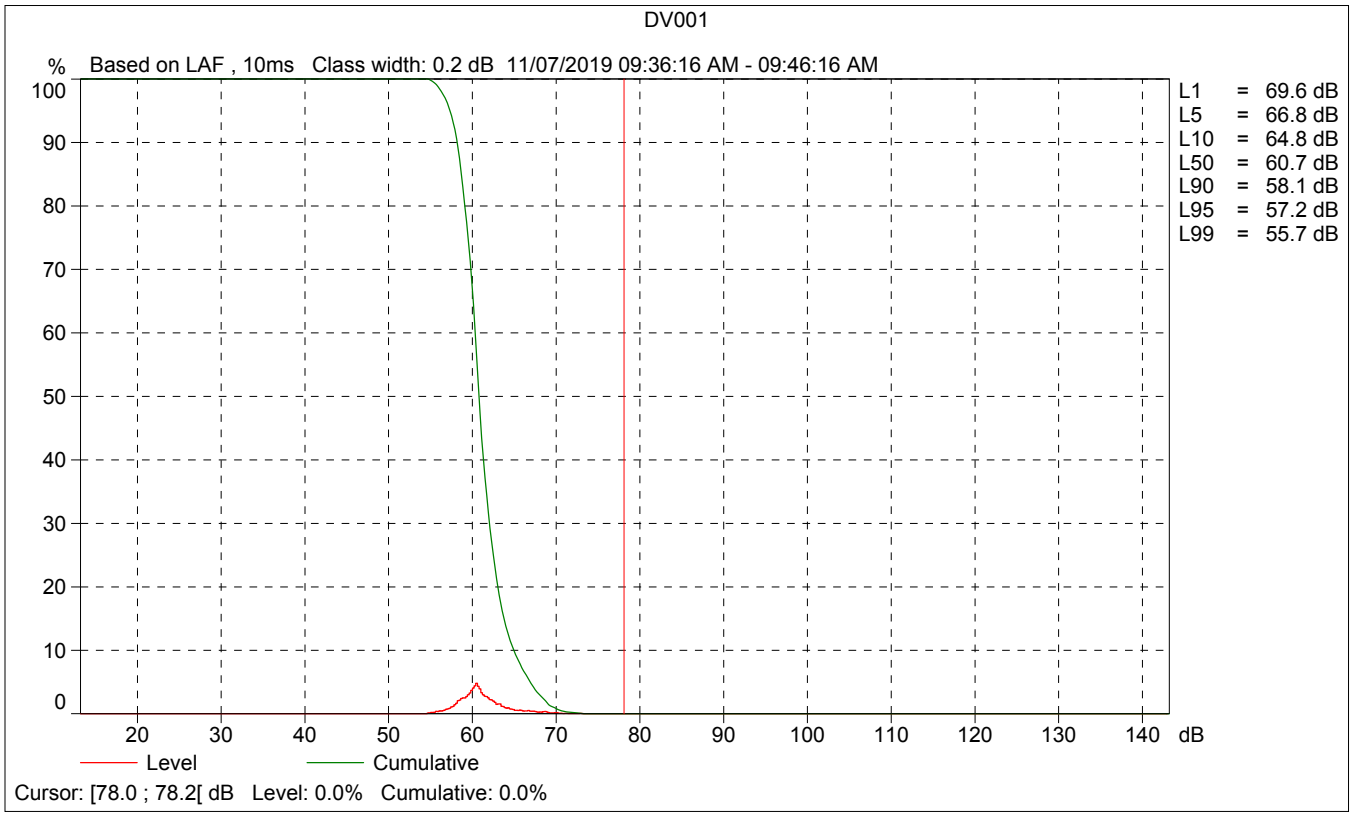
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		UA-1650
Sound Field Correction:		Free-field

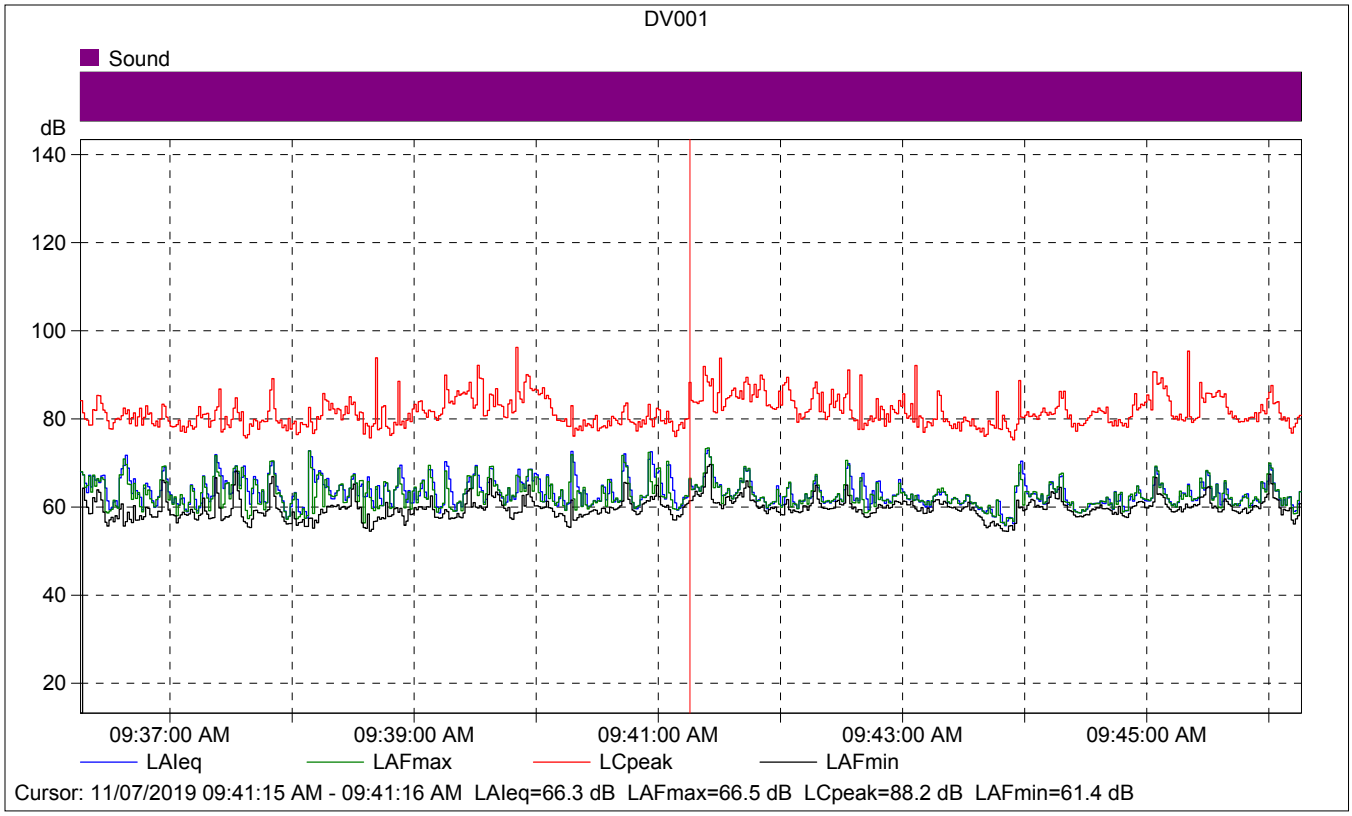
Calibration Time:		11/06/2019 08:05:54
Calibration Type:		External reference
Sensitivity:		43.8000895082951 mV/Pa

DV001

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	62.2	73.4	54.5
Time	09:36:16 AM	09:46:16 AM	0:10:00				
Date	11/07/2019	11/07/2019					

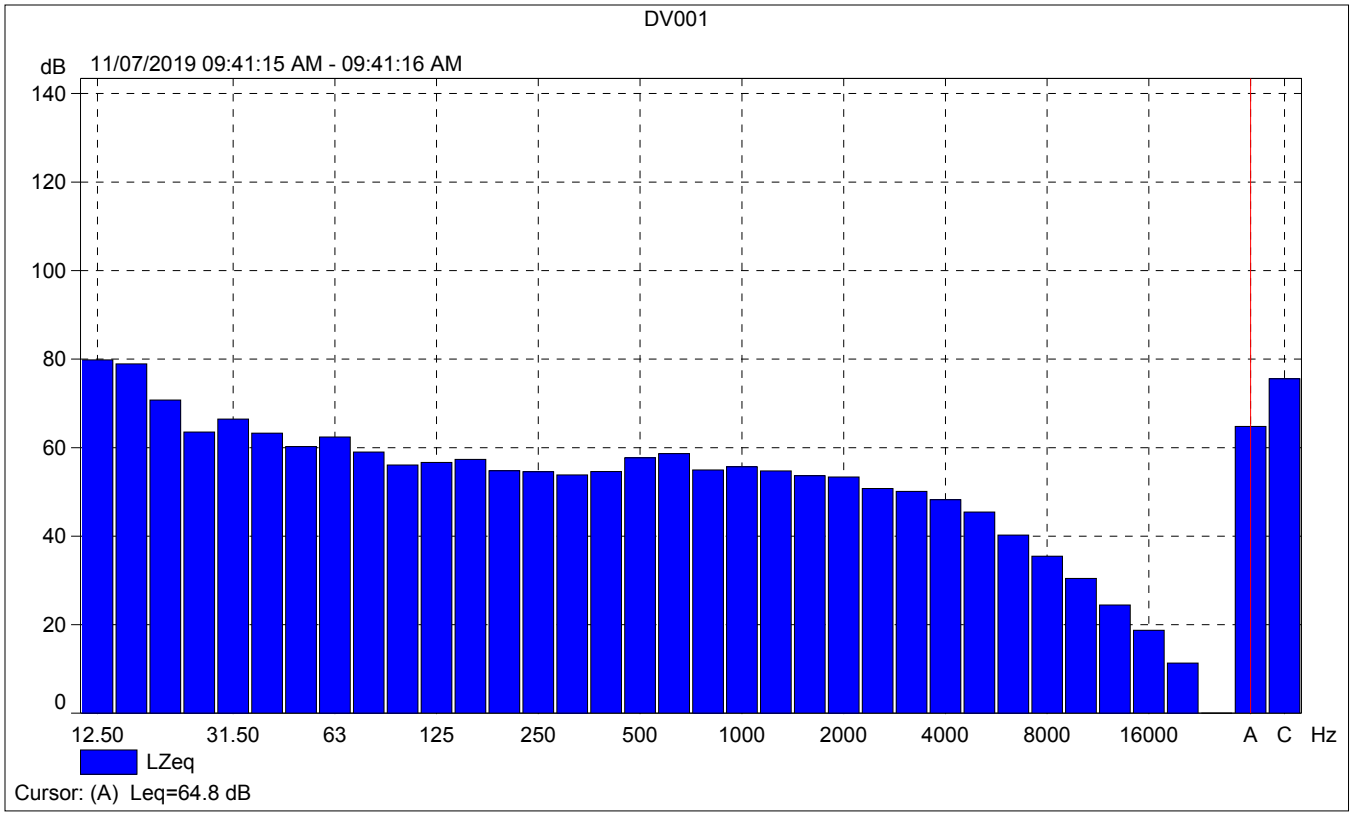

DV001
dB
11/07/2019 09:36:16 AM - 09:46:16 AM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=62.2 dB LFmax=73.4 dB LFmin=54.5 dB

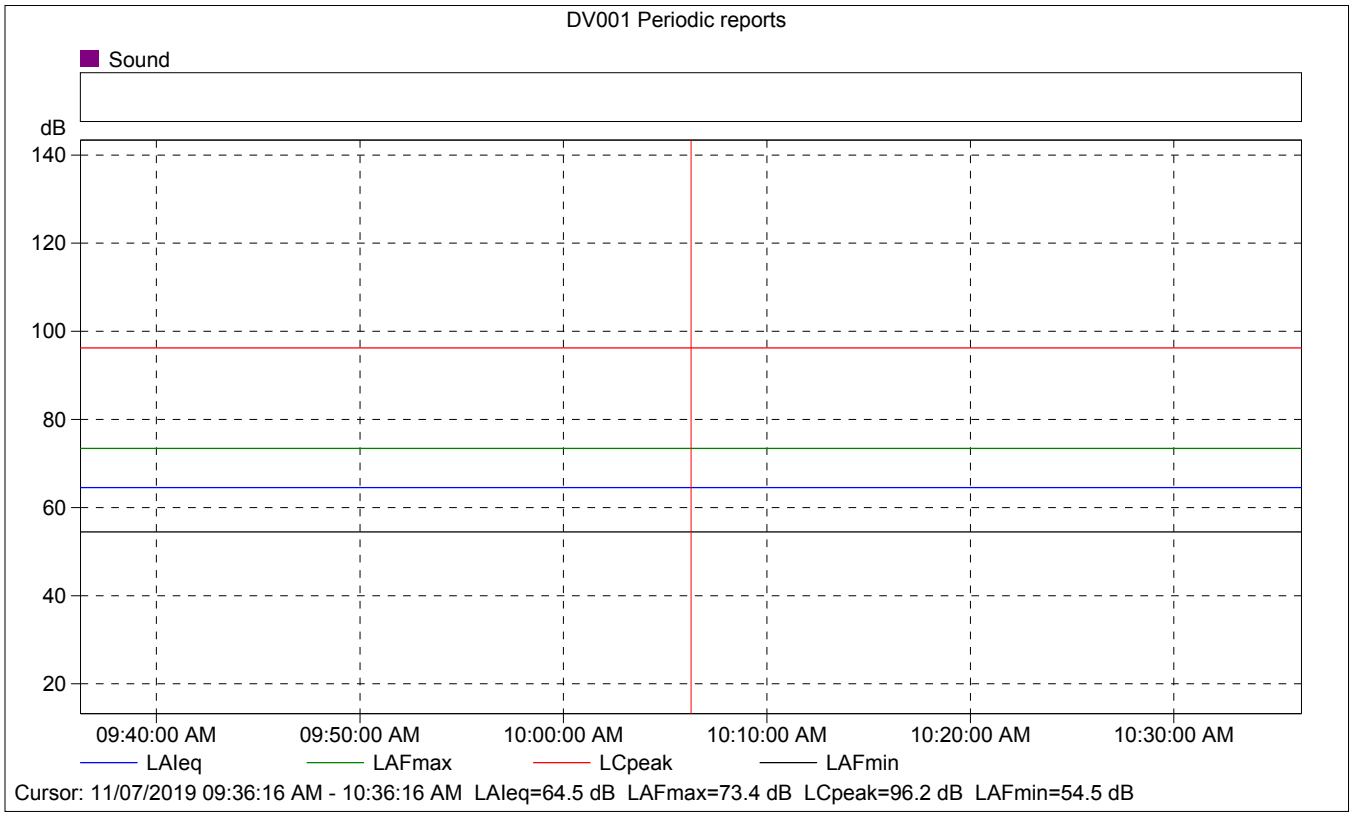

DV001
%
Based on LAF , 10ms Class width: 0.2 dB 11/07/2019 09:36:16 AM - 09:46:16 AM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 69.6 dB
L5 = 66.8 dB
L10 = 64.8 dB
L50 = 60.7 dB
L90 = 58.1 dB
L95 = 57.2 dB
L99 = 55.7 dB
Level
Cumulative
Cursor: [78.0 ; 78.2[dB Level: 0.0% Cumulative: 0.0%



DV001

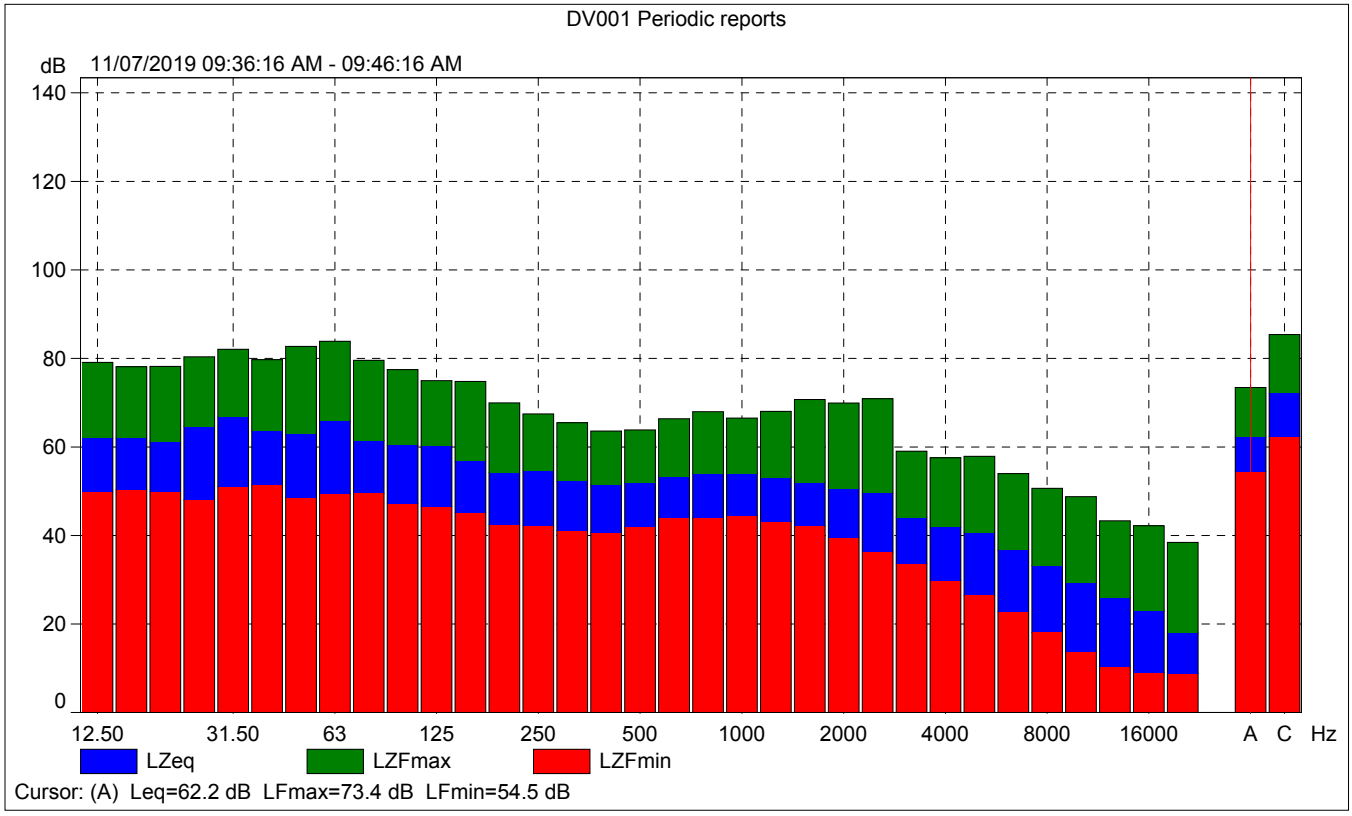
	Start time	Elapsed time	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			66.3	66.5	61.4
Time	09:41:15 AM	0:00:01			
Date	11/07/2019				

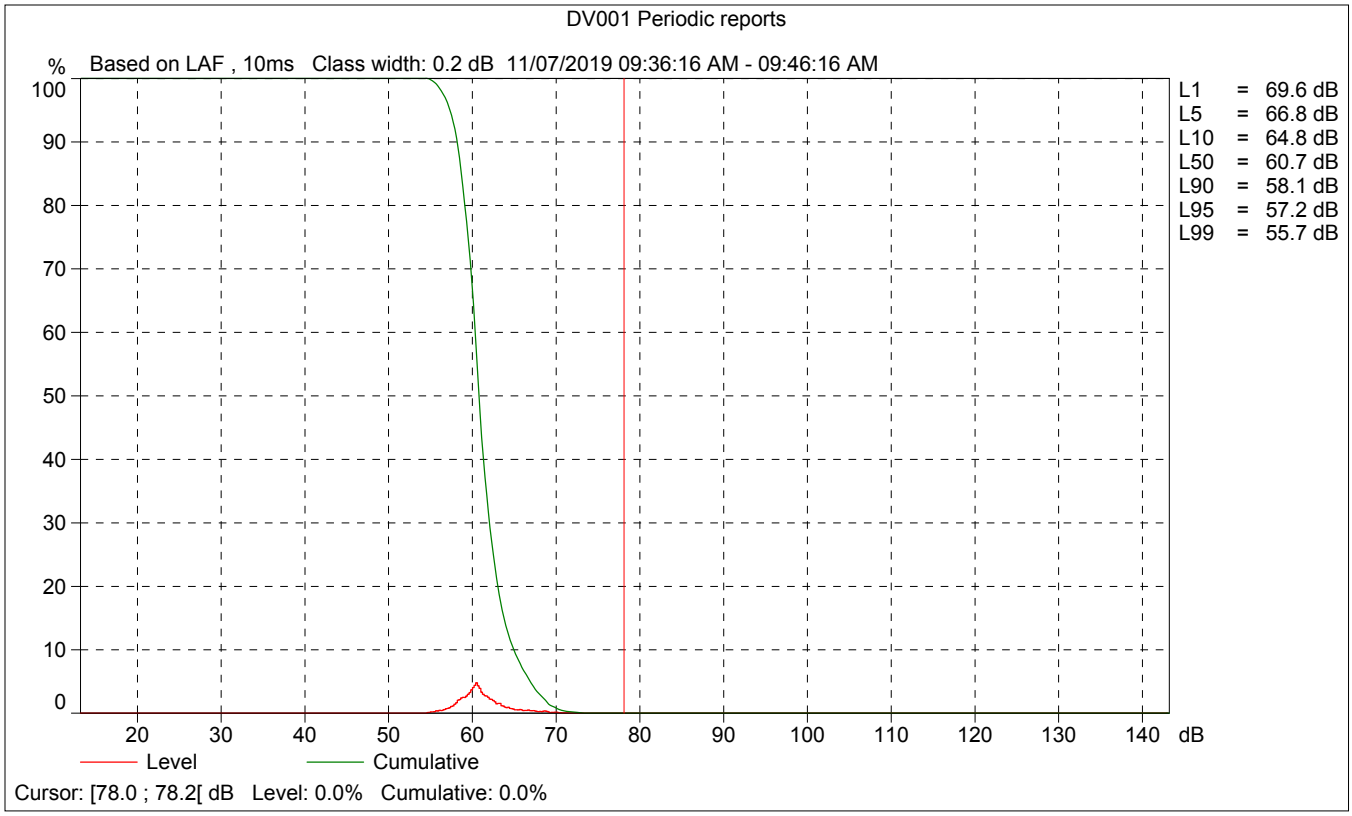

DV001
dB
11/07/2019 09:41:15 AM - 09:41:16 AM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
Cursor: (A) Leq=64.8 dB


DV001 Periodic reports
Sound
dB
140
120
100
80
60
40
20
09:40:00 AM
09:50:00 AM
10:00:00 AM
10:10:00 AM
10:20:00 AM
10:30:00 AM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 11/07/2019 09:36:16 AM - 10:36:16 AM LAIeq=64.5 dB LAFmax=73.4 dB LCpeak=96.2 dB LAFmin=54.5 dB

DV001 Periodic reports

	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	64.5	73.4	54.5
Time	09:36:16 AM	0:10:00				
Date	11/07/2019					




DV001 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 11/07/2019 09:36:16 AM - 09:46:16 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 = 69.6 dB
L5 = 66.8 dB
L10 = 64.8 dB
L50 = 60.7 dB
L90 = 58.1 dB
L95 = 57.2 dB
L99 = 55.7 dB
Level
Cumulative
Cursor: [78.0 ; 78.2[dB Level: 0.0% Cumulative: 0.0%

2250

Instrument:		2250
Application:		BZ7225 Version 4.7.4
Start Time:		11/07/2019 09:49:48
End Time:		11/07/2019 09:59:48
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		142.09

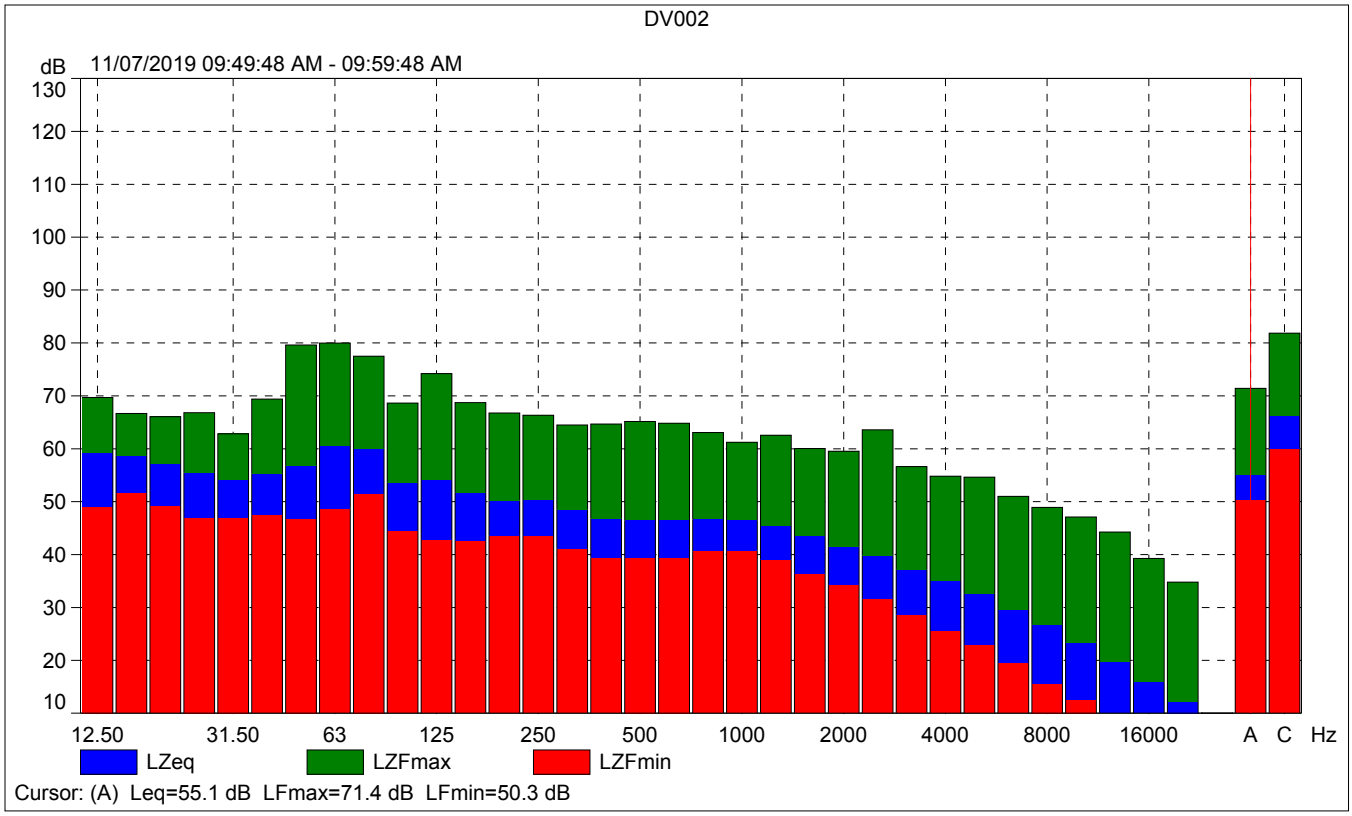
	Time	Frequency
Broadband (excl. Peak):	FSI	AC
Broadband Peak:		C
Spectrum:	FS	Z

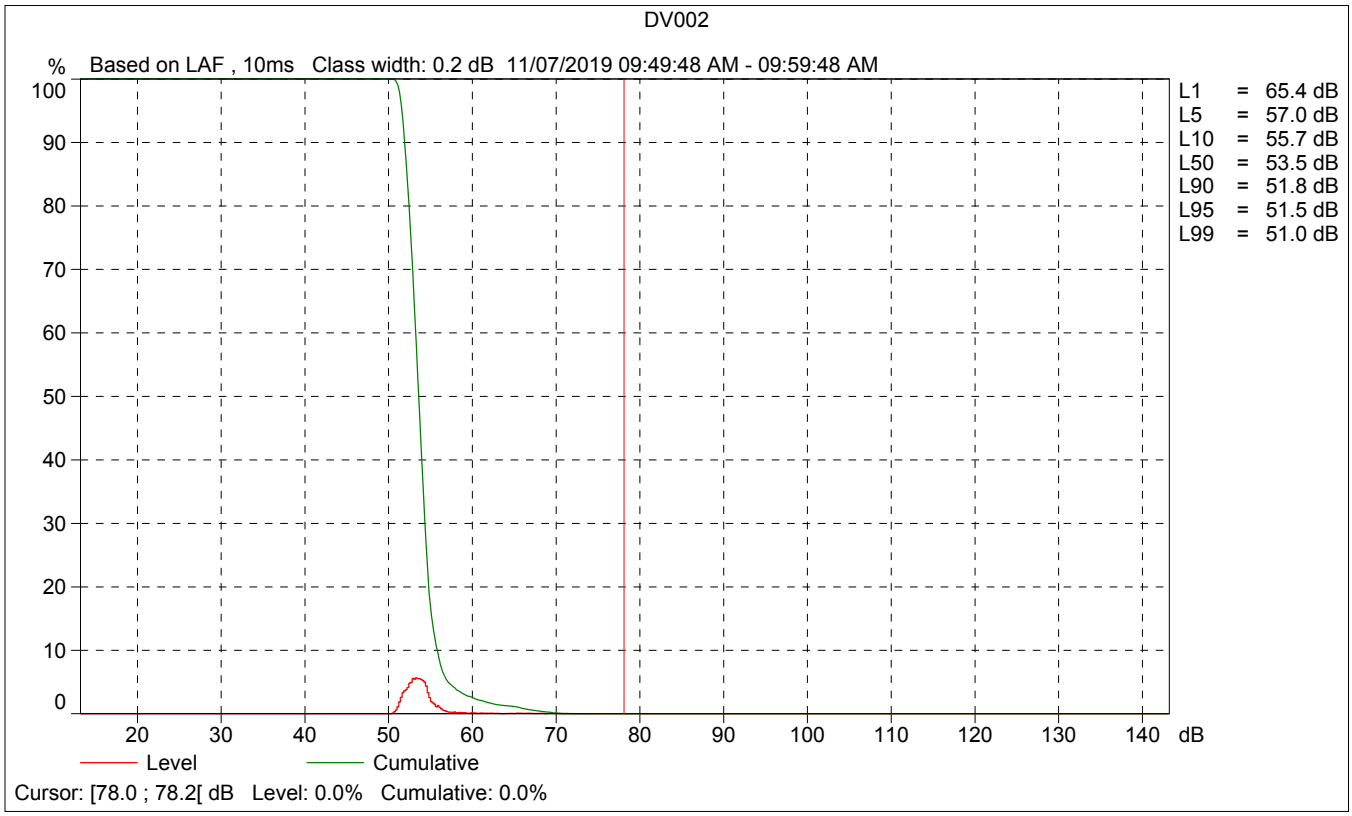
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		UA-1650
Sound Field Correction:		Free-field

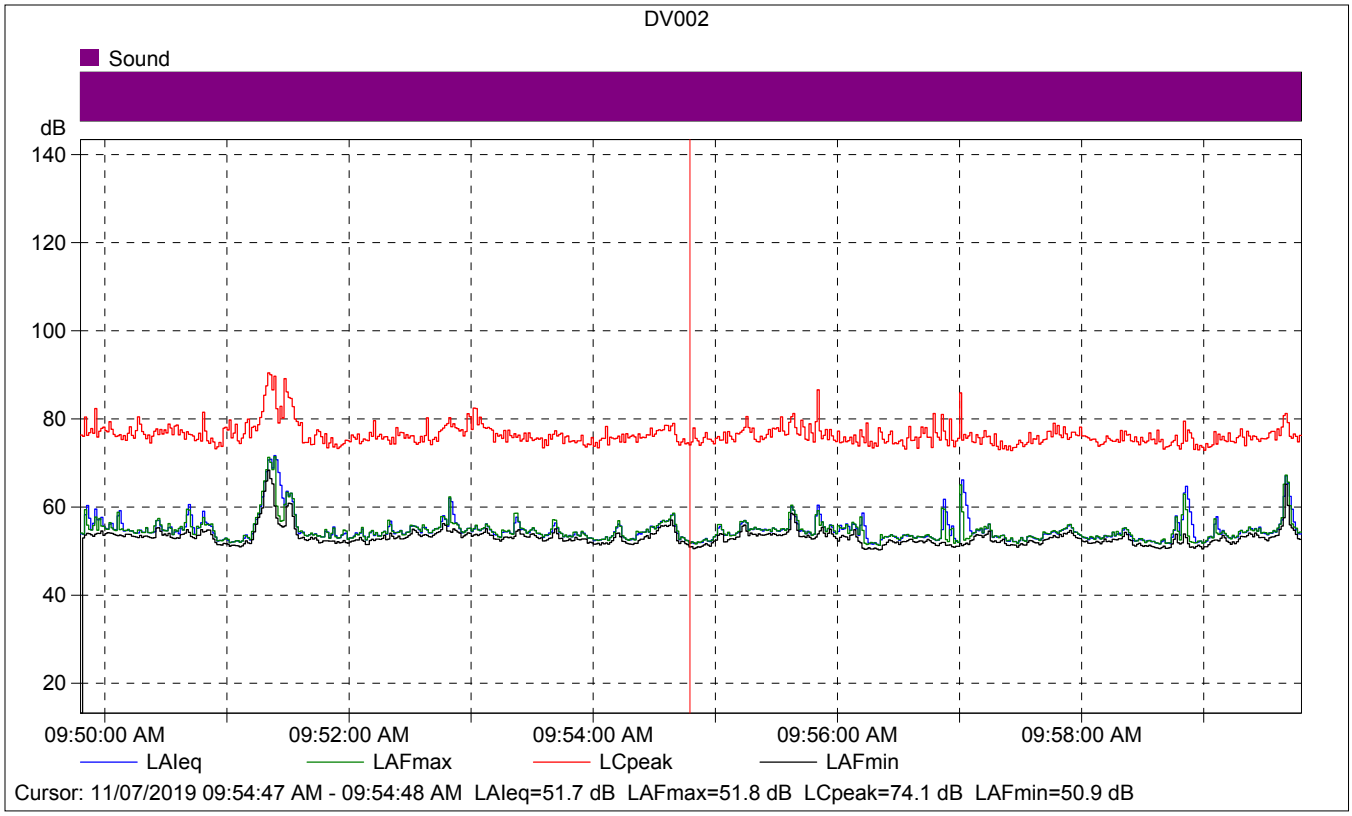
Calibration Time:		11/06/2019 08:05:54
Calibration Type:		External reference
Sensitivity:		43.8000895082951 mV/Pa

DV002

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	55.1	71.4	50.3
Time	09:49:48 AM	09:59:48 AM	0:10:00				
Date	11/07/2019	11/07/2019					

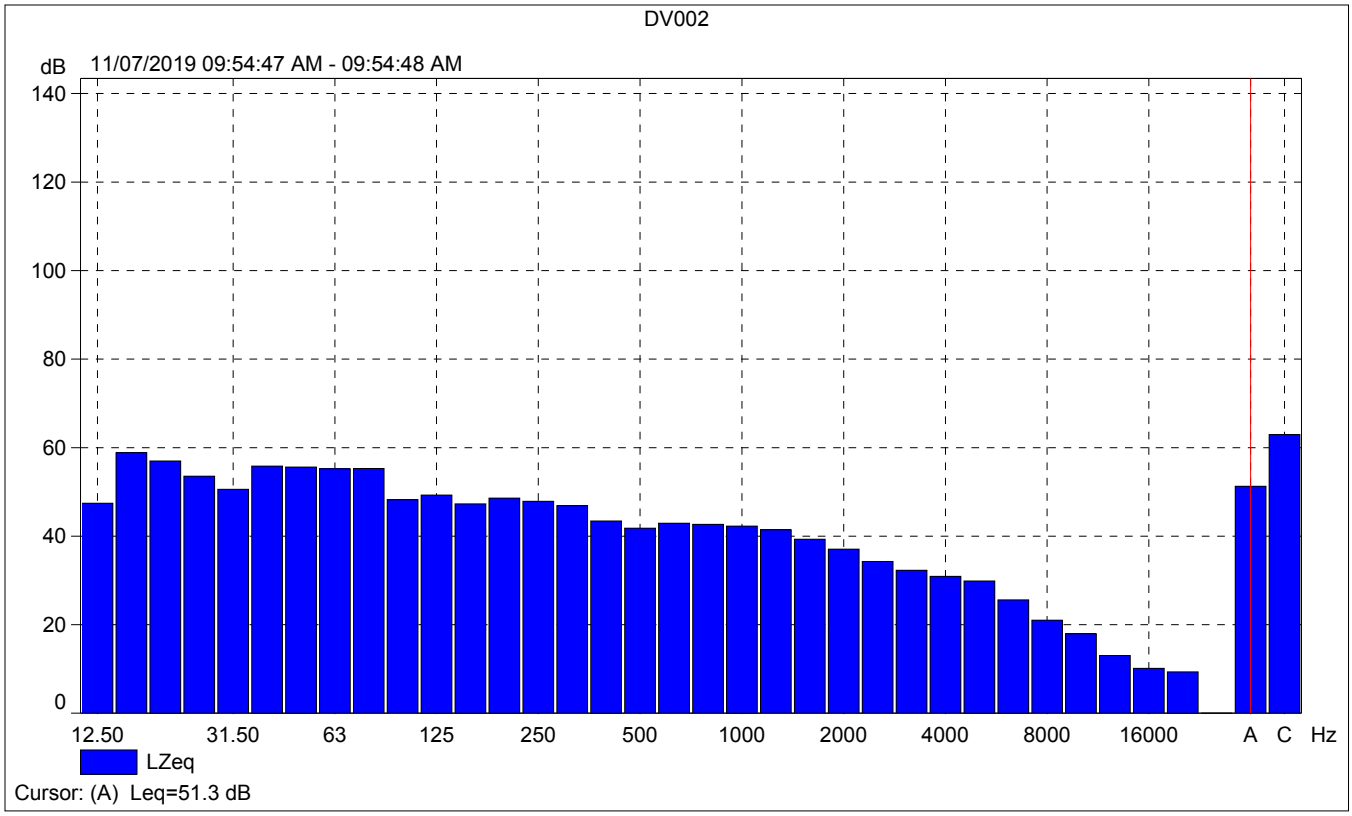

DV002
dB
11/07/2019 09:49:48 AM - 09:59:48 AM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=55.1 dB LFmax=71.4 dB LFmin=50.3 dB

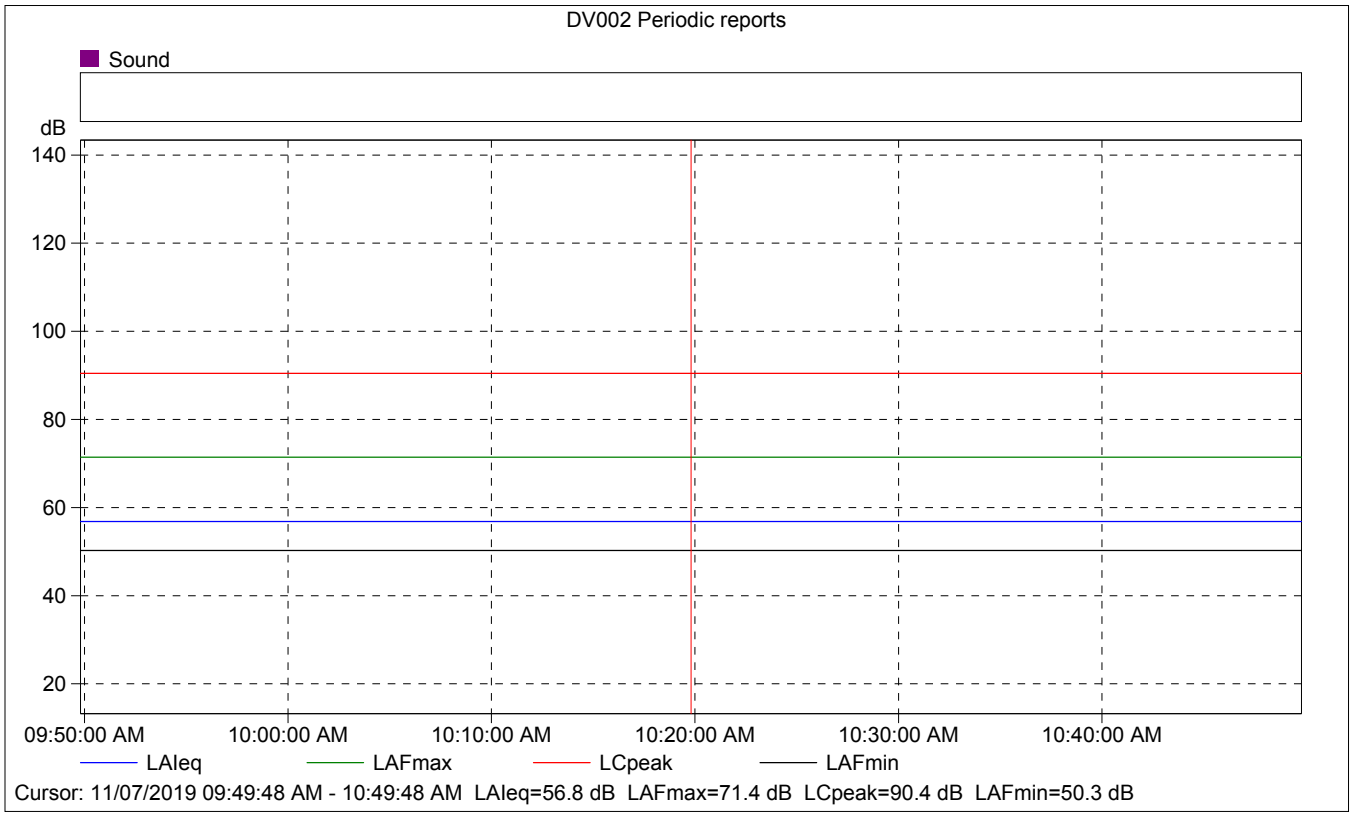

DV002
%
Based on LAF , 10ms Class width: 0.2 dB 11/07/2019 09:49:48 AM - 09:59:48 AM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 65.4 dB
L5 = 57.0 dB
L10 = 55.7 dB
L50 = 53.5 dB
L90 = 51.8 dB
L95 = 51.5 dB
L99 = 51.0 dB
Level
Cumulative
Cursor: [78.0 ; 78.2[dB Level: 0.0% Cumulative: 0.0%



DV002

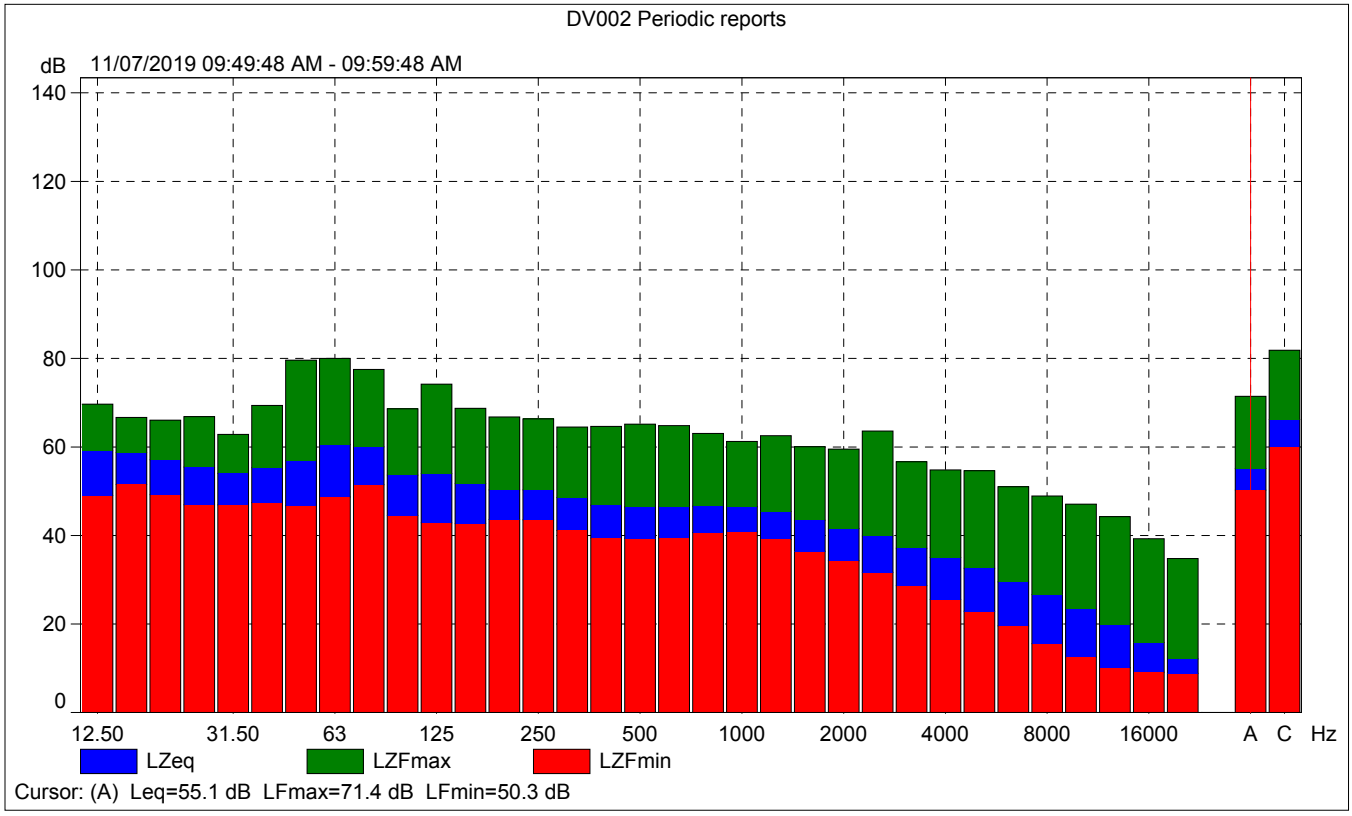
	Start time	Elapsed time	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			51.7	51.8	50.9
Time	09:54:47 AM	0:00:01			
Date	11/07/2019				

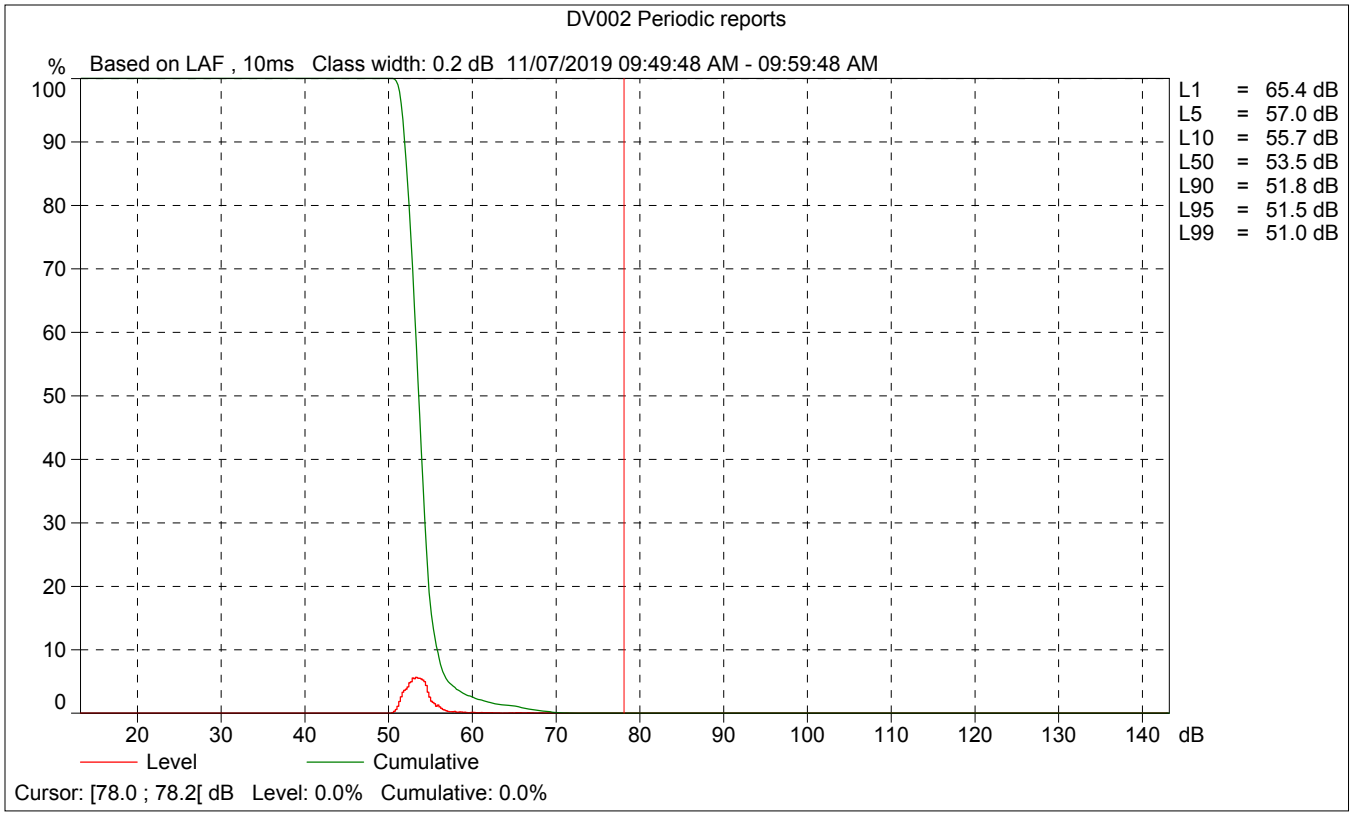

DV002
dB
11/07/2019 09:54:47 AM - 09:54:48 AM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
Cursor: (A) Leq=51.3 dB


DV002 Periodic reports
Sound
dB
140
120
100
80
60
40
20
09:50:00 AM
10:00:00 AM
10:10:00 AM
10:20:00 AM
10:30:00 AM
10:40:00 AM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 11/07/2019 09:49:48 AM - 10:49:48 AM LAIeq=56.8 dB LAFmax=71.4 dB LCpeak=90.4 dB LAFmin=50.3 dB

DV002 Periodic reports

	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	56.8	71.4	50.3
Time	09:49:48 AM	0:10:00				
Date	11/07/2019					




DV002 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 11/07/2019 09:49:48 AM - 09:59:48 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 = 65.4 dB
L5 = 57.0 dB
L10 = 55.7 dB
L50 = 53.5 dB
L90 = 51.8 dB
L95 = 51.5 dB
L99 = 51.0 dB
Level
Cumulative
Cursor: [78.0 ; 78.2[dB Level: 0.0% Cumulative: 0.0%

2250

Instrument:		2250
Application:		BZ7225 Version 4.7.4
Start Time:		11/07/2019 10:07:49
End Time:		11/07/2019 10:17:49
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		142.09

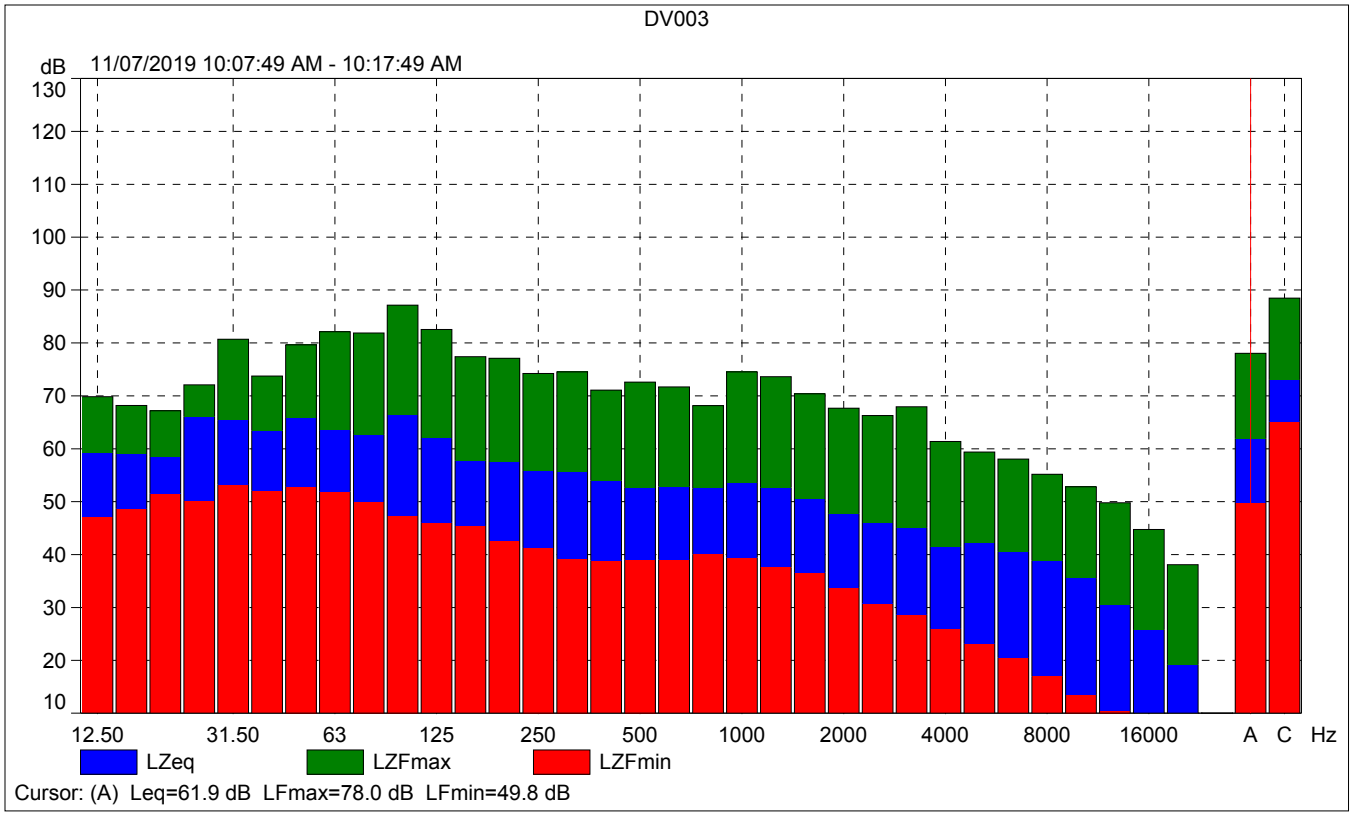
	Time	Frequency
Broadband (excl. Peak):	FSI	AC
Broadband Peak:		C
Spectrum:	FS	Z

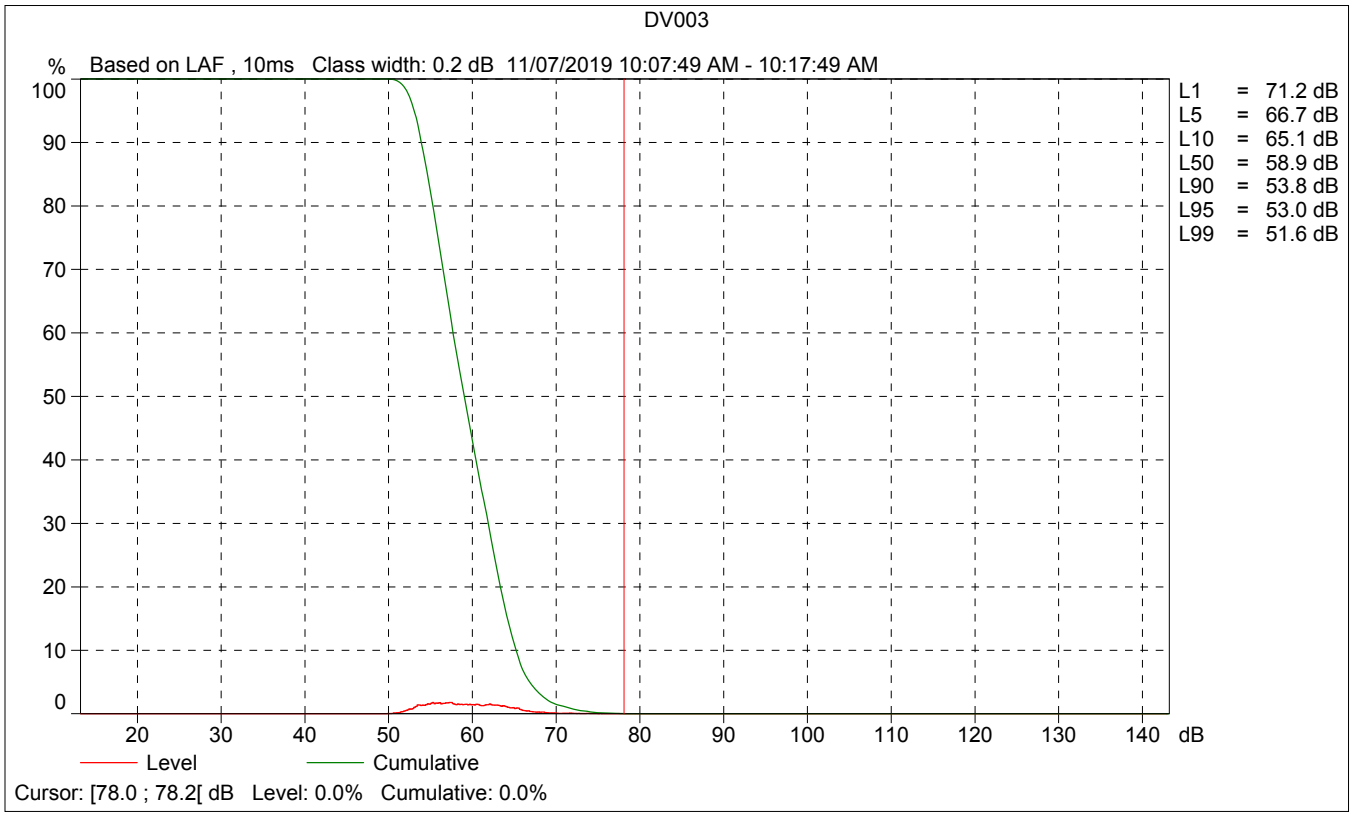
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		UA-1650
Sound Field Correction:		Free-field

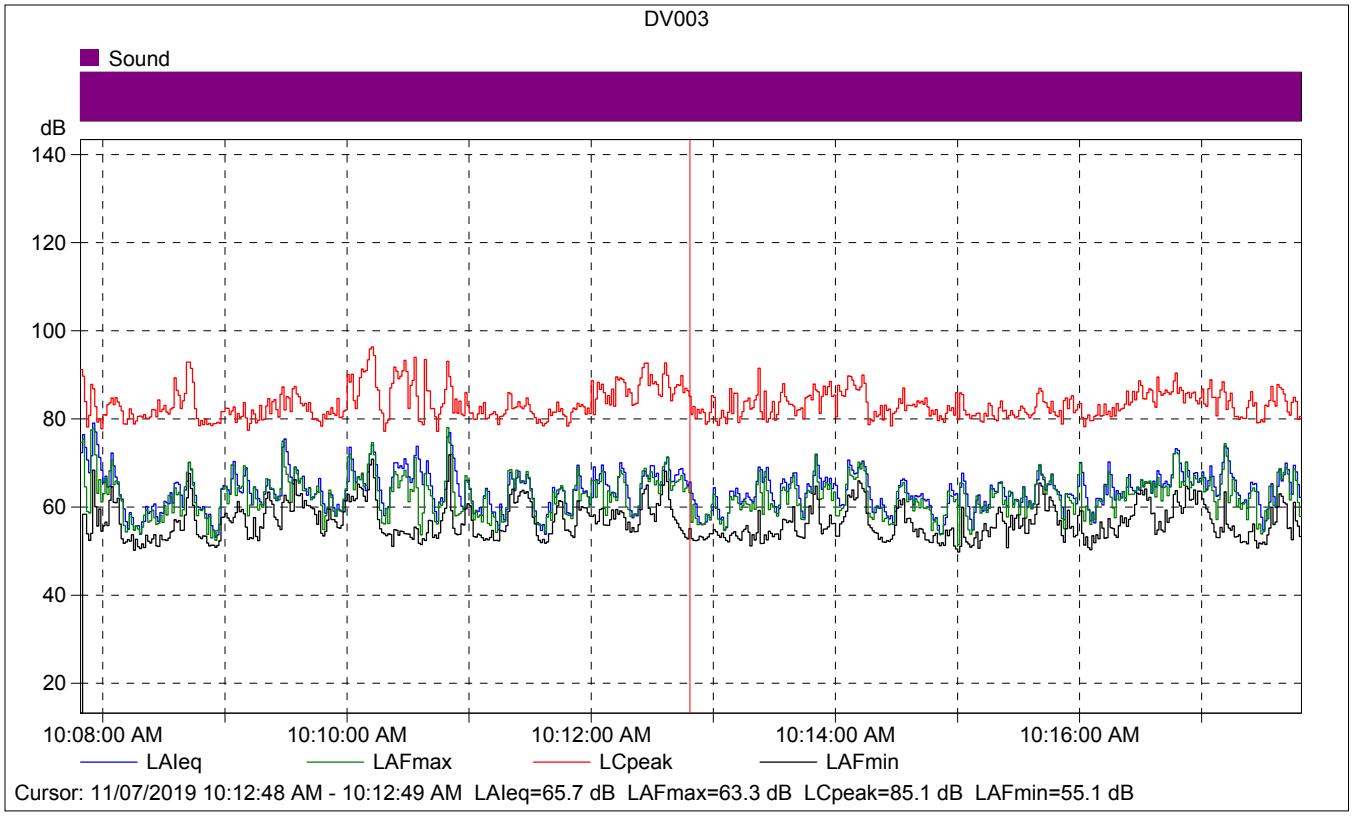
Calibration Time:		11/06/2019 08:05:54
Calibration Type:		External reference
Sensitivity:		43.8000895082951 mV/Pa

DV003

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	61.9	78.0	49.8
Time	10:07:49 AM	10:17:49 AM	0:10:00				
Date	11/07/2019	11/07/2019					

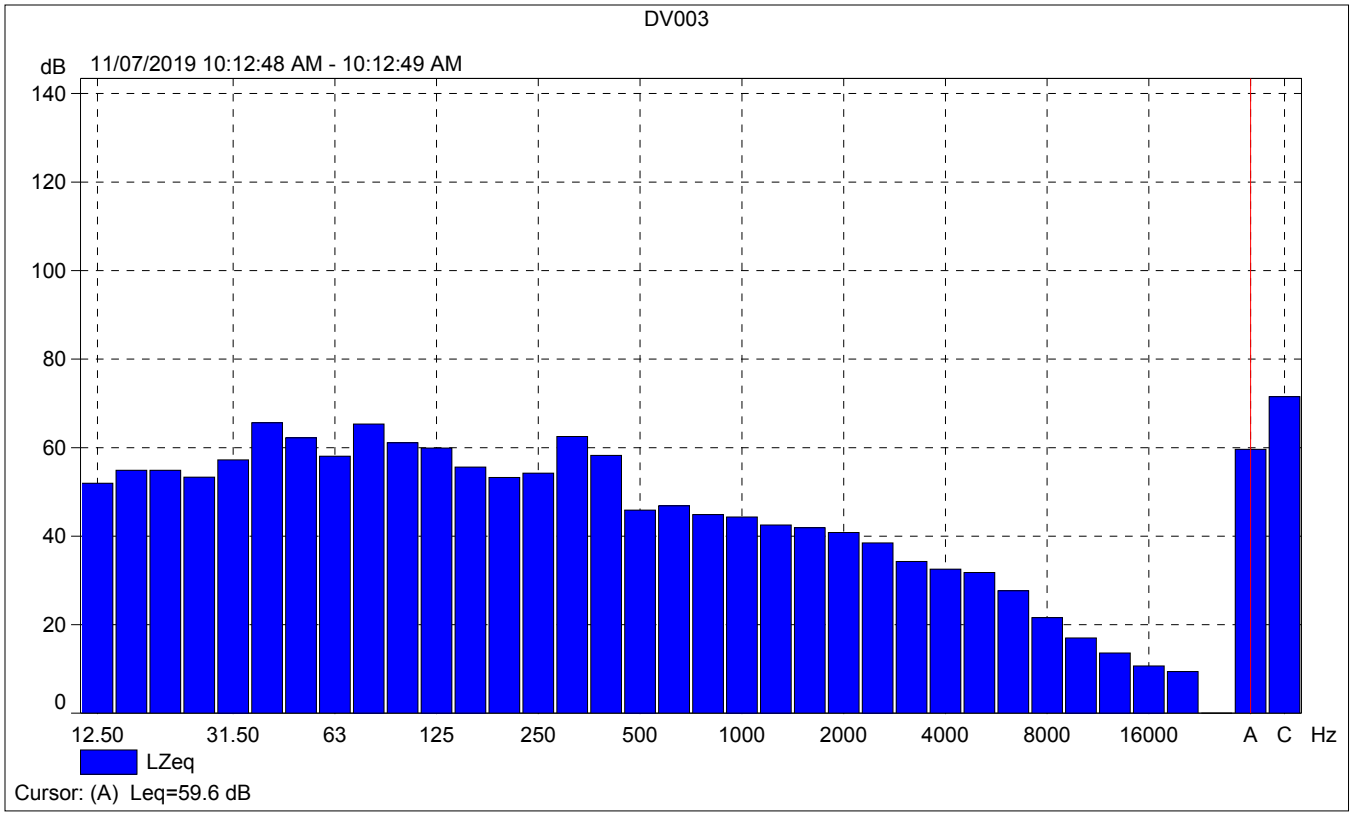

DV003
dB
11/07/2019 10:07:49 AM - 10:17:49 AM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=61.9 dB LFmax=78.0 dB LFmin=49.8 dB

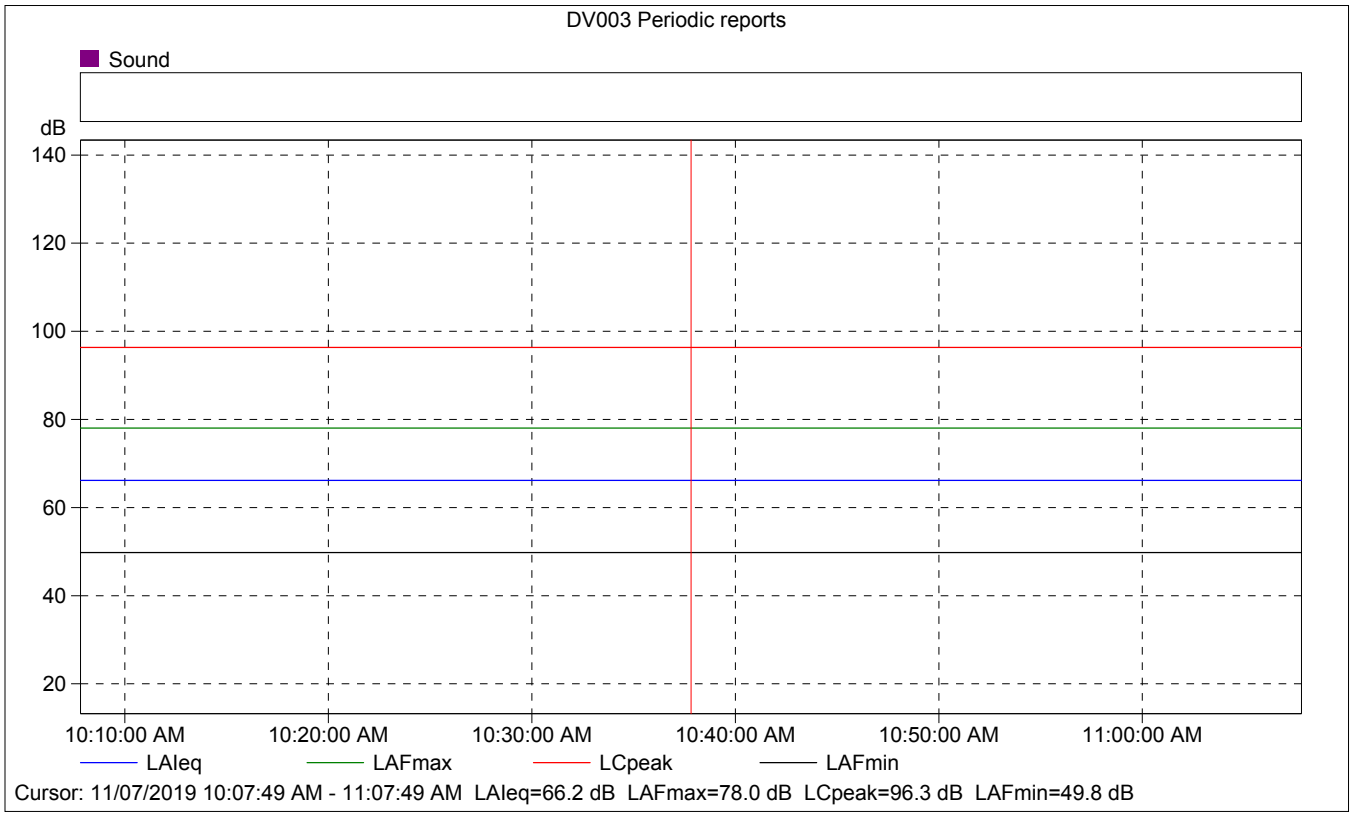

DV003
%
Based on LAF , 10ms Class width: 0.2 dB 11/07/2019 10:07:49 AM - 10:17:49 AM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 71.2 dB
L5 = 66.7 dB
L10 = 65.1 dB
L50 = 58.9 dB
L90 = 53.8 dB
L95 = 53.0 dB
L99 = 51.6 dB
Level
Cumulative
Cursor: [78.0 ; 78.2[dB Level: 0.0% Cumulative: 0.0%



DV003

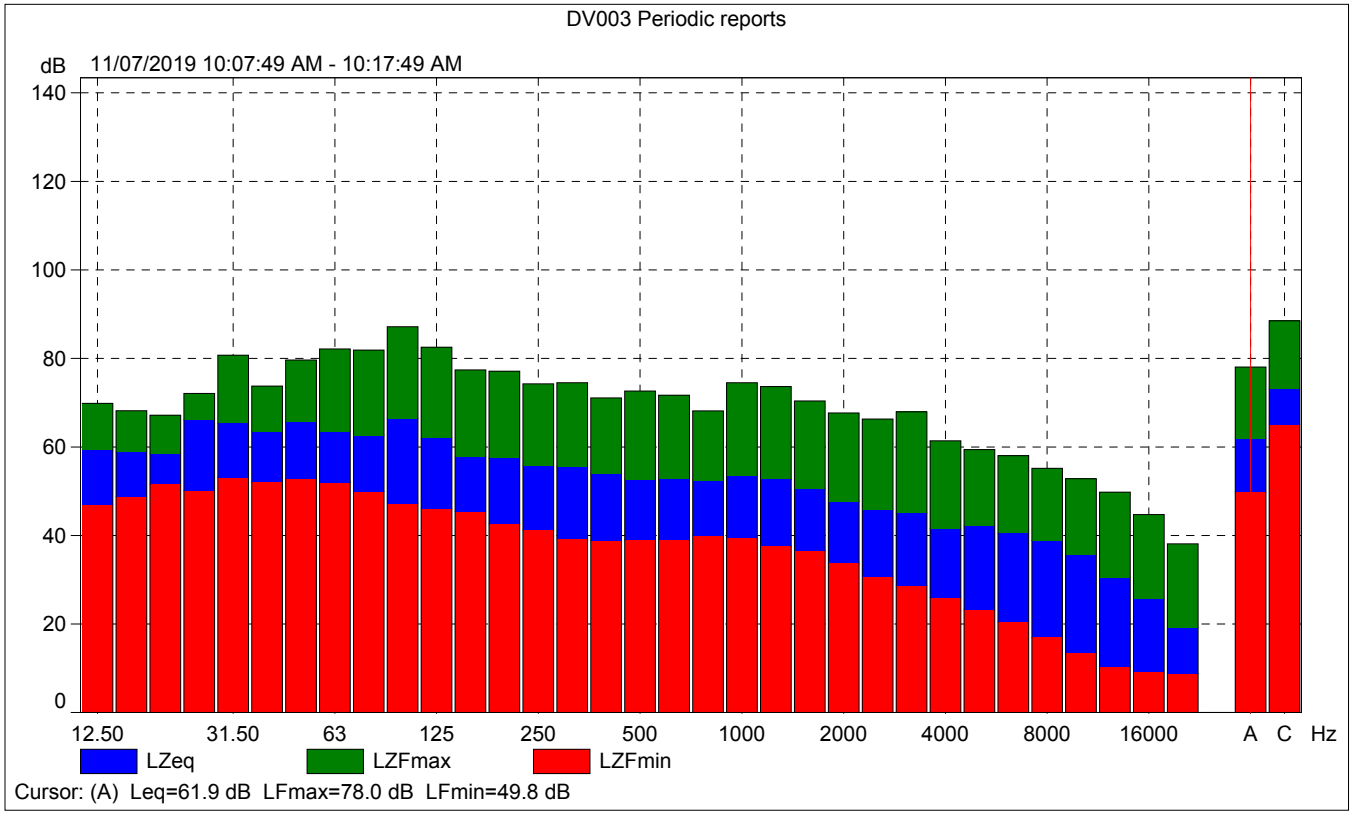
	Start time	Elapsed time	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			65.7	63.3	55.1
Time	10:12:48 AM	0:00:01			
Date	11/07/2019				

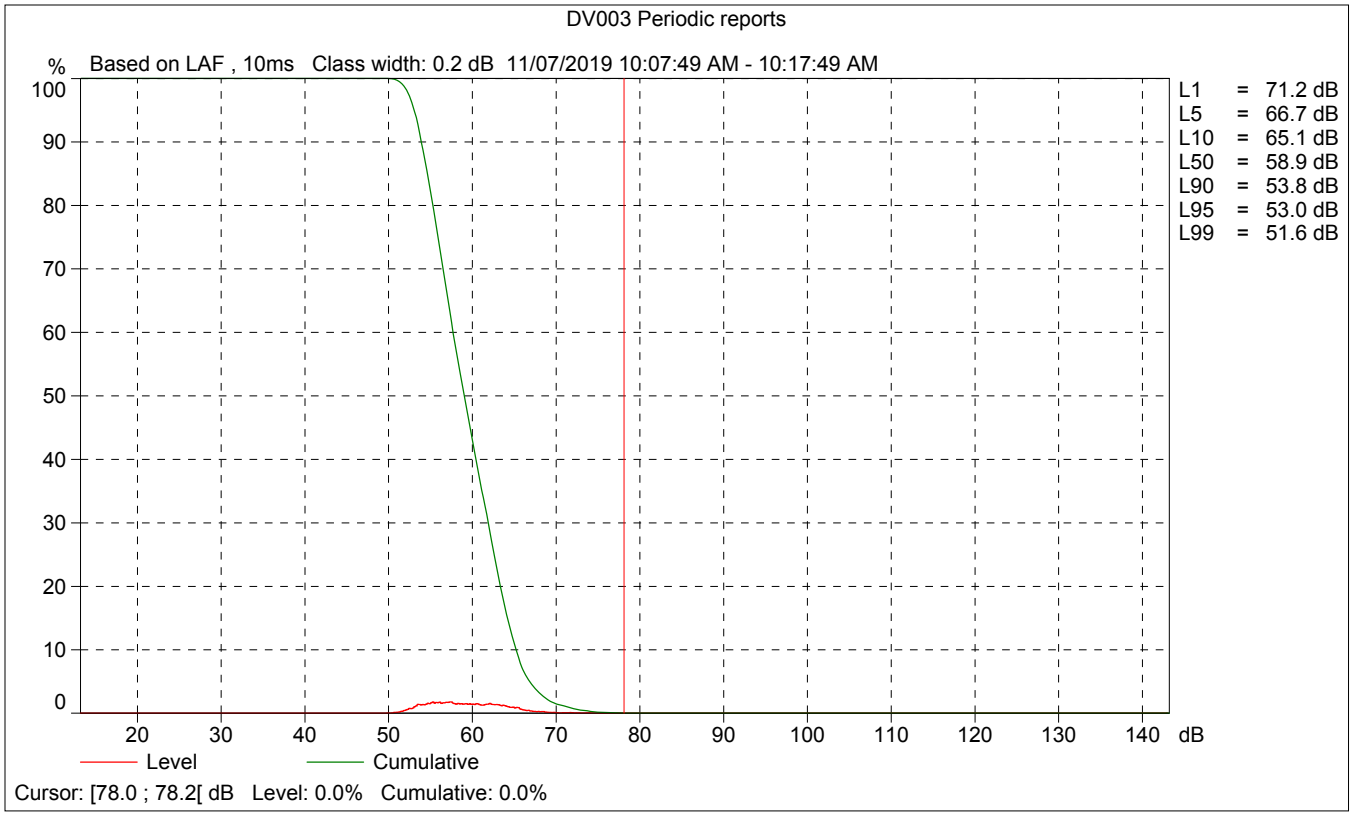

DV003
dB
11/07/2019 10:12:48 AM - 10:12:49 AM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
Cursor: (A) Leq=59.6 dB


DV003 Periodic reports
Sound
dB
140
120
100
80
60
40
20
10:10:00 AM
10:20:00 AM
10:30:00 AM
10:40:00 AM
10:50:00 AM
11:00:00 AM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 11/07/2019 10:07:49 AM - 11:07:49 AM LAIeq=66.2 dB LAFmax=78.0 dB LCpeak=96.3 dB LAFmin=49.8 dB

DV003 Periodic reports

	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	66.2	78.0	49.8
Time	10:07:49 AM	0:10:00				
Date	11/07/2019					




DV003 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 11/07/2019 10:07:49 AM - 10:17:49 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 = 71.2 dB
L5 = 66.7 dB
L10 = 65.1 dB
L50 = 58.9 dB
L90 = 53.8 dB
L95 = 53.0 dB
L99 = 51.6 dB
Level
Cumulative
Cursor: [78.0 ; 78.2[dB Level: 0.0% Cumulative: 0.0%

2250

Instrument:		2250
Application:		BZ7225 Version 4.7.4
Start Time:		11/07/2019 10:23:35
End Time:		11/07/2019 10:33:35
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		142.09

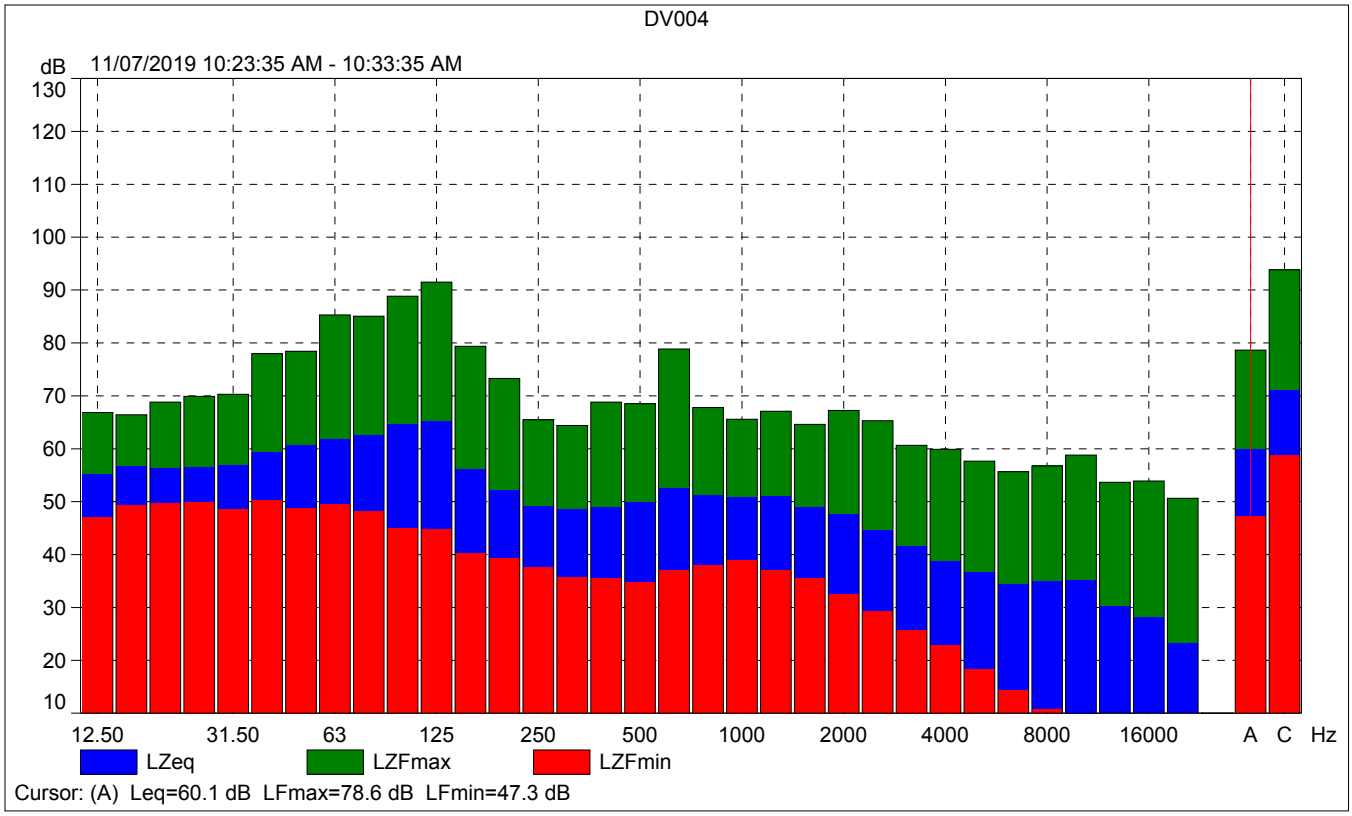
	Time	Frequency
Broadband (excl. Peak):	FSI	AC
Broadband Peak:		C
Spectrum:	FS	Z

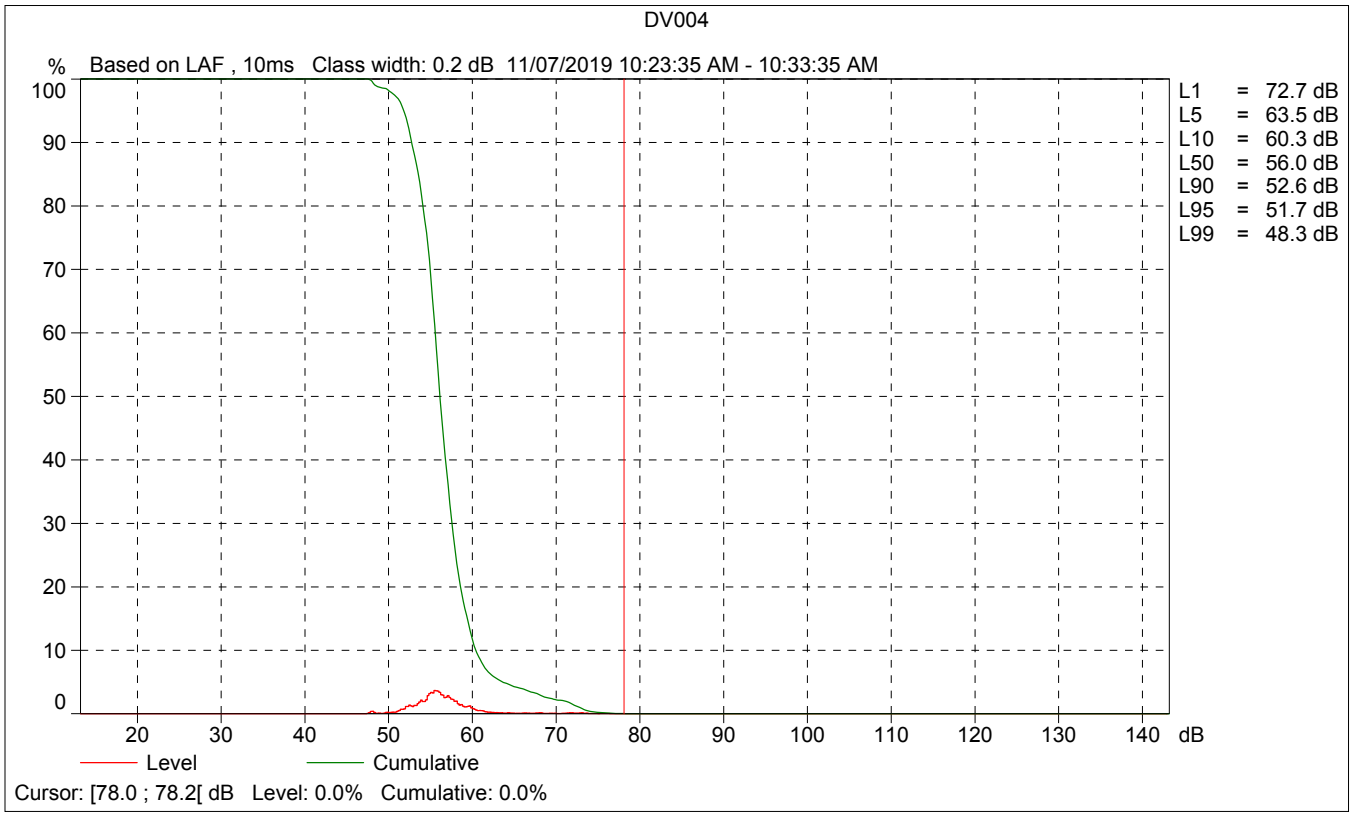
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		UA-1650
Sound Field Correction:		Free-field

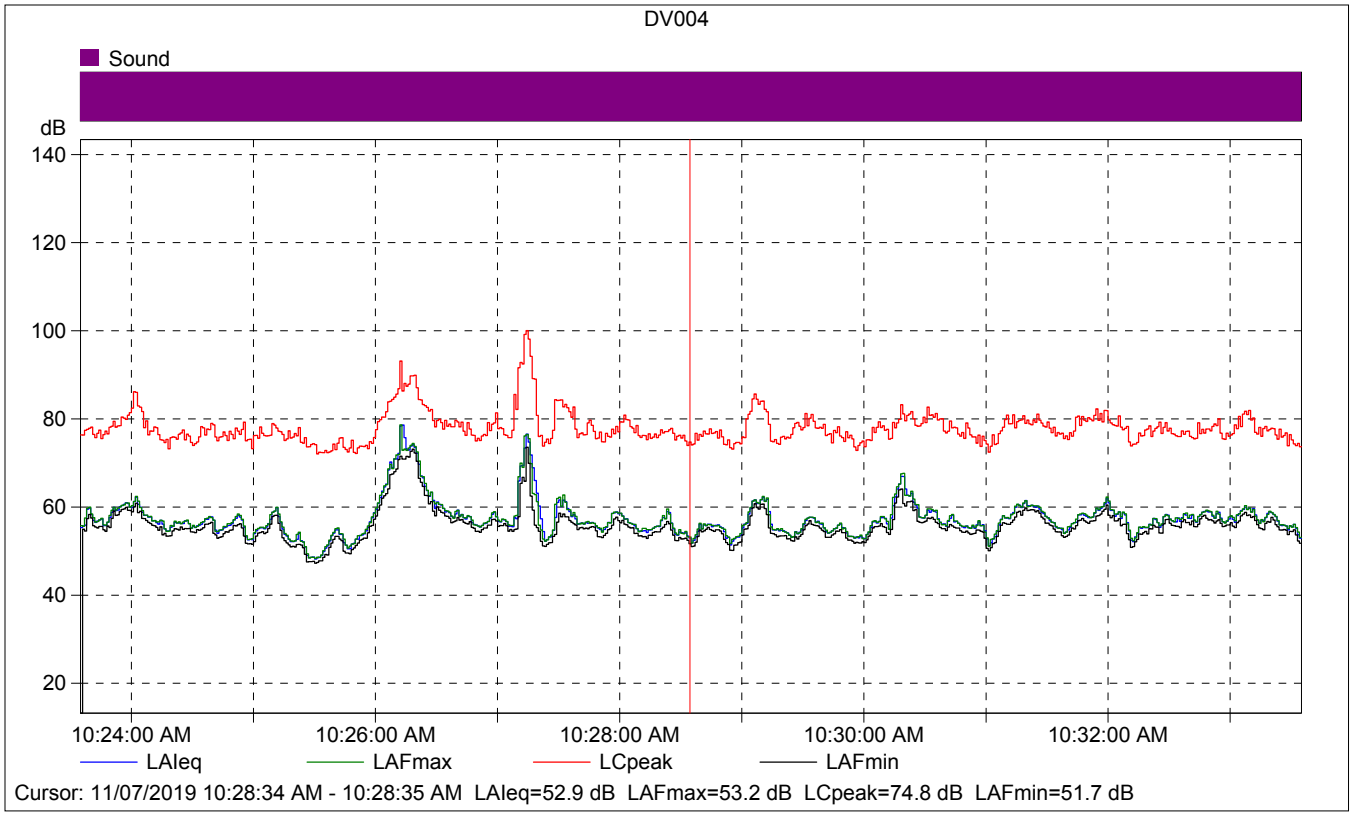
Calibration Time:		11/06/2019 08:05:54
Calibration Type:		External reference
Sensitivity:		43.8000895082951 mV/Pa

DV004

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	60.1	78.6	47.3
Time	10:23:35 AM	10:33:35 AM	0:10:00				
Date	11/07/2019	11/07/2019					

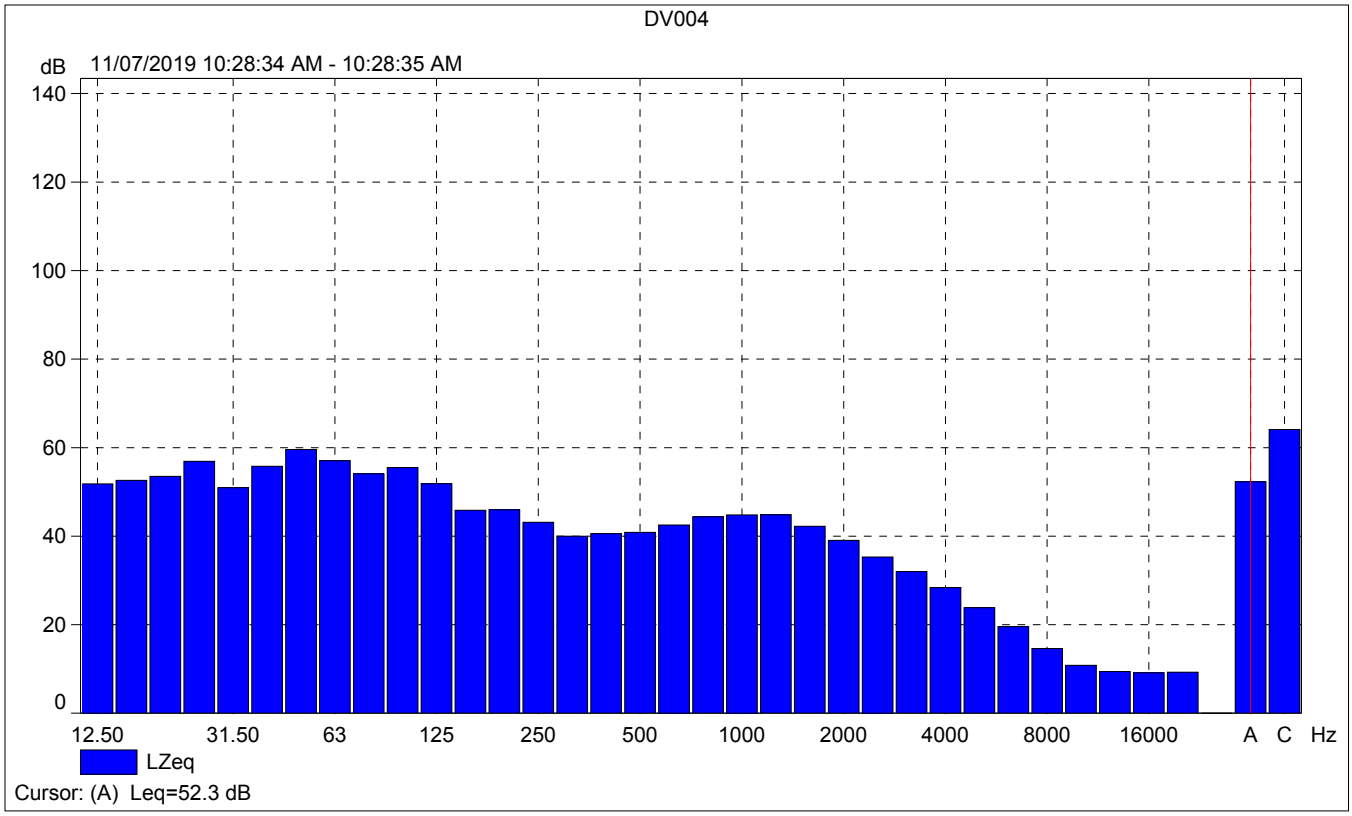

DV004
dB
11/07/2019 10:23:35 AM - 10:33:35 AM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=60.1 dB LFmax=78.6 dB LFmin=47.3 dB

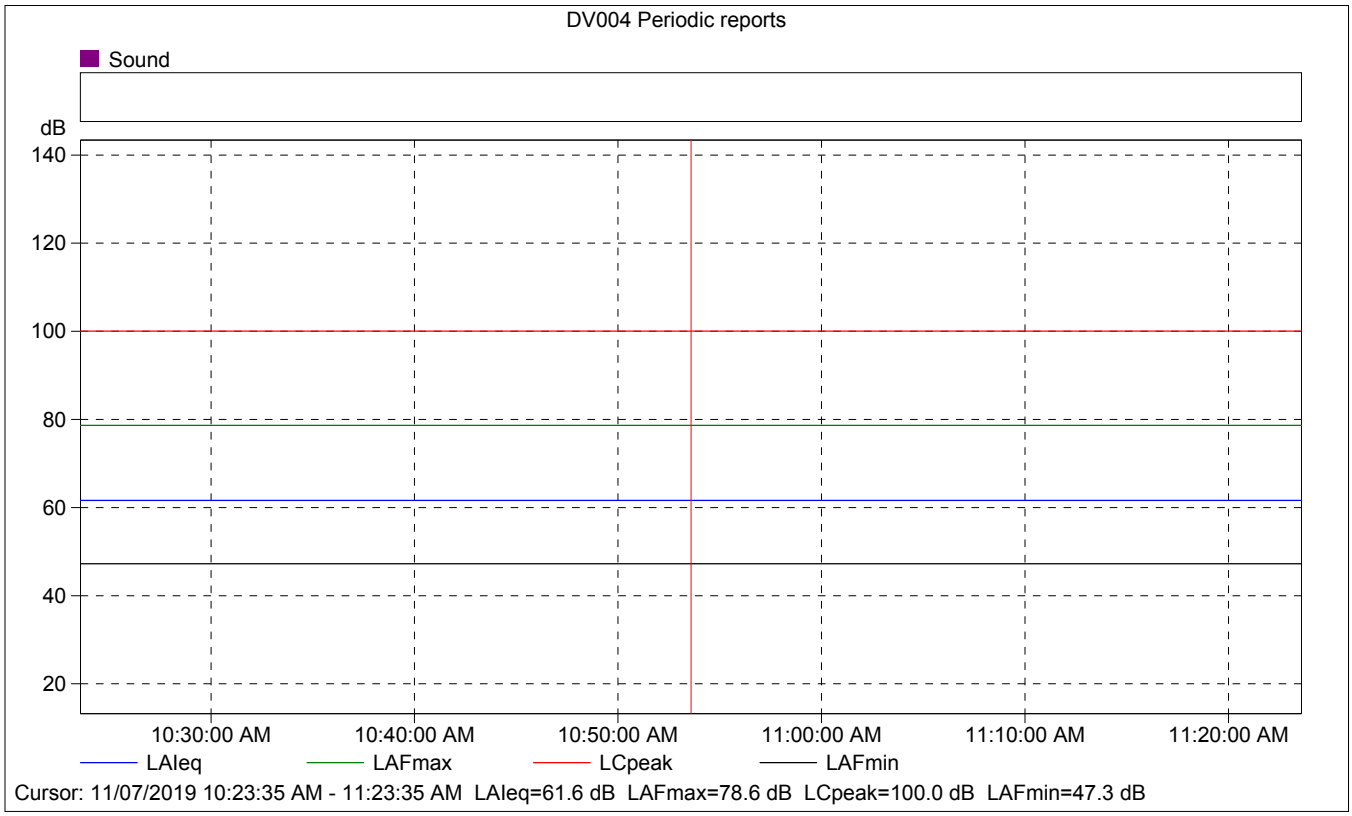

DV004
%
Based on LAF , 10ms Class width: 0.2 dB 11/07/2019 10:23:35 AM - 10:33:35 AM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 72.7 dB
L5 = 63.5 dB
L10 = 60.3 dB
L50 = 56.0 dB
L90 = 52.6 dB
L95 = 51.7 dB
L99 = 48.3 dB
Level
Cumulative
Cursor: [78.0 ; 78.2[dB Level: 0.0% Cumulative: 0.0%



DV004

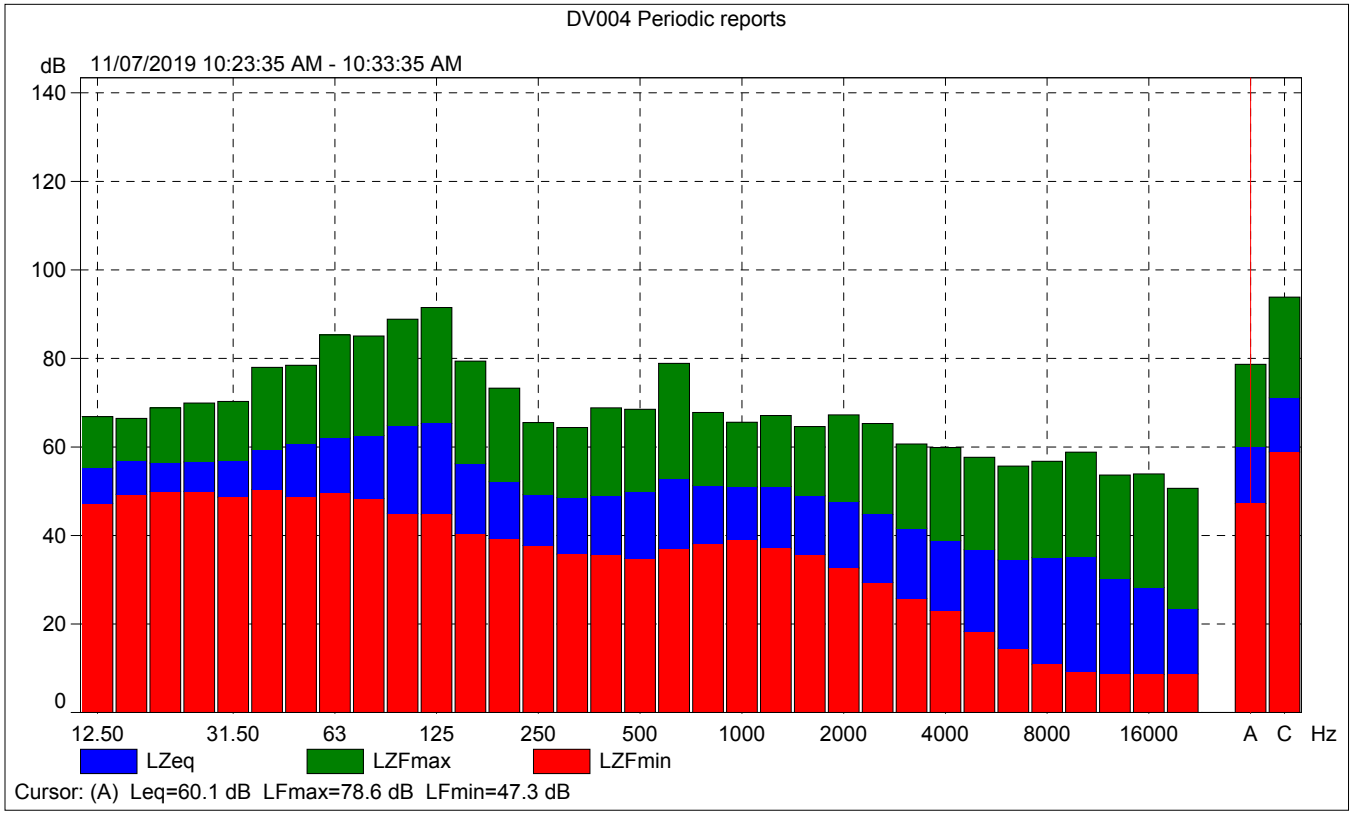
	Start time	Elapsed time	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			52.9	53.2	51.7
Time	10:28:34 AM	0:00:01			
Date	11/07/2019				

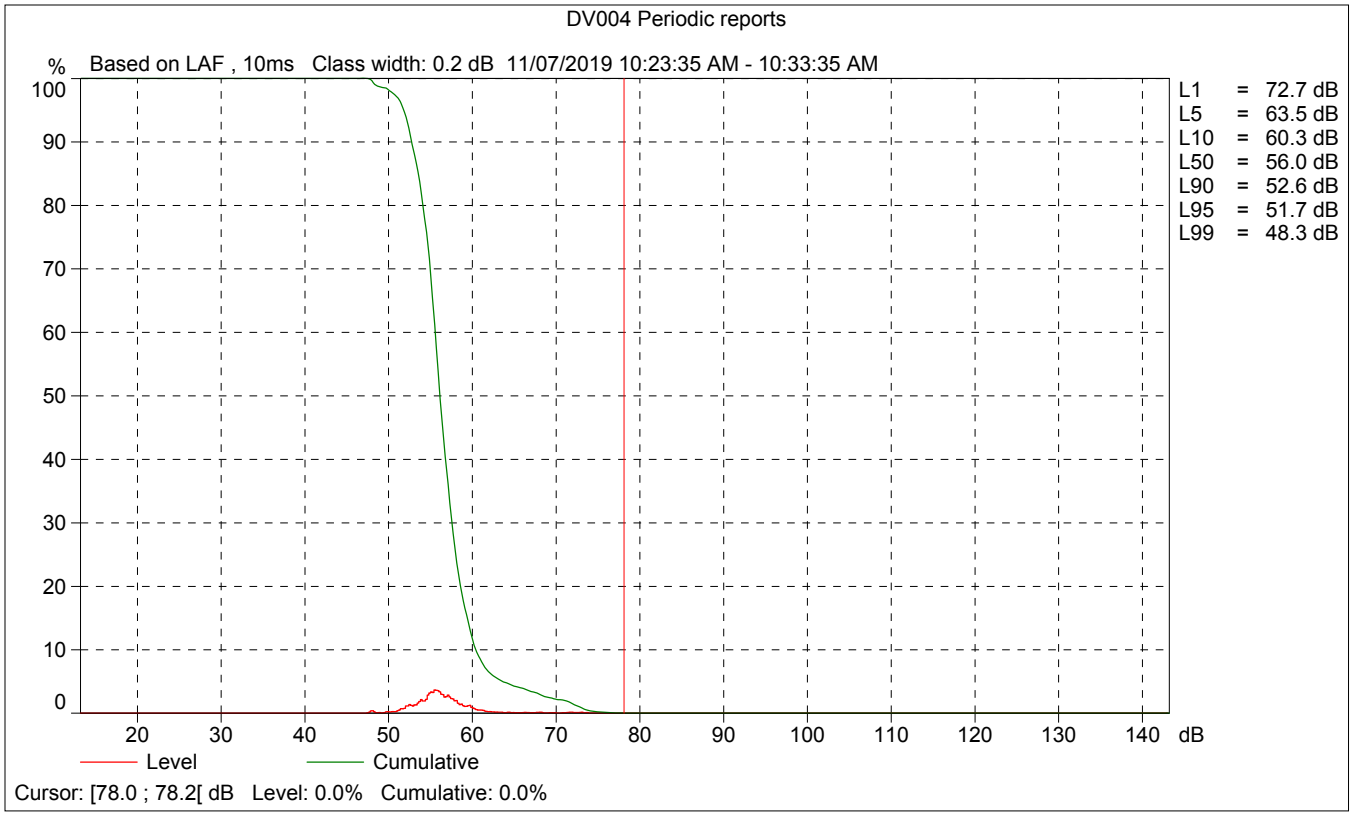

DV004
dB
11/07/2019 10:28:34 AM - 10:28:35 AM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
Cursor: (A) Leq=52.3 dB


DV004 Periodic reports
Sound
dB
140
120
100
80
60
40
20
10:30:00 AM
10:40:00 AM
10:50:00 AM
11:00:00 AM
11:10:00 AM
11:20:00 AM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 11/07/2019 10:23:35 AM - 11:23:35 AM LAIeq=61.6 dB LAFmax=78.6 dB LCpeak=100.0 dB LAFmin=47.3 dB

DV004 Periodic reports

	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	61.6	78.6	47.3
Time	10:23:35 AM	0:10:00				
Date	11/07/2019					




DV004 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 11/07/2019 10:23:35 AM - 10:33:35 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 = 72.7 dB
L5 = 63.5 dB
L10 = 60.3 dB
L50 = 56.0 dB
L90 = 52.6 dB
L95 = 51.7 dB
L99 = 48.3 dB
Level
Cumulative
Cursor: [78.0 ; 78.2[dB Level: 0.0% Cumulative: 0.0%

2250

Instrument:		2250
Application:		BZ7225 Version 4.7.4
Start Time:		11/07/2019 10:47:08
End Time:		11/07/2019 10:57:08
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		142.09

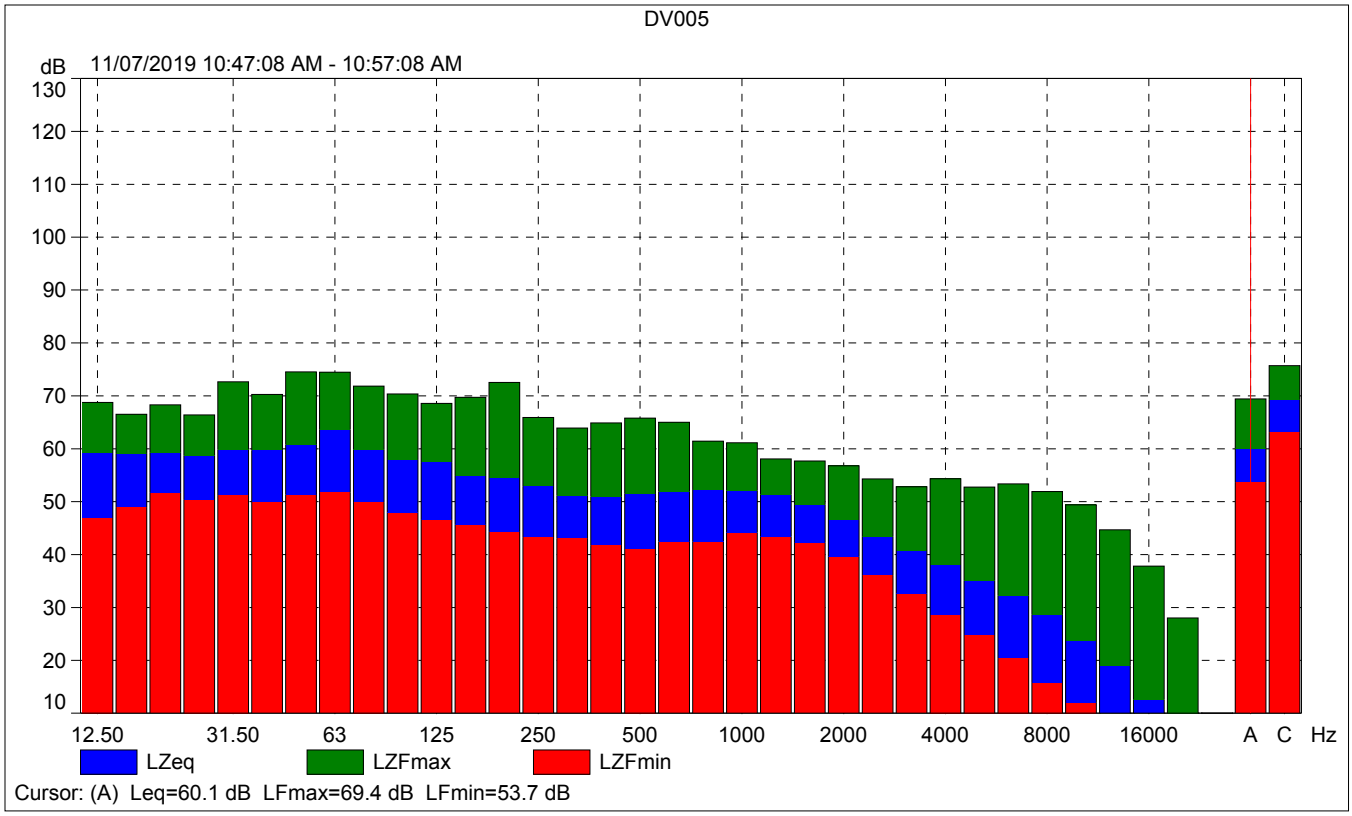
	Time	Frequency
Broadband (excl. Peak):	FSI	AC
Broadband Peak:		C
Spectrum:	FS	Z

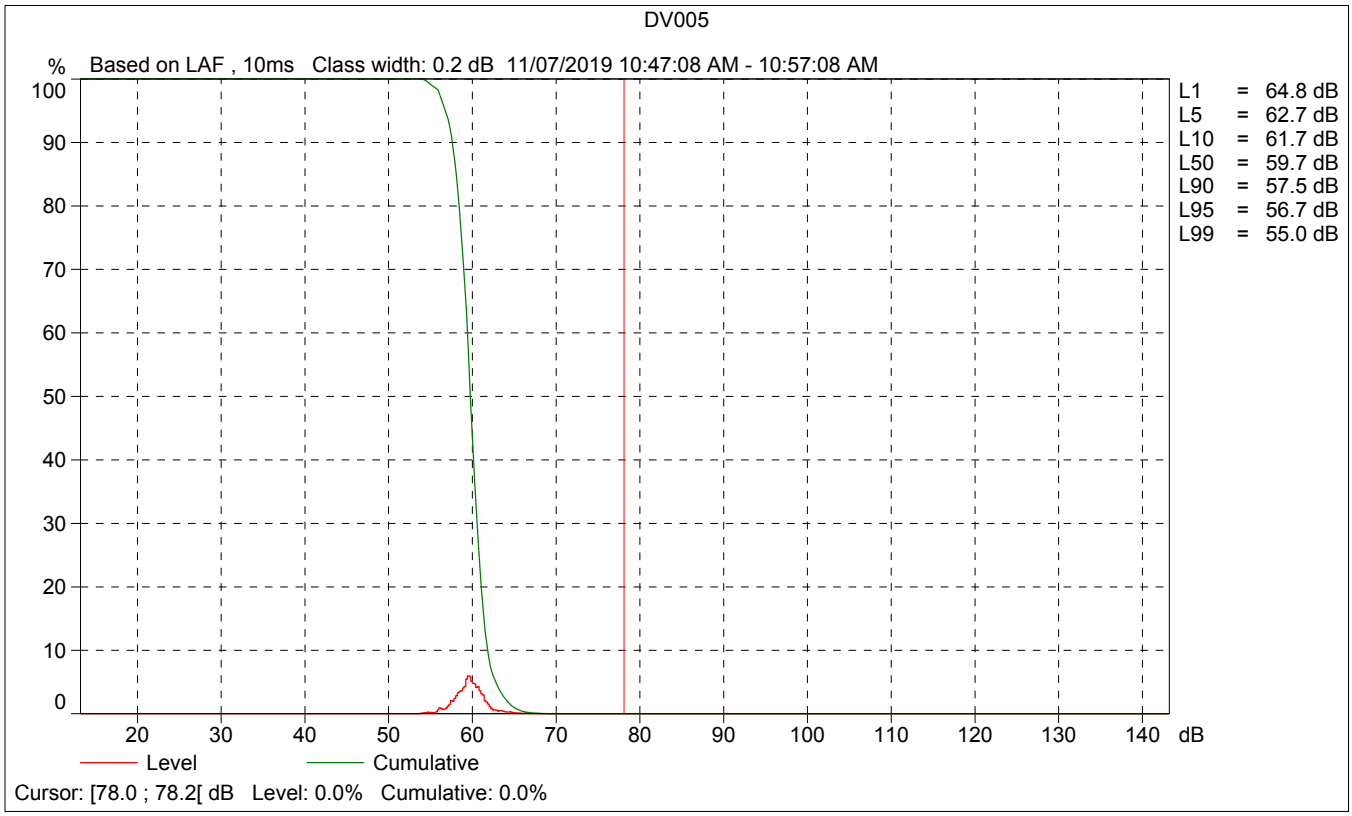
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		UA-1650
Sound Field Correction:		Free-field

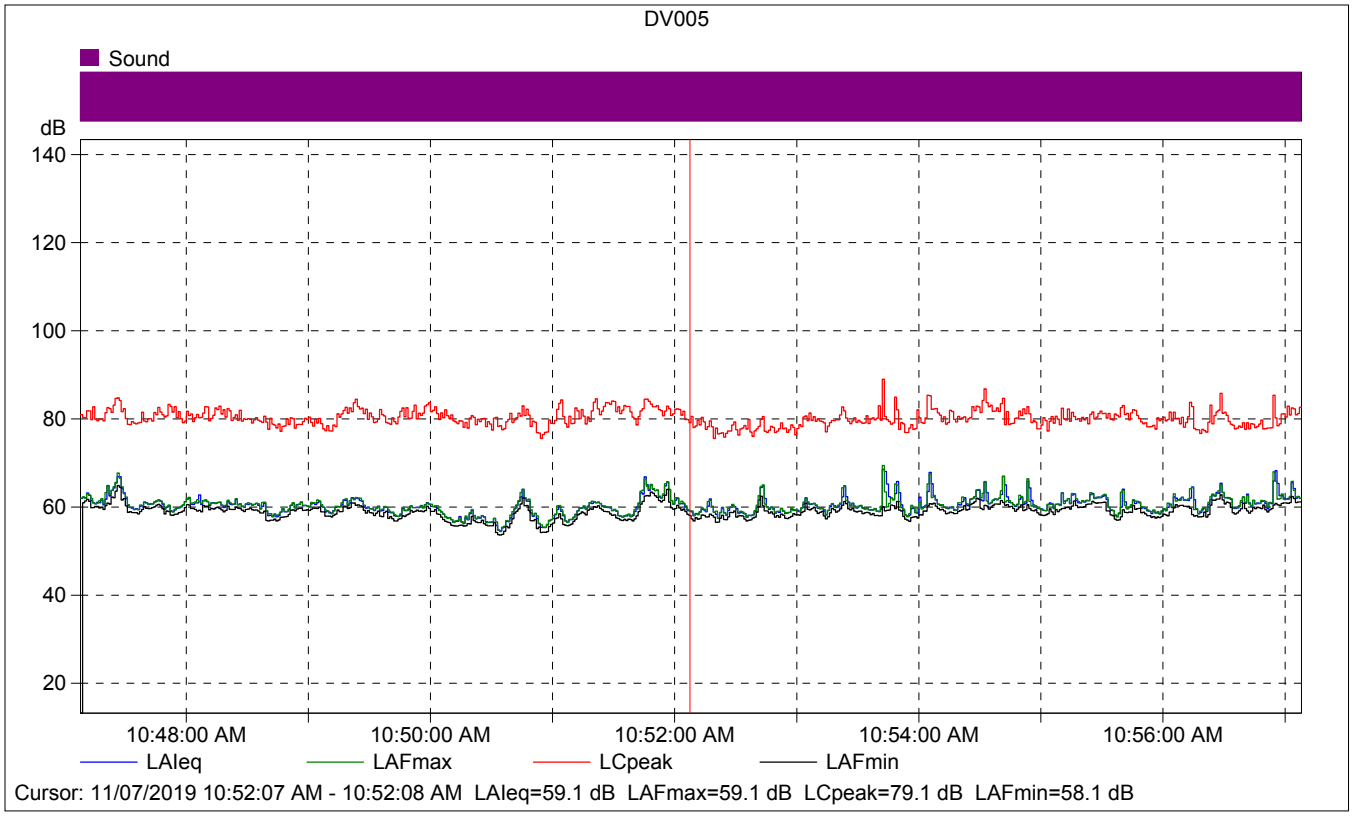
Calibration Time:		11/06/2019 08:05:54
Calibration Type:		External reference
Sensitivity:		43.8000895082951 mV/Pa

DV005

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	60.1	69.4	53.7
Time	10:47:08 AM	10:57:08 AM	0:10:00				
Date	11/07/2019	11/07/2019					

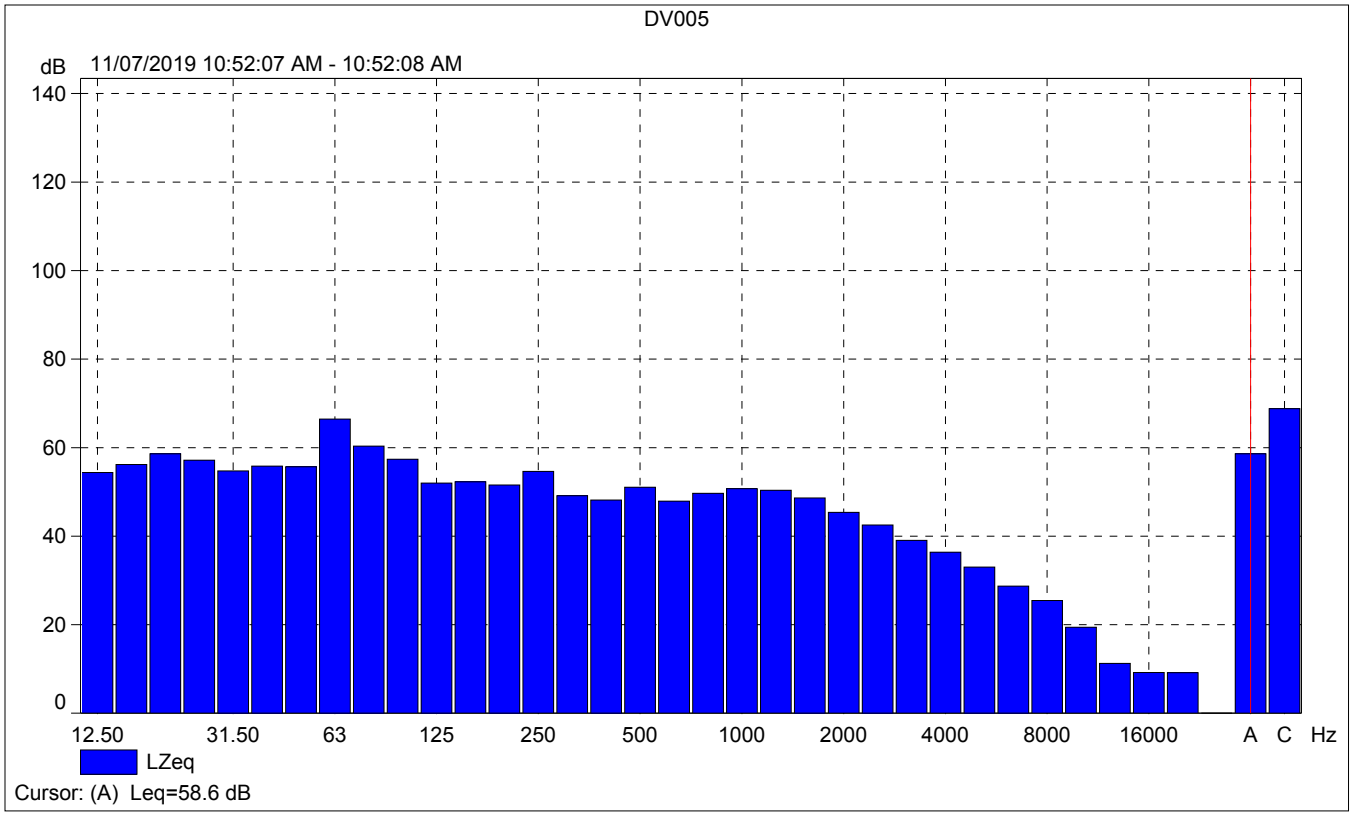

DV005
dB
11/07/2019 10:47:08 AM - 10:57:08 AM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=60.1 dB LFmax=69.4 dB LFmin=53.7 dB

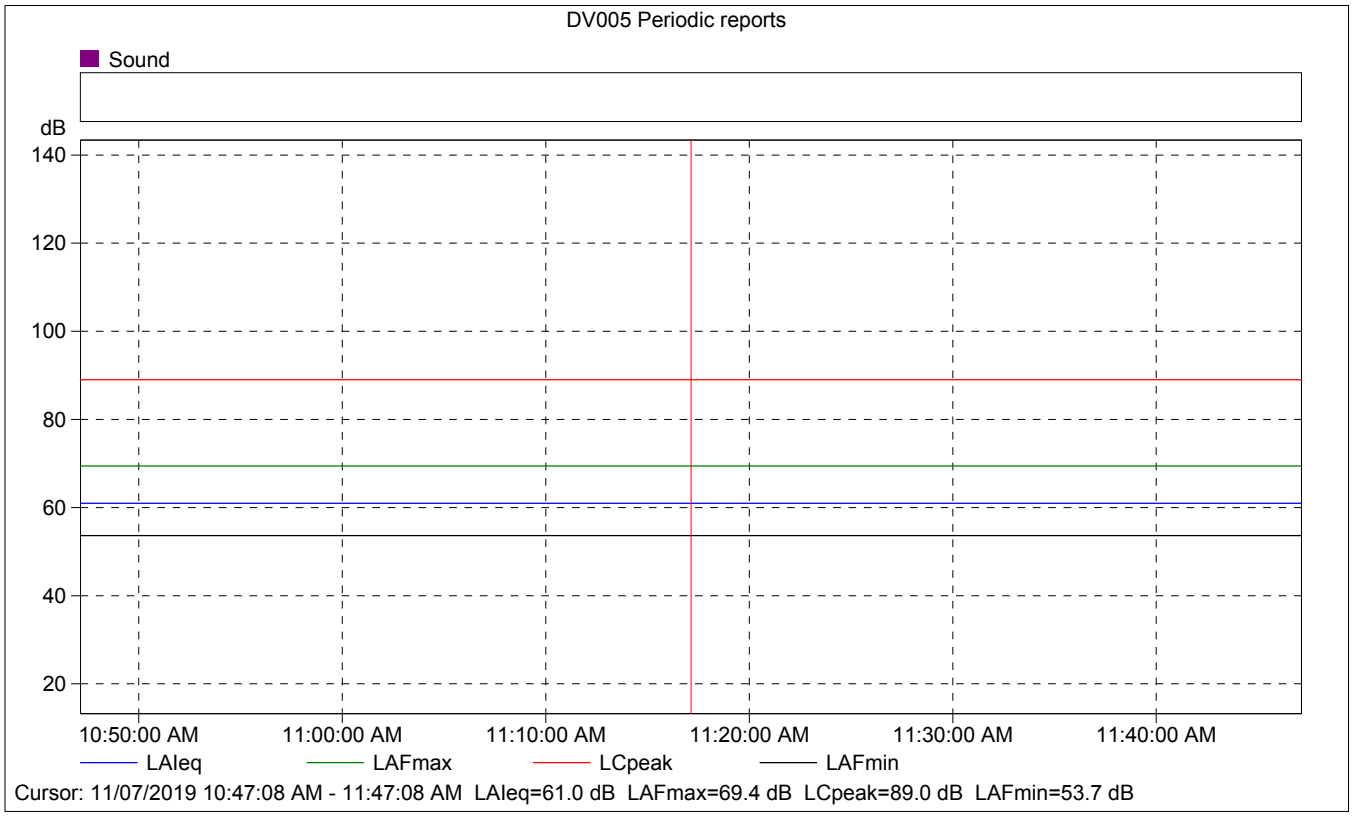

DV005
%
Based on LAF , 10ms Class width: 0.2 dB 11/07/2019 10:47:08 AM - 10:57:08 AM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 64.8 dB
L5 = 62.7 dB
L10 = 61.7 dB
L50 = 59.7 dB
L90 = 57.5 dB
L95 = 56.7 dB
L99 = 55.0 dB
Level
Cumulative
Cursor: [78.0 ; 78.2[dB Level: 0.0% Cumulative: 0.0%



DV005

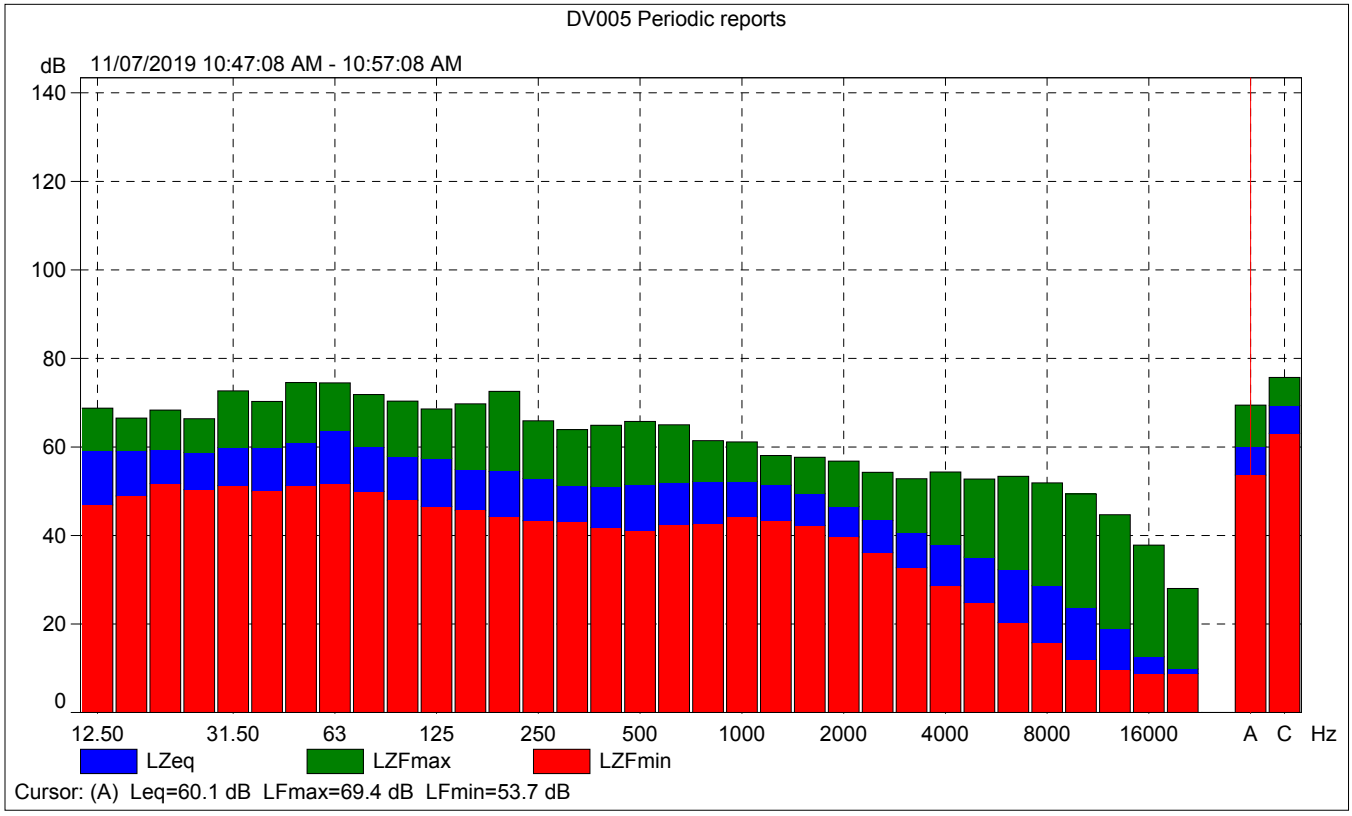
	Start time	Elapsed time	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			59.1	59.1	58.1
Time	10:52:07 AM	0:00:01			
Date	11/07/2019				

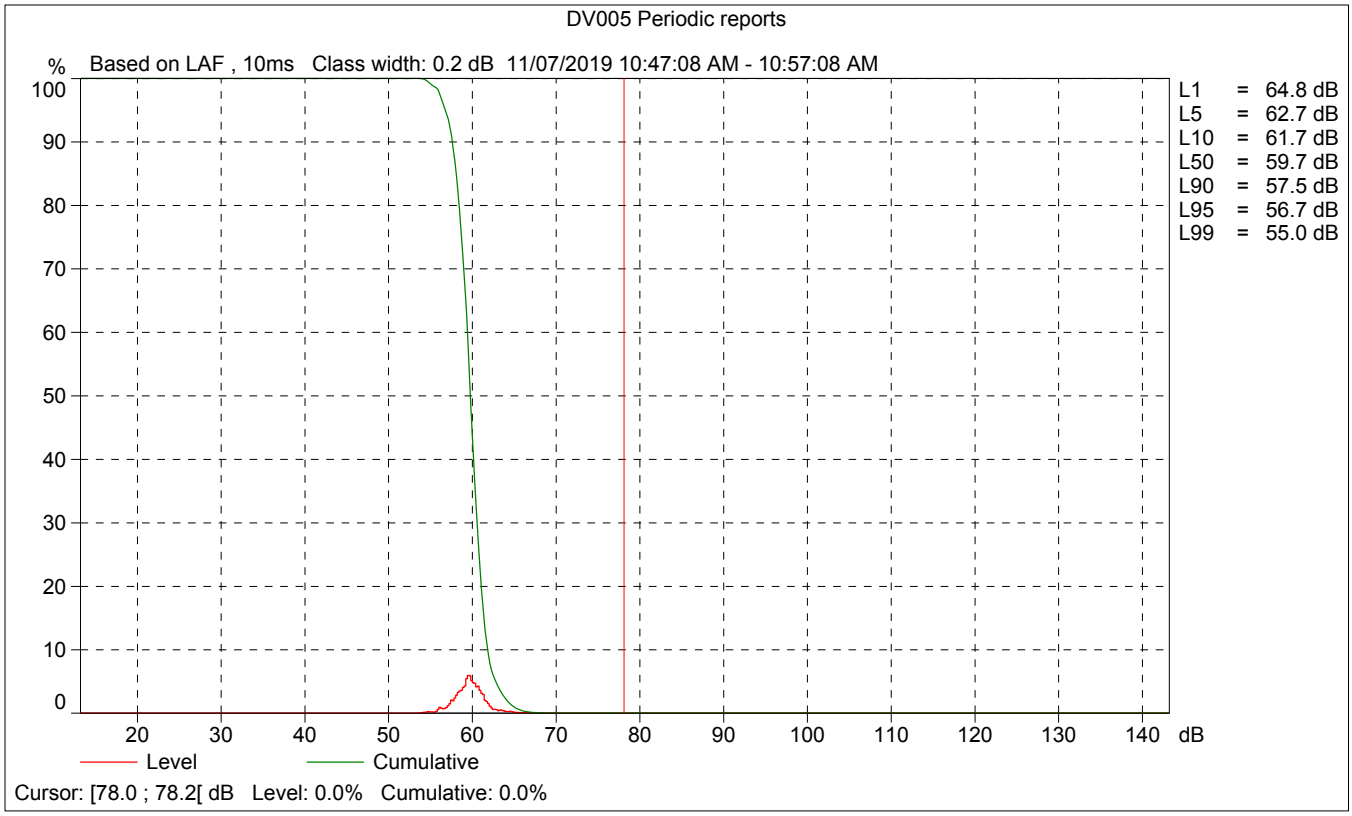

DV005
dB
11/07/2019 10:52:07 AM - 10:52:08 AM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
Cursor: (A) Leq=58.6 dB


DV005 Periodic reports
Sound
dB
140
120
100
80
60
40
20
10:50:00 AM
11:00:00 AM
11:10:00 AM
11:20:00 AM
11:30:00 AM
11:40:00 AM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 11/07/2019 10:47:08 AM - 11:47:08 AM LAIeq=61.0 dB LAFmax=69.4 dB LCpeak=89.0 dB LAFmin=53.7 dB

DV005 Periodic reports

	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	61.0	69.4	53.7
Time	10:47:08 AM	0:10:00				
Date	11/07/2019					




DV005 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 11/07/2019 10:47:08 AM - 10:57:08 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 = 64.8 dB
L5 = 62.7 dB
L10 = 61.7 dB
L50 = 59.7 dB
L90 = 57.5 dB
L95 = 56.7 dB
L99 = 55.0 dB
Level
Cumulative
Cursor: [78.0 ; 78.2[dB Level: 0.0% Cumulative: 0.0%

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 175717
Project Name: Victoria Boulevard Apartments
Scenario: Existing

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: *Victoria Boulevard Apartments Traffic Impact Analysis,* prepared by Ganddini Group Inc. (Dated April 29, 2020)
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.50%	12.90%	9.60%
Medium-Duty Trucks	84.80%	4.90%	10.30%
Heavy-Duty Trucks	86.50%	2.70%	10.80%

Analysis Condition				Design		Vehicle Mix		Distance from Centerline of Roadway					
Roadway, Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Medium Trucks	Heavy Trucks	CNEL at 100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist
Del Obispo Street													
South of Pacific Coast Highway (PCH)	4	14	15,000	40	0.5	1.8%	0.7%	62.1	-	64	139	299	100
PCH to Stonehill Drive	4	14	16,000	40	0.5	1.8%	0.7%	62.4	-	67	145	312	100
Stonehill Drive													
Del Obpiso Street to Doheny Park Road	4	0	33,000	40	0.5	1.8%	0.7%	65.5	50	107	231	497	100
Pacific Coast highway													
West of Del Obispo Street	6	0	37,000	50	0.5	1.8%	0.7%	68.5	79	170	366	789	100
Del Obispo Street to Camino Las Ramblas	3	0	39,200	50	0.5	1.8%	0.7%	68.4	79	170	366	788	100
South of Doheny Park Road	4	0	14,000	50	0.5	1.8%	0.7%	64.0	-	86	186	400	100
Doheny Park Road													
North of PCH	4	12	9,800	35	0.5	1.8%	0.7%	59.0	-	-	85	183	100
Camino Las Ramblas to Las Vegas Ave	4	12	16,100	35	0.5	1.8%	0.7%	61.1	-	55	119	255	100
Las Vegas Avenue to Domingo Avenue	4	12	18,700	35	0.5	1.8%	0.7%	61.8	-	61	131	282	100
Domingo Avenue to Victoria Boulevard	4	12	18,200	35	0.5	1.8%	0.7%	61.6	-	60	129	277	100
Victoria Boulevard to Camino Capistrano	4	14	17,200	35	0.5	1.8%	0.7%	61.4	-	58	124	268	100
Camino Capistrano to Stonehill Drive	4	14	21,000	35	0.5	1.8%	0.7%	62.3	-	66	142	306	100
North of Stonehill Drive	4	12	24,000	35	0.5	1.8%	0.7%	62.8	-	72	155	333	100
Las Vegas Avenue													
Cul de sac to Doheny Park Road	2	0	700	30	0.5	1.8%	0.7%	46.3	-	-	-	-	100
Doheny Park Road to Camino Las Ramblas	2	0	8,800	30	0.5	1.8%	0.7%	57.3	-	-	66	143	100
Domingo Avenue													
Cul de sac to Doheny Park Road	2	0	600	30	0.5	1.8%	0.7%	45.7	-	-	-	-	100
Doheny Park Road to Sepulveda Avenue	2	0	800	30	0.5	1.8%	0.7%	46.9	-	-	-	-	100
Victoria Boulevard													

Cul de sac to Doheny Park Road	2	0	2,700	30	0.5	1.8%	0.7%	52.2	-	-	-	65	100
Doheny Park Road to Sepulveda Avenue	2	0	3,700	30	0.5	1.8%	0.7%	53.6	-	-	37	80	100
Sepulveda Avenue to Camino Capistrano	2	0	2,500	30	0.5	1.8%	0.7%	51.8	-	-	-	62	100
Sepulva Avenue													
Cul de sac to Domingo Avenue	2	0	100	30	0.5	1.8%	0.7%	37.9	-	-	-	-	100
Domingo Avenue to Victoria Boulevard	2	0	400	30	0.5	1.8%	0.7%	43.9	-	-	-	-	100
Victoria Boulevard to Camino Capistrano	2	0	1,100	30	0.5	1.8%	0.7%	48.3	-	-	-	36	100
Camino Capistrano													
Sepulveda Avenue to Victoria Boulevard	2	0	2,900	30	0.5	1.8%	0.7%	52.5	-	-	-	68	100
Camino Las Ramblas to Via Canon	2	0	4,400	30	0.5	1.8%	0.7%	54.3	-	-	42	90	100
Camino Las Ramblas													
Camino Capistrano to I-5 on/off ramp	6	12	38,000	45	0.5	1.8%	0.7%	67.6	69	149	322	693	100
Via Canon													
North of Camino Capistrano	2	0	1,500	35	0.5	1.8%	0.7%	50.6	-	-	-	51	100
South of Camino Capistrano	2	0	3,000	35	0.5	1.8%	0.7%	53.6	-	-	38	81	100
Interstate 5													
East of Camino Las Ramblas	12	18	242,000	65	0.5	1.8%	0.7%	81.9	618	1,331	2,867	6,177	100
West of Camino Las Ramblas	10	36	243,300	65	0.5	1.8%	0.7%	81.6	591	1,273	2,742	5,907	100
Camino Las Ramblas SB off-ramp	2	0	12,100	65	0.5	1.8%	0.7%	66.2	56	120	258	555	100

[1] Distance is from the centerline of the roadway segment to the receptor location.

"-" = contour is located within the roadway right-of-way.