

REPORTE TÉCNICO DECRETO SUPREMO N°38/11 DEL MINISTERIO DEL MEDIO AMBIENTE

Establece Norma de Emisión de Ruidos Generados por Fuentes que Indica

FICHA DE INFORMACIÓN DE MEDICIÓN DE RUIDO**IDENTIFICACIÓN DE LA FUENTE EMISORA DE RUIDO**

Nombre o razón social	Muebleria Esteban Roa		
RUT	13.493.628		
Dirección	Lota 7703		
Comuna	La Granja		
Nombre de Zona de emplazamiento (según IPT vigente)	ZH-1 RESIDENCIAL MALAQUIAS CONCHA		
Datum	WGS 84	Huso	19H
Coordenada Norte	6289287,25 Ms	Coordenada Este	349588,66 Me

CARACTERIZACIÓN DE LA FUENTE EMISORA DE RUIDO

Actividad Productiva	☐ Industrial	☐ Agrícola	☐ Extracción	☐ Otro
Actividad Comercial	☐ Restaurant	☐ Taller Mecánico	☐ Local Comercial	☐ Otro
Actividad Esparcimiento	☐ Discoteca	☐ Recinto Deportivo	☐ Cultura	☐ Otro
Actividad de Servicio	☐ Religioso	☐ Salud	☐ Comunitario	☐ Otro
Infraestructura Transporte	☐ Terminal	☐ Taller de Transporte	☐ Estación Intermedia	☐ Otro
Infraestructura Sanitaria	☐ Planta de Tratamiento	☐ Relleno Sanitario	☐ Instalación de Distribución	☐ Otro
Infraestructura Energética	☐ Generadora	☐ Distribución Eléctrica	☐ Comunicaciones	☐ Otro
Faena Constructiva	☐ Construcción	☐ Demolición	☐ Reparación	☐ Otro
Otro (Especificar)				

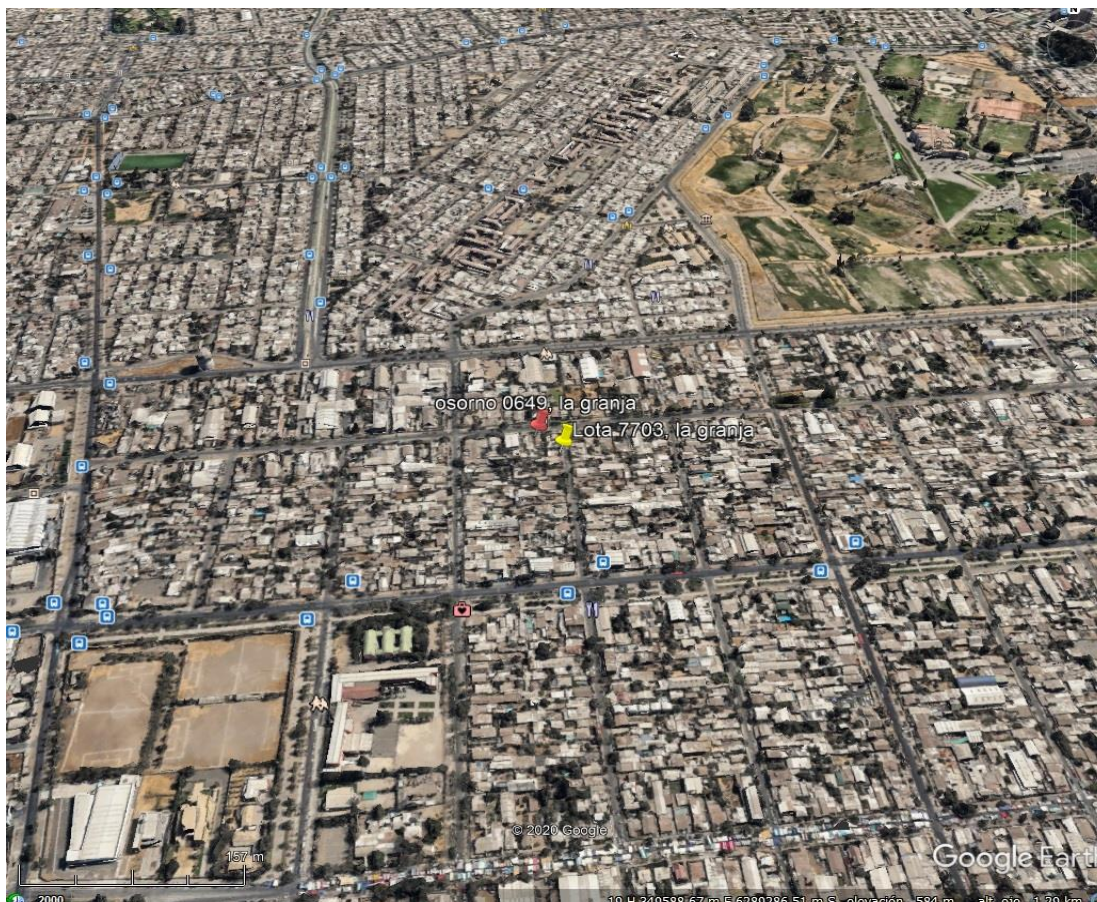
INSTRUMENTAL DE MEDICIÓN

Identificación sonómetro							
Marca	Larson Davis	Modelo	LxT2	N° serie	5313		
Fecha de emisión Certificado de Calibración			13-11-2019				
Número de Certificado de Calibración			2019013841				
Identificación calibrador							
Marca	Larson Davis	Modelo	CAL 150	N° serie	6266		
Fecha de emisión Certificado de Calibración			22-10-2019				
Número de Certificado de Calibración			2019013084				
Ponderación en frecuencia	A		Ponderación temporal	Lenta			
Verificación de Calibración en Terreno	☐ Si		☐ No				
Se deberá adjuntar Certificado de Calibración Periódica Vigente para ambos instrumentos.							

FICHA DE GEORREFERENCIACIÓN DE MEDICIÓN DE RUIDO

□ Croquis

☑ Imagen Satelital



Origen de la imagen Satelital

Google Earth Pro

Escala de la imagen Satelital

157

LEYENDA DE CROQUIS O IMAGEN UTILIZADA

Datum		WGS 84		Huso		19H	
Fuentes				Receptores			
Símbolo	Nombre	Coordenadas		Símbolo	Nombre	Coordenadas	
	Lota 7703	N	628987,25 mS		Osorno 0649	N	6289312,99 mS
		E	349588,67 mE			E	349562,00 mE
		N				N	
		E				E	
		N				N	
		E				E	
		N				N	
		E				E	

Se podrán adjuntar fotografías, considerando como máximo una (1) por fuente y dos (2) por lugar de medición.

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Establece Norma de Emisión de Ruidos Generados por Fuentes que Indica

FICHA DE INFORMACIÓN DE MEDICIÓN DE RUIDO**IDENTIFICACIÓN DEL RECEPTOR**

Receptor N°	1				
Calle	Osorno				
Número	649				
Comuna	La Granja				
Datum		Huso	19H		
Coordenada Norte	6289312,99 mS	Coordenada Este	349562,00 mE		
Nombre de Zona de emplazamiento (según IPT vigente)	ZH-1 Residencial Malaquias Concha				
N° de Certificado de Informaciones Previas*	N/A				
Zonificación DS N° 38/11 MMA	☐ I	☐ II	☐ III	☐ IV	☐ Rural
* Adjuntar Certificado de Informaciones Previas (Si corresponde, según consideraciones de Art. 8°, D.S. N° 38/11 MMA)					

CONDICIONES DE MEDICIÓN

Fecha medición	03-11-2020				
Hora inicio medición	12:59				
Hora término medición	13:11				
Periodo de medición	☐ 7:00 a 21:00 h	☐ 21:00 a 7:00 h			
Lugar de medición	☐ Medición Interna	☐ Medición Externa			
Descripción del lugar de medición	Patio lateral de vivienda, colindante al emisor				
Condiciones de ventana (en caso de medición interna)	☐ Ventana Abierta	☐ Ventana Cerrada			
Identificación ruido de fondo	Tránsito vehicular bajo por calle Osorno				
Temperatura [°C]	27	Humedad [%]	35	Velocidad de viento [m/s]	0

Nombre y firma profesional de terreno o Inspector Ambiental (IA)	Sara Reyes Alvarez	
Institución, Empresa o Entidad Técnica de Fiscalización Ambiental (ETFA)	Ilustre Municipalidad de La Granja	

Nota:

- Se deberá imprimir y completar esta página para cada receptor evaluado.
- Se podrán incluir fotografías del punto donde se ubique el sonómetro para la realización de la medición.
- Los datos de Temperatura, Humedad Relativa y Velocidad de viento, corresponderá para mediciones realizadas en el exterior.

REPORTE TÉCNICO DECRETO SUPREMO N°38/11 DEL MINISTERIO DEL MEDIO AMBIENTE

Establece Norma de Emisión de Ruidos Generados por Fuentes que Indica

FICHA DE MEDICIÓN DE NIVELES DE RUIDO

REGISTRO DE MEDICIÓN DE RUIDO DE FUENTE EMISORA

Identificación Receptor N°	1
☐ Medición Interna (tres puntos)	☒ Medición externa (un punto)

	NPSeq	NPSmin	NPSmáx
Punto 1	61,3	53,4	72,1
	62,0	50,4	67,5
	61,5	45,2	69,2
Punto 2			
Punto 3			

REGISTRO DE RUIDO DE FONDO

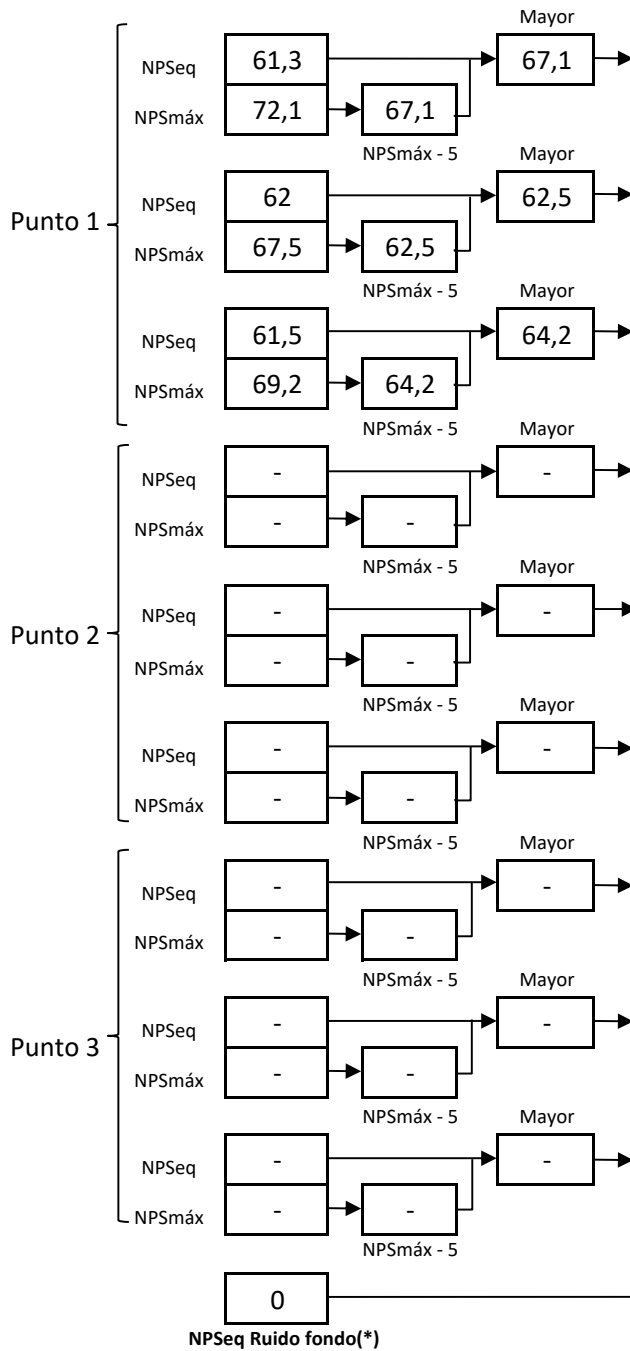
Ruido de fondo afecta la medición	☐ Si	☒ No
Fecha:		Hora:

	5'	10'	15'	20'	25'	30'
NPSeq						

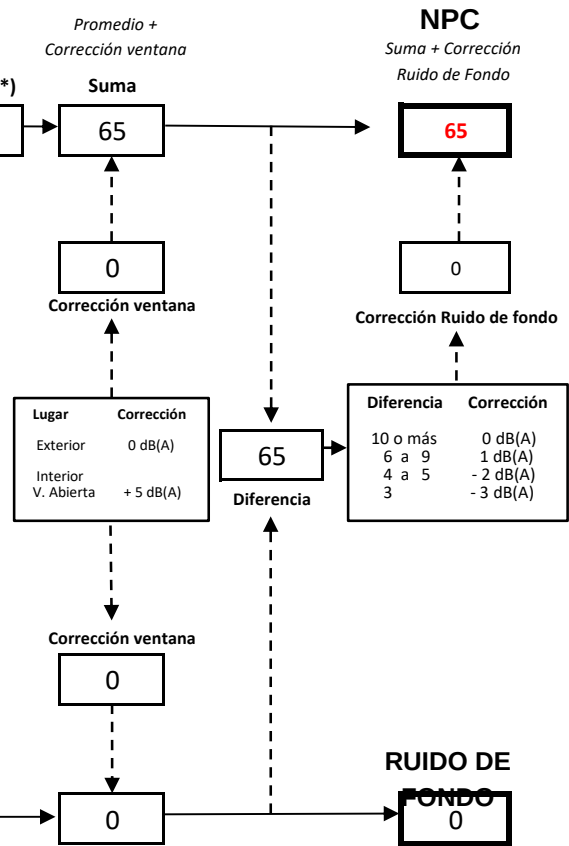
Observaciones:

El ruido de fondo no se percibió en las mediciones de ruido, la fuente emisora corresponde a una sierra eléctrica en labores de corte de fierros y golpes en un mesón.

FICHA DE EVALUACIÓN DE NIVELES DE RUIDO



Información del Receptor	
Identificación del Receptor N°	1
Indicar Condiciones	
Medición	Exterior
Ventana	No Aplica
Modelación ISO 9613	
No	



(*) Aproximar a números enteros

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TABLA DE EVALUACIÓN

OBSERVACIONES

RESPONSABLE DEL REPORTE (Llenar sólo ETFA)Página ____ de ____

Calibration Certificate

Certificate Number 2019013841

Customer:

Sistemas De Instrumentacion
Concha Y Toro NO 65
Santiago-Centro
Santiago, , Chile

Model Number LxT2
Serial Number 0005313
Test Results **Pass**
Initial Condition As Manufactured
Description SoundTrack LxT Class 2
Class 2 Sound Level Meter
Firmware Revision: 2.402

Procedure Number D0001.8384
Technician Ron Harris
Calibration Date 13 Nov 2019
Calibration Due 13 Nov 2021
Temperature 23.51 °C ± 0.25 °C
Humidity 49.3 %RH ± 2.0 %RH
Static Pressure 86.67 kPa ± 0.13 kPa

Evaluation Method **Tested with:** **Data reported in dB re 20 µPa.**

Larson Davis PRMLxT2B. S/N 056115
PCB 375B02. S/N 011772
Larson Davis CAL200. S/N 9079
Larson Davis CAL291. S/N 0108

Compliance Standards Compliant to Manufacturer Specifications and the following standards when combined with Calibration Certificate from procedure D0001.8378:

IEC 60651:2001 Type 2	ANSI S1.4-2014 Class 2
IEC 60804:2000 Type 2	ANSI S1.4 (R2006) Type 2
IEC 61252:2002	ANSI S1.11 (R2009) Class 2
IEC 61260:2001 Class 2	ANSI S1.25 (R2007)
IEC 61672:2013 Class 2	ANSI S1.43 (R2007) Type 2

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005.

Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Correction data from Larson Davis LxT Manual for SoundTrack LxT & SoundExpert Lxt, I770.01 Rev J Supporting Firmware Version 2.301, 2015-04-30

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716-684-0001



For 1/4" microphones, the Larson Davis ADP024 1/4" to 1/2" adaptor is used with the calibrators and the Larson Davis ADP043 1/4" to 1/2" adaptor is used with the preamplifier.

Calibration Check Frequency: 1000 Hz; Reference Sound Pressure Level: 114 dB re 20 µPa

Periodic tests were performed in accordance with procedures from IEC 61672-3:2013 / ANSI/ASA S1.4-2014/Part3.

No Pattern approval for IEC 61672-1:2013 / ANSI/ASA S1.4-2014/Part 1 available.

The sound level meter submitted for testing successfully completed the periodic tests of IEC 61672-3:2013 / ANSI/ASA S1.4-2014/Part 3, for the environmental conditions under which the tests were performed. However, no general statement or conclusion can be made about conformance of the sound level meter to the full specifications of IEC 61672-1:2013 / ANSI/ASA S1.4-2014/Part 1 because (a) evidence was not publicly available, from an independent testing organization responsible for pattern approvals, to demonstrate that the model of sound level meter fully conformed to the class 2 specifications in IEC 61672-1:2013 / ANSI/ASA S1.4-2014/Part 1 or correction data for acoustical test of frequency weighting were not provided in the Instruction Manual and (b) because the periodic tests of IEC 61672-3:2013 / ANSI/ASA S1.4-2014/Part 3 cover only a limited subset of the specifications in IEC 61672-1:2013 / ANSI/ASA S1.4-2014/Part 1.

Standards Used			
Description	Cal Date	Cal Due	Cal Standard
Larson Davis CAL291 Residual Intensity Calibrator	2019-09-18	2020-09-18	001250
SRS DS360 Ultra Low Distortion Generator	2019-06-14	2020-06-14	006311
Hart Scientific 2626-S Humidity/Temperature Sensor	2019-07-18	2020-07-18	006946
Larson Davis CAL200 Acoustic Calibrator	2019-07-22	2020-07-22	007027
Larson Davis Model 831	2019-02-22	2020-02-22	007182
PCB 377A13 1/2 inch Prepolarized Pressure Microphone	2019-03-06	2020-03-06	007185

Acoustic Calibration

Measured according to IEC 61672-3:2013 10 and ANSI S1.4-2014 Part 3: 10

Measurement	Test Result [dB]	Lower Limit [dB]	Upper Limit [dB]	Expanded Uncertainty [dB]	Result
1000 Hz	114.01	113.80	114.20	0.14	Pass

Acoustic Signal Tests, C-weighting

Measured according to IEC 61672-3:2013 12 and ANSI S1.4-2014 Part 3: 12 using a comparison coupler with Unit Under Test (UUT) and reference SLM using slow time-weighted sound level for compliance to IEC 61672-1:2013 5.5; ANSI S1.4-2014 Part 1: 5.5

Frequency [Hz]	Test Result [dB]	Expected [dB]	Lower Limit [dB]	Upper Limit [dB]	Expanded Uncertainty [dB]	Result
125	-0.26	-0.20	-1.70	1.30	0.23	Pass
1000	0.21	0.00	-1.00	1.00	0.23	Pass
8000	-4.24	-3.00	-8.00	2.00	0.32	Pass

-- End of measurement results--

Self-generated Noise

Measured according to IEC 61672-3:2013 11.1 and ANSI S1.4-2014 Part 3: 11.1

Measurement	Test Result [dB]
A-weighted	40.38

-- End of measurement results--

-- End of Report--

Signatory: Ron Harris

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Calibration Certificate

Certificate Number 2019013084

Customer:
Sistemas De Instrumentacion
Concha Y Toro NO 65
Santiago-Centre
Santiago, Chile

Model Number CAL150
Serial Number 6266
Test Results Pass
Initial Condition As Manufactured
Description Larson Davis CAL150 Calibrator

Procedure Number D0001.8386
Technician Scott Montgomery
Calibration Date 22 Oct 2019
Calibration Due 22 Oct 2021
Temperature 22 °C ± 0.3 °C
Humidity 30 %RH ± 3 %RH
Static Pressure 101.3 kPa ± 1 kPa

Evaluation Method The data is acquired by the insert voltage calibration method using the reference microphone's open circuit sensitivity. Data reported in dB re 20 µPa.

Compliance Standards Compliant to Manufacturer Specifications per D0001.8190 and the following standards:
IEC 60942:2017 ANSI S1.40-2008

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the SI through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005. Test points marked with a ± in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Standards Used			
Description	Cal Date	Cal Due	Cal Standard
Agilent 34401A DMM	08/15/2019	08/15/2020	001021
Larson Davis Model 2900 Real Time Analyzer	04/02/2019	04/02/2020	001051
Microphone Calibration System	03/04/2019	03/04/2020	005446
1/2" Preamplifier	09/17/2019	09/17/2020	006506
Larson Davis 1/2" Preamplifier 7-pin LEMO	08/06/2019	08/06/2020	006507
1/2 inch Microphone - RI - 200V	11/12/2018	11/12/2019	006511
Pressure Transducer	06/24/2019	06/24/2020	007310

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Certificate Number 2019013084

Output Level

Nominal Level [dB]	Pressure [kPa]	Test Result [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
114	101.2	114.00	113.70	114.30	0.14	Pass
94	101.3	94.01	93.70	94.30	0.14	Pass

-- End of measurement results--

Frequency

Nominal Level [dB]	Pressure [kPa]	Test Result [Hz]	Lower limit [Hz]	Upper limit [Hz]	Expanded Uncertainty [Hz]	Result
114	101.2	1,000.23	990.00	1,010.00	0.20	Pass
94	101.3	1,000.19	990.00	1,010.00	0.20	Pass

-- End of measurement results--

Total Harmonic Distortion + Noise (THD+N)

Nominal Level [dB]	Pressure [kPa]	Test Result [%]	Lower limit [%]	Upper limit [%]	Expanded Uncertainty [%]	Result
114	101.2	0.44	0.00	2.00	0.25 ±	Pass
94	101.3	0.45	0.00	2.00	0.25 ±	Pass

-- End of measurement results--

Level Change Over Pressure

Tested at: 114 dB, 23 °C, 44 %RH

Nominal Pressure [kPa]	Pressure [kPa]	Test Result [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
108.0	107.9	-0.02	-0.40	0.40	0.04 ±	Pass
101.3	101.4	0.00	-0.40	0.40	0.04 ±	Pass
92.0	92.0	0.02	-0.40	0.40	0.04 ±	Pass
83.0	83.0	0.01	-0.40	0.40	0.04 ±	Pass
74.0	74.0	-0.02	-0.40	0.40	0.04 ±	Pass
65.0	65.1	-0.10	-0.40	0.40	0.04 ±	Pass

-- End of measurement results--

Frequency Change Over Pressure

Tested at: 114 dB, 23 °C, 44 %RH

Nominal Pressure [kPa]	Pressure [kPa]	Test Result [Hz]	Lower limit [Hz]	Upper limit [Hz]	Expanded Uncertainty [Hz]	Result
108.0	107.9	-0.01	-10.00	10.00	0.20 ±	Pass
101.3	101.4	0.00	-10.00	10.00	0.20 ±	Pass
92.0	92.0	0.00	-10.00	10.00	0.20 ±	Pass
83.0	83.0	0.03	-10.00	10.00	0.20 ±	Pass
74.0	74.0	0.06	-10.00	10.00	0.20 ±	Pass
65.0	65.1	0.07	-10.00	10.00	0.20 ±	Pass

-- End of measurement results--

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11/13/2019 2:31:12PM



Page 2 of 3

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DO501-8110 Rev B

Certificate Number 2019013084

Total Harmonic Distortion + Noise (THD+N) Over Pressure

Tested at: 114 dB, 23 °C, 44 %RH

Nominal Pressure [kPa]	Pressure [kPa]	Test Result [%]	Lower limit [%]	Upper limit [%]	Expanded Uncertainty [%]	Result
108.0	107.9	0.43	0.00	2.00	0.25 ‡	Pass
101.3	101.4	0.43	0.00	2.00	0.25 ‡	Pass
92.0	92.0	0.45	0.00	2.00	0.25 ‡	Pass
83.0	83.0	0.47	0.00	2.00	0.25 ‡	Pass
74.0	74.0	0.49	0.00	2.00	0.25 ‡	Pass
65.0	65.1	0.52	0.00	2.00	0.25 ‡	Pass

-- End of measurement results--

Signature: Scott Montgomery

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11/13/2019 1:31:12PM

Page 3 of 3

D0001.8410 Rev. B

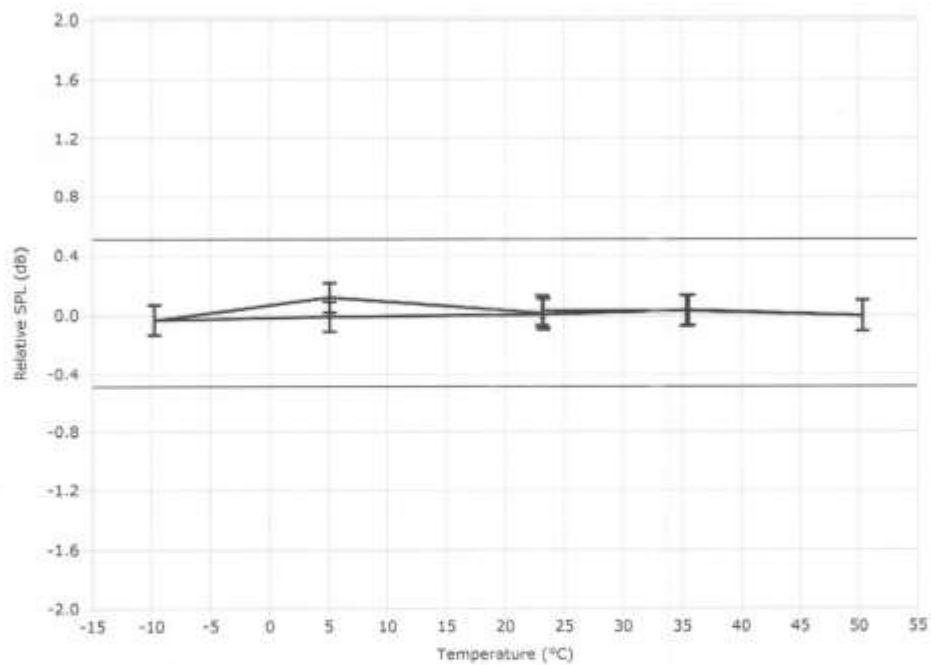


Model CAL150 Relative SPL vs. Temperature

Larson Davis Model CAL150 Serial Number: 6266

Model CAL150 Relative SPL vs. Temperature at 50% RH.
A 2559 Mic (SN: 2912) with a PRM902 Preamp (SN: 5719), station 7 was used to check the levels.

Test Date: 12 Aug 2019 8:04:23 AM



0.1dB expanded uncertainty at ~95% confidence level (k=2)

Sequence File: CAL200.SEQ

Test Location: Larson Davis, a division of PCB Piezotronics, Inc.
1681 West 820 North, Provo, Utah 84601
Tel: 716 684-0001 www.LarsonDavis.com

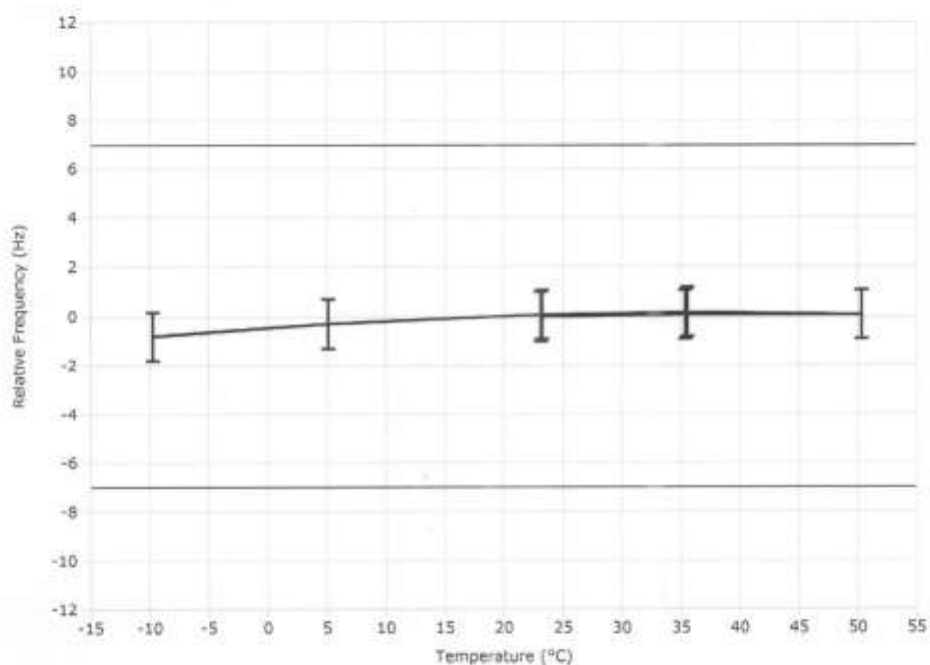


Model CAL150 Relative Frequency vs. Temperature

Larson Davis Model CAL150 Serial Number: 6266

Model CAL150 Relative Frequency vs. Temperature at 50% RH.
A 2559 Mic (SN: 2912) with a PRM902 Preamp (SN: 5719), station 7 was used to check the levels.

Test Date: 12 Aug 2019 8:04:23 AM



1.0 Hz expanded uncertainty at ~95% confidence level ($k=2$)

Sequence File: CAL200.SEQ

Test Location: Larson Davis, a division of PCB Piezotronics, Inc.
1681 West 820 North, Provo, Utah 84601
Tel: 716 684-0001 www.LarsonDavis.com

0598

Avenida Osorno

0654

072

7705

Avenida Parral

7703

Calle Lota

ZH-1



PRC La Granja	
Región	Metropolitana
Comuna	La Granja
Sector	La Granja
Zona	ZH-1
Nombre zona	ZH-1 Zona Residencial Malaquías Concha
Uso permitido	Residencial, equipamiento comercial, culto, deporte, educación, salud, seguridad, servicios, social, oficina y científico intercomunal; infraestructura sanitaria y energética; espacio público y áreas verdes.
Uso prohibido	Equipamiento de esparcimiento, turismo y cementerio; actividad productiva; infraestructura de transporte.
Capa	PRC La Granja
Código Único Territorial	13111