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Project Report to

Friends Fur-Ever Pet Resort

For

Noise Assessment
Sudbury, Ontario

#
Rev. 1 April 04, 2018

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Friends Fur-Ever Pet Resort

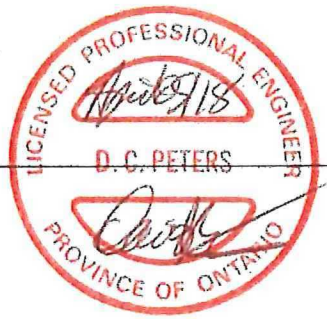
Noise Assessment

Prepared by: David Peters — April 04, 2018 (Date)

Approvals

ProSonics

Approved by: _____ Date



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1 Introduction

This document is the ProSonics Ltd. report for the Noise Assessment of Friends Fur-Ever Pet Resort. ProSonics believes this report to be accurate based on the measurements and analysis undertaken, and the understanding of the project scope.

2 Background

ProSonics Ltd. was retained by Friends Fur-Ever Pet Resort to perform a noise assessment around their property at 15 Kalio Rd to determine what noise impact the kennel operations may be having on the surrounding properties.

The property in question is largely treed, with public roads on two sides.

The noise assessment was carried out in accordance with industry accepted practices and following the guidelines included in the Model Municipal Noise Control By-Law - Final Report, August 1978, Ontario Ministry of the Environment, and the Ontario Ministry of the Environment and Climate Change Environmental Noise Guideline: Stationary and Transportation Sources - Approval and Planning (NPC-300) August 2013.

Based on these references, the following definitions were established for the assessment:

- The commercial use of the property as a dog kennel operation classifies as a "Stationary Source" under the MOECC guidelines.
- The exemption from consideration as a stationary source of "noise produced by animals kept as domestic pets such as dogs barking" does not apply because the dogs kept at the kennel do not all belong to the property owner.
- The site is classified as a "Class 3 area", which means "a rural area with an acoustical environment that is dominated by natural sounds having little or no road traffic".
- Guideline limits are 45 dBA from 7am to 7pm, and 40 dBA from 7pm to 7am.

A noise source is considered measurable if it is 6 dB(A) above the background noise level in a space. An increase in volume of 3 dB(A) is a doubling of sound energy, and perceived as a doubling of loudness. So, a measurement grade signal is present when it is four times louder than the background noise, and it is considered potentially intelligible if it is twice the loudness of the background noise.

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The noise of a dog barking is considered an impulsive noise source. Multiple dogs barking (i.e. a collection of impulsive noises) may, in the event the impulses are frequent enough, be considered a Quasi-Steady Impulsive Sound. NPC-300 section B7.1 Table B-1 concurs that an Leq of 45 dBA is the Exclusion Limit Value for a Class 3 Area.

3 Facility Description

The facility houses domestic dogs on a temporary basis, mostly in a 'daycare' setting, while some dogs are kept overnight on a temporary basis in a 'boarding' arrangement. The current facility contains 24 cages, with a normal maximum number of dogs kept being thirty (30), with an average population of under twenty five (25). Noise sources at the facility are the dogs themselves and a nearby chicken coop containing just under one hundred (100) chickens. No significant mechanical noise sources (e.g. air conditioner) are present.

The site plan below shows the site general arrangement and identifies the areas where the dogs are located during operation.

The area between where the dogs are kept and the property line is generally flat and forested in all directions, with the growth being mature trees (both deciduous and evergreen) and underbrush. With the exception of the South side of the property where a neighbour has built (since the establishment of the kennel) close to the property line, the main building and exercise yard are not visible from the surrounding properties or adjacent public roadways due to the trees and underbrush.

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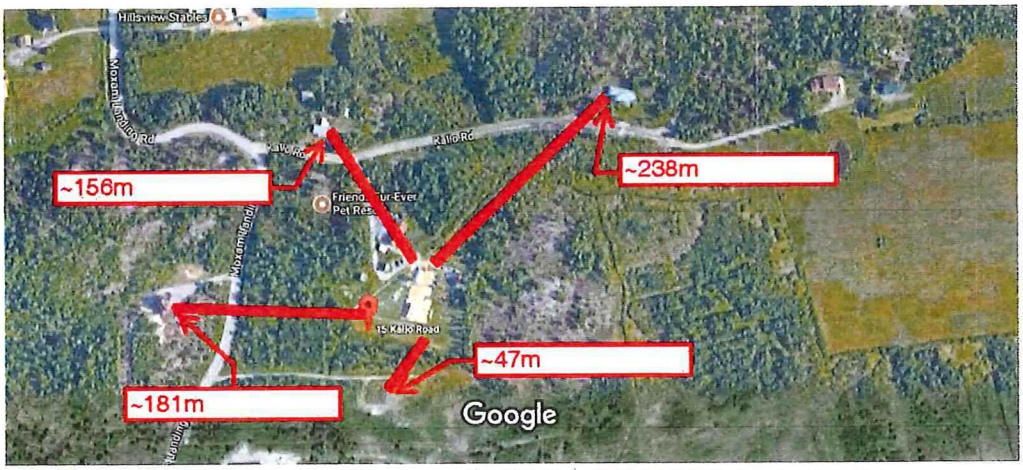
The dogs are normally outside, weather permitting, between the hours of 7:30am and 6:00pm. After 7pm only overnighting dogs are present, and they are only taken outside one time between 7pm and 8pm to relieve themselves and then they are returned to the kennel cages.

The closest residence to the fenced dog exercise area is the new residence to the south of the kennel, constructed almost three years after the kennel was in operation. The builder/owner of that residence was fully aware of the presence of the kennel prior to constructing the residence. This residence is approximately 47m from the closest point of the fenced exercise yard. All other residences are further away from their respective closest points to the exercise yard, with the next three closest residences being approximately 156m to the north, 181m to the west, and 238m to the north-east respectively.



It should be noted that NPC-300, Section B11 Development of Adjacent Lands states "When a site in proximity to a stationary source is in process of being developed...for noise sensitive land use (such as residential), it is considered the responsibility of the proponent/developer of the noise sensitive land use to ensure compliance with the applicable sound level limits and for this responsibility to be reflected in the land use planning decisions." In other words, it is the responsibility of the developer of the noise sensitive land to make plans for the implementation of noise mitigation if required as the noise is a pre-existing condition, and the guidelines describe noise at the receptor location, such as a window of a residence, not at a property line. With no residence present, and no noise sensitive use in place at the time the kennel was constructed, noise at this particular residence should not be considered when determining whether the kennel operation is in compliance with the noise guidelines.

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4 Scope Of Work, Points of Reception

ProSonics was retained by Friends Fur-Ever Pet Resort to perform a noise assessment. These measurements are to be done utilizing Equivalent Sound Level (Leq), and are to be performed outdoors at the owner's property line. The property line is to be used as the measurement location in order to develop a conservative noise measurement, and to not have issues with trespassing onto private property while making the measurements. Equivalent Sound level is a time-integrated measurement that accounts for non-continuous noise or varying sound power levels and results in a value of an equivalent continuous sound level for the time period of the measurement. Measurements were initially made on September 08, 2017. These measurements were assessed by a third party review to be inconclusive due to high levels of background noise from the surrounding flora and fauna. The background noise level measured during these initial measurements were above the recommended noise limit of 45 dBA without the presence of the subject kennel noise.

Due to the high background noise condition (determined to be from the light wind rustling the leaves of the trees), a second set of noise measurements were required. These second measurements would either have to be made when the background noise was below the 45dBA threshold, or a continuous 48 hour measurement would be required to establish an elevated background noise level specific to this site.

Since the elevated background noise was determined to be largely due to the tree leaves, it was decided to repeat the measurements during winter when there were no leaves on the trees and therefore the minimum background noise level would be present. The ground was snow covered. Specific environmental conditions during each test are described later in this report.

With the ground frozen, the property line towards the closest residence (south side) was now accessible to perform the measurements. The property line in this direction is approximately 25m from the closest point of the exercise yard. The measurement was made at the property line, directly between the exercise yard and the residence. For all measurements the measurement microphone was pointed towards the exercise yard.

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5 Methodology And Measurements

5.1 Setup and Methodology

On January 19 and 20, 2018, ProSonics Ltd. attended 15 Kalio Rd. to perform acoustic measurements of the property line noise level due to the dog kennel. During the measurement period, the dogs were kept in the exercise yard and the kennel staff handled and worked with the dogs as they would during any normal work day with no special activities performed just for the purposes of the noise measurements. All normal procedures for managing the dogs, dog playing, and any administrative measures normally employed by staff in the event that specific dogs were disorderly were followed.

All measurements were made with a calibrated noise measurement system consisting of an Earthworks M30 Type 1 measurement microphone with self noise of <17 dBA, frequency response 5 Hz-30 kHz, +/-1/3 dB, operating temperature range of -20C-+60C, and equipped with a Cirrus environmental windscreen. This microphone was connected through a PreSonus digital preamplifier to a PC running SIA SmaartLive acoustical analysis software. The microphone and system were calibrated using a Cirrus model D537 acoustical calibrator accurate to +/- 0.1 dB at 1000 Hz, +/- 10 Hz. Calibration was made at 94 dB and checked at 104 dB. Measurements were all made with a microphone height of 1.5m, with the microphone pointed towards the kennel exercise yard. After each measurement, the calibration was rechecked and was found to be within 0.5 dB of the initial calibration in all cases, therefore the measurement is within accepted accuracy. The equipment was powered from a 120V UPS system mounted inside a vehicle and was not powered down or adjusted between measurements. The vehicle was not operated during the measurements.

The noise measurements made using SIA SmaartLive software were data logged on one second intervals. The software performs a real-time LEQ calculation from the time of measurement initiation until the specified measurement interval expires. So, an LEQ60 measurement runs for 60 minutes, so the software display at the end of the 60 minute measurement is the LEQ60. The data file records the calculated LEQ60 on a second by second basis, so the value shown in the data file is the LEQ from measurement initiation until that time. The measurement graph shows how the LEQ value changed over time during the measurement, with the final value at 60 minutes being the LEQ60.

Weather conditions during the measurements were measured and recorded by an Accu-Rite 5 in 1 weather station mounted on the vehicle, and the weather data was logged by a laptop at 12 minute intervals (the shortest logging interval available).

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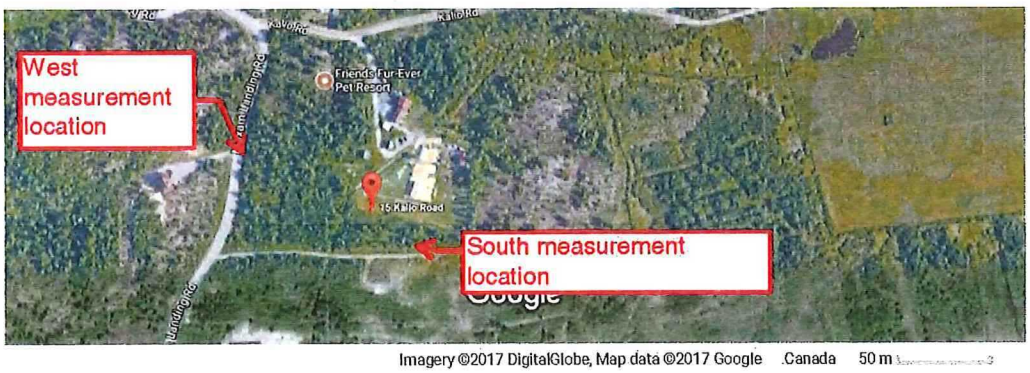
5.2 Measurements

Measurements were made at the locations indicated below.



On January 19, 2018, Measurement 1 was made at the south measurement location, and started at 1:50pm. Twenty-five dogs were in the exercise yard, and were in the yard continuously throughout the measurement. Weather conditions during the measurement were cloudy, with a temperature of 3C, with south west wind of an average wind speed during the measurement of 7 km/h. Since the average wind speed was below 15 km/h, and a windscreen was employed on the microphone, no adjustment to the measurement was required per NPC-102 Table 102-3.

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Unfortunately, during the course of this measurement, a gust of wind (18 km/h) blew the windscreen off the microphone at the 20 minute mark.

At the time that the windscreen blew off, the LEQ was 36.33dBA. Weather and measurement data is shown in Appendix A.

In the above photo you can see the fence of the exercise yard in the background. Mic location is at the fence line, as shown in the below photo.

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Measurement 2 was made at the west measurement location, at the roadside, and started at 3:22 pm. Twenty-five dogs were in the exercise yard, and were in the yard continuously throughout the measurement. Weather conditions during the measurement were cloudy with sunny breaks, with a temperature of 0C, with west wind of an average wind speed during the measurement of 9 km/h. Since the average wind speed was below 15 km/h, and a windscreen was employed on the microphone, no adjustment to the measurement was required per NPC-102 Table 102-3.

This measurement recorded an Leq(60) of 54.1dBA. The high LEQ was due to traffic noise on Moxam Landing Road. During the period of the test, 24 vehicles passed the measurement location, each taking approximately 5 to 8 seconds to pass. Some of the vehicles passed the measurement location several times. Section 3 of NPC-104 describes the adjustment to be applied to the Leq measurement due to an intermittent sound not under study - in this case the traffic noise. The adjustment is listed in table 104-1. With 24 vehicle passes of 8 seconds each, 3.2 minutes is the total duration of the intermittence. Therefore a conservative adjustment of -12dBA to the Leq measurement can be made, resulting in an adjusted Leq of 42.1dBA. Using 5 seconds, 2.0 minutes is the total duration of the intermittence. Table 104-1 shows an adjustment of -15dBA, resulting in an adjusted Leq of 39.1dBA

Weather and measurement data is shown in Appendix A.

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Measurement 3 was made at the same south location as measurement 1, on January 20, 2018, 10:08AM. During this measurement, 20 dogs were in the exercise yard, Weather conditions were sunny, -2C, with southwest winds at an average of 8km/hr. Since the average wind speed was below 15 km/h, and a windscreen was employed on the microphone, no adjustment to the measurement was required per NPC-102 Table 102-3.

No interruptions nor any abnormal conditions occurred during this test.

During this test an LEQ(60) of 38.4 dBA was measured. Weather and measurement data is shown in Appendix A.

6 Conclusions

As a result of the measurements, observations and analysis above, the following conclusions are made:

- It is concluded that the noise generated by the dogs at the Friends Fur-Ever Pet Resort on January 19, 2018 and January 20, 2018, during normal kennel operations with all housed dogs outdoors in the exercise yard, during the measured time intervals, as measured at the closest property line to the dog exercise area, was within the published guidelines for a Class 3 Area as described in the Ontario Ministry of the Environment and Climate Change Environmental Noise Guideline: Stationary and Transportation Sources - Approval and Planning (NPC-300) August 2013.

- Since the noise was within guidelines at a location approximately 25m from the exercise yard, in direct sight of the yard with no intervening trees or other obstructions, the noise level would simultaneously be within guidelines at the property line towards the three other closest residences a minimum of 6.25 times the distance (156m) from the exercise yard with intervening trees and brush acting as an acoustical diffuser.

7 Closing

We trust that we have properly understood the scope and deliverables in preparing our report, and the methodology, results, analysis and conclusions have been presented in a clear manner. If this is not the case, we are ready to update our report to ensure that our methodology and analysis is presented clearly and unambiguously.

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Appendix A

Measurements

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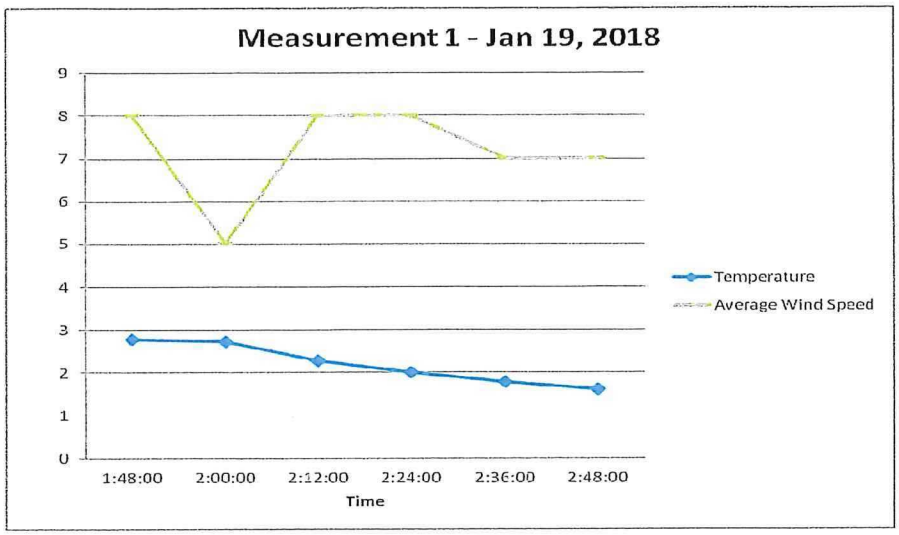

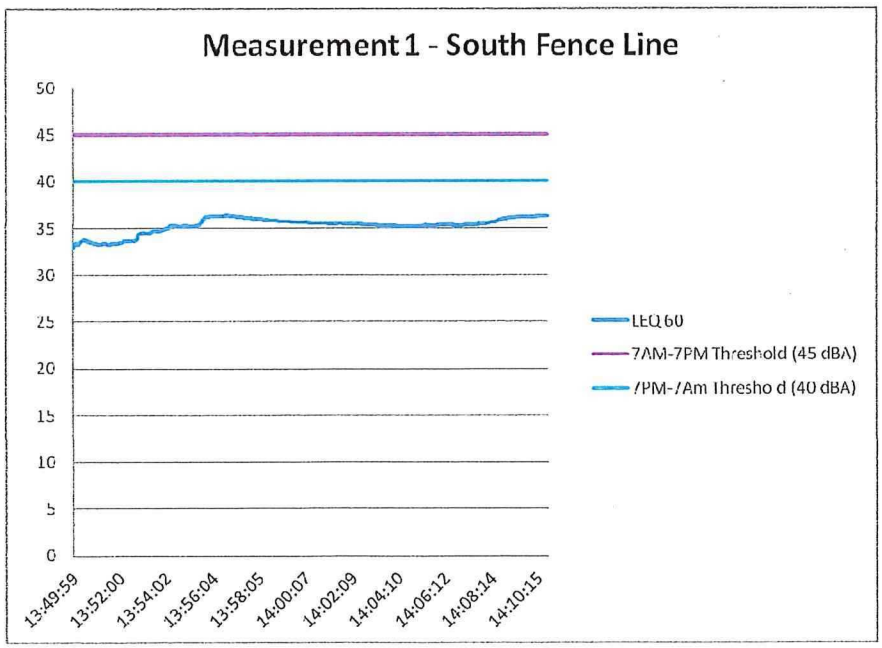

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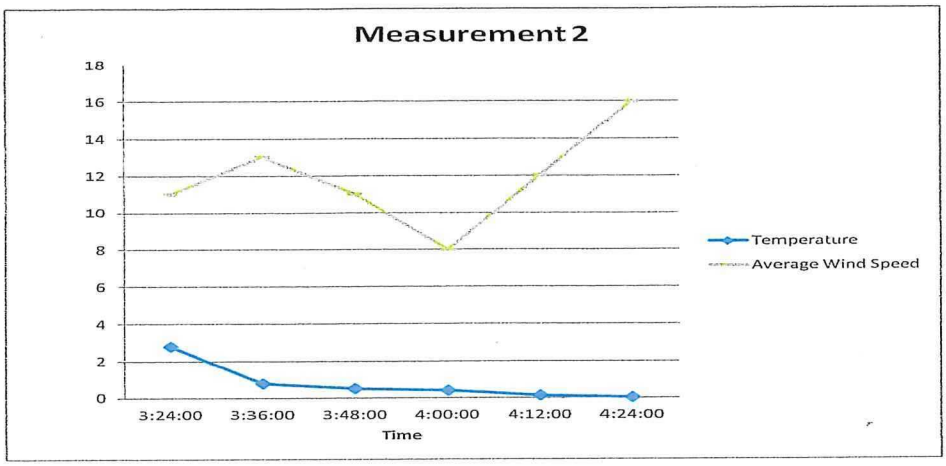

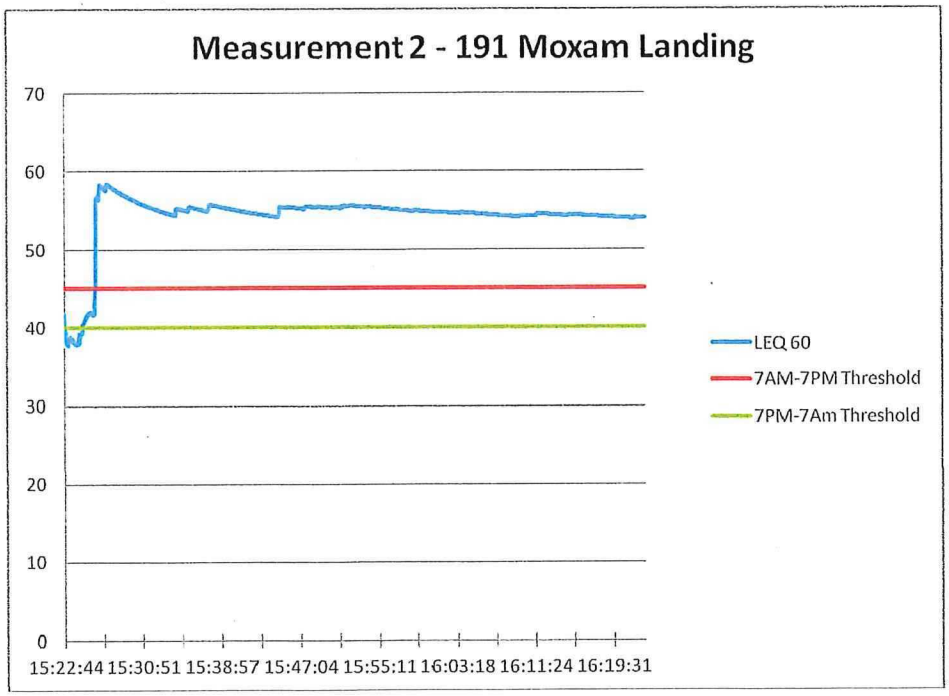

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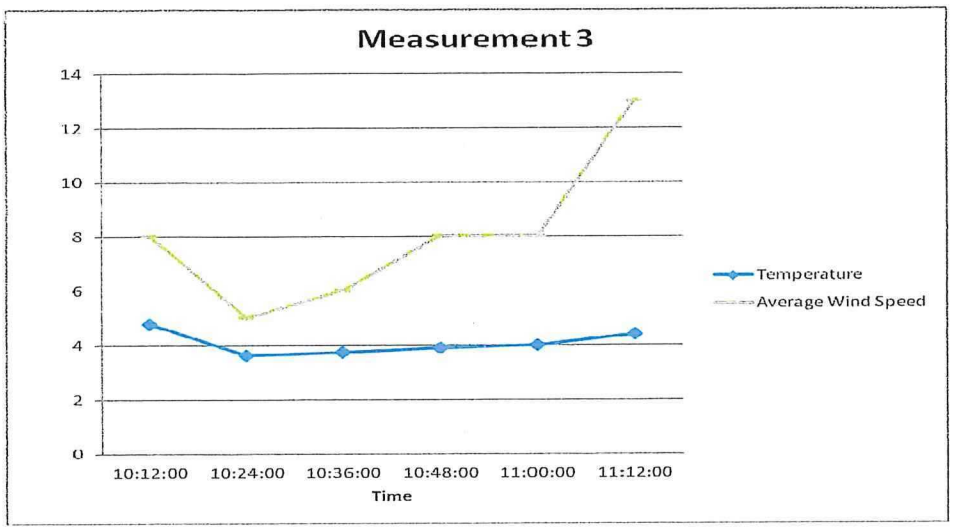

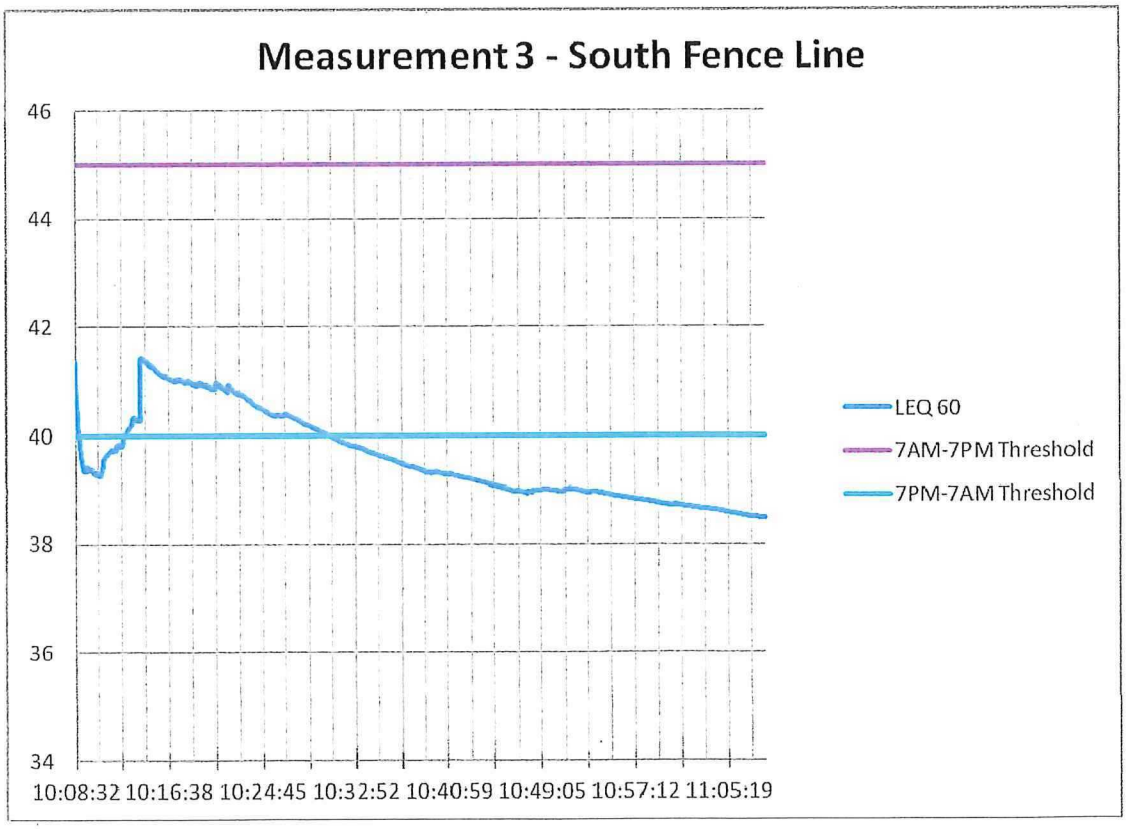

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Appendix B

Measurement Microphone Specifications

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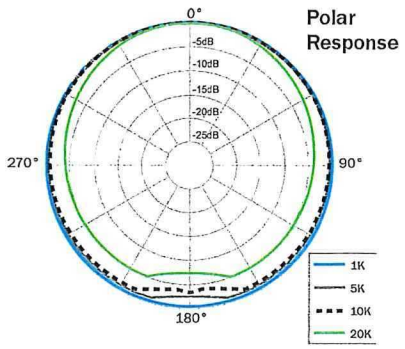
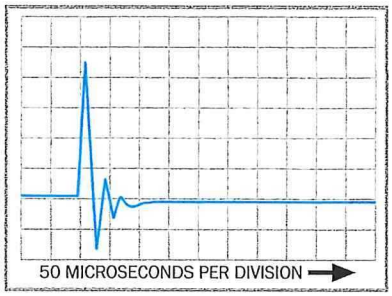
Earthworks® M30 High Definition Measurement Microphone™

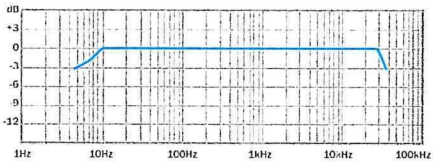
HIGH DEFINITION MICROPHONES™

- One of the Industry's Most Popular Measurement Microphones
- 30kHz Free-Field Frequency Response
- Meets or Exceeds Type 1 Specifications
- 138dB SPL Max Acoustic Input
- Used by Research Laboratories and Acousticians Throughout the World
- Ideal for SMAART™, MLSSA™, Spectrafoo™, TEF™, RTA and all "Audio Band" Measurements
- Requires 24-48V Phantom Power
- Multiple Measurement Microphones can be matched for a nominal fee
- Electronic Calibration Files are available online after completing product registration at no cost





Impulse Response



Frequency Response

SPECIFICATIONS

Frequency Response:	5Hz to 30kHz ± 1/-3dB
Polar Pattern:	Omnidirectional
Sensitivity:	34mV/Pa (Typical)
Power Requirements:	24-48V Phantom, 10mA
Max Acoustic Input:	138dB SPL
Output:	XLR-3 (pin 2+)
Min. Output Load:	600 ohms between pins 2 & 3
Noise:	20dB SPL (A weighted)
Temp. Operating Range:	-4° to 140°F (-20° to +60°C)
Dimensions L x D:	9 x .860 in. (229 x 22 mm)
Weight:	0.5 lb. (227g)

ELECTRONIC CALIBRATION FILES

Electronic Calibration files are available for all models of Earthworks measurement microphones, so your specific microphone can be calibrated to your measurement software or system. For you to obtain your electronic calibration files (ECF), you must first register your microphone online at earthworksaudio.com/register and afterwards go to earthworksaudio.com/ecf to request your ECF file, which will be sent to you as an email attachment. If you have any questions, please call 603-654-2433, ext 114 or email: sales@earthworksaudio.com

Earthworks M Series measurement microphones have become the accepted standard for reliable measurement and reference. They are accurate in the time and frequency domain and have exceptionally uniform polar response. They feature flat free-field frequency response, fast impulse response, and are remarkably stable with respect to temperature changes, meeting or exceeding Type 1 specifications. Our M Series measurement microphones are used and recommended by SMAART™, MLSSA™, Spectrafoo™, TEF™, RTA in addition to acoustic measurement systems manufactured by dbx, Rational Acoustics, DEQX and others.

The M30 is one of the most respected, accurate and reliable measurement microphones on the market. Consultants and Acousticians throughout the world rely on the M30 in performing their measurements and acoustical analysis. In addition, they have great respect for the near-perfect polar response of this microphone. The M30 provides an impressive frequency response of 5Hz to 30kHz, near-perfect polar response and it will handle 138dB SPL. For those looking for an extremely accurate and reliable measurement microphone, the Earthworks M30 is it.

The Earthworks line of measurement microphones (with exception to the M30BX, which is battery operated) require standard 24-48V phantom power and up to 10mA of current (which is within the industry phantom power standard). 10mA of current is required to supply our high current, bipolar Class A amplifier within the microphone that is made with all discrete components, with no capacitors in the signal path providing excellent phase response. This also allows the microphone(s) to feed long signal lines up to 300 feet (91m) and maintain the full frequency response of the microphone at the other end of the line, without any loss in high frequencies.

The M30 comes in a protective carton with a custom die-cut foam insert and its own individual calibration chart. For those who desire calibration files to interface with their software, these are available at no cost. In addition, any number of microphones can be matched for a nominal fee. The M30 requires standard 24-48V phantom power for operation.

The M30 is robust and can be used in a wide variety of environments from the most elegant of research laboratories to making measurements in the outdoors and tropics. In making acoustic measurements, the M30 will be your most trusted, accurate and reliable measurement instrument.

Earthworks® HIGH DEFINITION MICROPHONES™

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