TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE H: NOISE
CHAPTER I: ILLINOIS POLLUTION CONTROL BOARD

PART 910
MEASUREMENT PROCEDURES FOR THE ENFORCEMENT OF 35 ILL. ADM. CODE 900 & 901

Section

AUTHORITY: Implementing and authorized by Sections 25 and 27 of the Environmental Protection Act [415 ILCS 5/25 and 27]

SOURCE: Adopted in R03-9 at 30 Ill. Reg. 5594, effective March 10, 2006; amended in R18-19 at 42 Ill. Reg. _____, effective November 1, 2018.

Section 910.100 General

This Part provides specifications for sound measurement equipment as well as the specific sound measurement techniques to be used when conducting time-averaged sound level (L_{eq}) measurements to determine whether a noise source is compliant with 35 Ill. Adm. Code 900 and 901.

(Source: Amended at 42 Ill. Reg. _____, effective November 1, 2018)

Section 910.102 Instrumentation

a) Sound Measuring Equipment

1) Use an integrating sound level meter alone or in conjunction with an octave-band or ⅓ octave-band filter set or a real-time sound analyzer (octave-band or ⅓ octave-band) that complies with the following standards incorporated by reference at 35 Ill. Adm. Code 900.106:

A) ANSI/ASA S1.4-2014/Part 1/IEC 61672:1-2013 "American National Standard Electroacoustics – Sound Level Meters – Part 1: Specifications (a nationally adopted international standard)".

B) ANSI/ASA S1.11-2014/Part1/IEC 61260:1-2014 Electroacoustics − Octave-Band and Fractional-Octave-Band Filters – Part 1: Specifications (a nationally adopted international standard)".

C) ANSI/ASA S1.6-2016 "Preferred Frequencies and Filter Band Center Frequencies, for Acoustical Measurements".

D) ANSI/ASA S1.8-2016 "Reference Values for Levels Used in Acoustics and Vibrations".

E) IEC 61672-1:2013 "Electroacoustics Sound Level Meters – Part 1: Specifications".

2) Use a magnetic tape recorder, graphic level recorder or other indicating device conforming with the SAE Recommended Practice J184 "Qualifying a Sound Data Acquisition System", August 2014, incorporated by reference at 35 Ill. Adm. Code 900.106.

3) Calibrate sound measuring equipment traceable to the National Bureau of Standards at least once every 12 months.

4) For outdoor measurement, use a microphone with an attached windscreen.

b) Weather Measuring Equipment

1) Us an anemometer and compass or other devices to measure wind speed and direction in compliance with the manufacturer's recommended procedures.

2) Use a thermometer, designed to measure ambient temperature, in compliance with the manufacturer's recommended procedures.

3) Use a hygrometer in compliance with the manufacturer's recommended procedures to measure the relative humidity.

4) Use a barometer in compliance with the manufacturer's recommended procedures to measure the barometric pressure.

(Source: Amended at 42 Ill. Reg. _____, effective November 1, 2018)

Section 910.103 Definitions

The definitions contained in 35 Ill. Adm. Code 900.101 apply to this Part.

Section 910.104 Measurement Techniques for 35 Ill. Adm. Code 900

A violation of 35 Ill. Adm. Code 900.102 (nuisance noise) can be established without sound pressure level measurement. However, sound pressure level measurements may be introduced as corroborating evidence when alleging a violation of 35 Ill. Adm. Code 900.102 if measurements are collected in compliance with the manufacturer's instructions for the sound measuring equipment. The sound measuring techniques in 35 Ill. Adm. Code 910.105 may be used as guidance in gathering data.

(Source: Amended at 42 Ill. Reg. _____, effective November 1, 2018)

Section 910.105 Measurement Techniques for 35 Ill. Adm. Code 901

To determine a noise source's compliance with 35 Ill. Adm. Code 901, sound pressure level measurements are obtained using the following measurement techniques:

a) Site Selection

1) One or more outdoor microphone positions may be chosen within the boundaries of the receiving land, as long as the positions are at least 25 feet (7.6 meters (m)) from the property-line noise source. The 25-foot setback distance is from the noise source and not the property line unless the noise source is contiguous to the property line.

2) Other measurement locations may be used for investigatory purposes, including the following:

A) Determining the extent of noise pollution caused by the source of sound;

B) Determining the ambient; and

C) Analyzing those acoustical parameters that describe the sound source.

3) For measurements of sound sources with no audible discrete tones, set up the microphones at least 25 feet (7.6 m) from any reflective surface that

may affect data. If microphones are within 25 feet, determine the effect, if any, of the reflective surface on the measured data.

4) For measurements of sound sources with audible discrete tones, set up the microphones at least 50 feet (15.2 m) from any reflective surface that may affect data. If microphones are within 50 feet, determine the effect, if any, of the reflective surface on the measured data.

5) Microphones need to be at least 5 feet (1.5 m) from small objects (trees, posts, bushes, etc.). If microphones are within 5 feet of small objects, determine the effect, if any, on the measured data.

b) Instrumentation Set Up

1) Set up a microphone tripod at the chosen site, extended to a height between 3 feet 8 inches (1.12 m) and 4 feet 10 inches (1.47 m) above ground.

2) Attach the microphone at the top of the tripod and connect it to the measuring instrument with a 5-foot (1.5 m) or longer cable.

3) Adjust the angle of incidence of the microphone to yield the flattest frequency response compliant with the manufacturer's specifications.

4) Separate the measuring instrument from the microphone to minimize any influence on the measurements, and minimize any cable movement during the measurement period.

c) Measurement Site Operation and Instrument Calibration

1) Before taking sound pressure level measurements, measure and record (near the measurement site):

A) Wind speed and direction;

B) Ambient temperature;

C) Relative humidity; and

D) Barometric pressure.

2) Turn the measuring instrument on and allow the instrument to stabilize. Monitor and record the battery condition of the calibrator and all measuring instruments.

3) Turn the calibrator on at its appropriate frequency. Allow the calibrator to stabilize and calibrate the measuring system according to the

manufacturer's specifications. After the measuring system has been calibrated, remove the calibrator and attach a windscreen to the microphone.

4) Adjust the microphone to the angle of incidence that will yield the frequency response compliant with the manufacturer's specifications.

5) Measure the sound pressure level data within the limitations of subsection (d) and according to the manufacturer's recommended procedures. Other sound pressure levels may be used for investigatory purposes, including the following:

A) Determining the extent of noise pollution caused by the source of sound;
B) Determining the ambient; and

C) Analyzing those acoustical parameters that describe the sound source.

6) While sound measurements are being taken, maintain distance between the operator and the microphone to minimize any influence on the measurements.

7) While measurements are being taken, make visual and aural surveillance of extraneous sound sources and varying wind conditions to ensure that the conditions of measurement are accurately known. Record any variations in these parameters that may affect data. Record the number and basis for the affected data block. When using a tape recorder, record voice commentary concerning conditions on the cue track.

8) Minimize wind effects on the microphone by taking sound measurements when the wind velocity is less than 12 miles per hour (5.4 m/second) at the microphone position.

9) For the purposes of data correction, determine the ambient sound at the measurement site by means of measurement or analysis.

10) After taking sound pressure level measurements, remove the windscreen and attach the calibrator to the microphone. Turn the calibrator on at its appropriate frequency. After allowing the calibrator to stabilize, monitor and record the measuring system response. If the measuring system response varies by more than ± 0.5 dB from the most recent field calibration, the sound pressure level measurements obtained since such most recent field calibration cannot be used for enforcement purposes.

11) Before removing the calibrator from the microphone, turn the calibrator off. If the ambient sound has not been determined by means of measurement, determine the noise floor of the measuring system. If the noise floor is within 10 dB of the measured sound pressure level data, record the noise floor measurements.

12) At the end of the sound survey, monitor and record the battery condition of the calibrator and all measuring instruments. Near the measurement site, measure and record:

A) Windspeed and direction;
B) Ambient temperature;
C) Relative humidity; and

D) Barometric pressure.

13) Record the physical and topographical description of the ground surface within the vicinity of the measurement site, survey site location, a description of the sound source, a diagram of the area, the location of reflective surfaces near the microphone, and the approximate location of the noise source relative to the microphone position.

14) A magnetic tape recorder may be used to preserve the raw data. Record calibration signals at the beginning and end of each tape as well as at intermediate times such as when relocating to a new measurement site. Record voice commentary concerning local conditions and affected data blocks on the cue track. Preserve the original tape recording for subsequent evaluation.

15) Any laboratory analyses of magnetic tape-recorded field data must include a description of the laboratory instrumentation and procedures, along with correlation of the laboratory analyses and field measurement techniques.

d) Limiting Procedures for Specific Types of Data Acquisition

1) For measurements of non-impulsive sound with audible discrete tones, measure ⅓ octave-band sound pressure levels to determine if a noise source complies with 35 Ill. Adm. Code 901.106.

2) For measurements of non-impulsive sound with no audible discrete tones, measure octave-band sound pressure levels to determine if a noise source complies with 35 Ill. Adm. Code 901.102 and 901.103.

e) Correction Factors
If necessary, apply correction factors rounded to the nearest ½ decibel to sound pressure level measurements. The correction factors applicable to the

measurement system may include corrections for windscreen interference and the sound pressure level difference between consecutive field calibrations. Use calibration correction factors only to make negative corrections (subtraction from the field data). Do not add calibration correction factors to the measured sound pressure levels to raise the sound pressure level field data. The correction factors applicable to the measurement site may include corrections for reflective surfaces and ambient sound.

(Source: Amended at 42 Ill. Reg. _____, effective November 1, 2018)

Section 910.106 Protocols for Determination of Sound Levels

a) The raw data collection procedures to determine equivalent continuous sound pressure level (L_{eq}) are described in this Section using as an example the determination of a 1-hour L_{eq} corrected for ambient. The following procedures must be used:

1) Using Small Blocks

A) Divide the 1-hour interval into many small blocks of time so that corruption of the data from short-term background, transient sound and loss of data can be limited to the corrupted or bad blocks. The block duration measured in seconds is fixed for any measurement hour. The duration must be neither less than 10 seconds nor greater than 100 seconds. For example, if the block duration is chosen to be 60 seconds (1 minute), then the data collection proceeds for 60, 1-minute periods of measurement.

B) The collected data for each block represents a block duration L_{eq} (or sound exposure level (SEL)) in octave-bands (or ⅓ octave-bands if prominent discrete tones may be present).

C) Delete data for any block corrupted by one or more short-term background transient sounds.

D) After deleting corrupted data blocks, there will be a fixed number of "good" data blocks remaining. This number is designated as N_{PLNS}, where PLNS stands for Property-Line Noise Source. These remaining "good" blocks are numbered consecutively. The subscript "i" is used to denote the numbering of the blocks in time order after corrupted data blocks have been deleted.

E) The data for the N_{PLNS} remaining blocks are time averaged on an energy basis by octave (or ⅓ octave-band) using Equation 1 below. In this equation, two subscripts are used, i to designate time and j to designate the specific frequency, either an octave-band or ⅓

octave-band. The raw, 1-hour L_{eq} in the j^{th} frequency band is given by:

$$L_{eqj} = 10\log\left(\frac{1}{N_{PLNS}}\sum_{i=1}^{N_{PLNS}} 10^{\left(\frac{L_{eqij}}{10}\right)}\right) \qquad \text{[Equation 1]}$$

where L_{eq} is the L_{eq} in the jth frequency band for the i^{th} non-deleted data block.

F) In terms of SEL, the raw SEL in the j^{th} frequency band is given by:

$$SEL_j = 10\log\left(\sum_{i=1}^{N_{PLNS}} 10^{\left(\frac{SEL_{ij}}{10}\right)}\right) \qquad \text{[Equation 2]}$$

G) The raw, 1-hour L_{eq} in the j^{th} frequency band is given in terms of the corresponding SEL_j by:

$$L_{eqj} = SEL_j + 10\log\left(\frac{3600}{N_{PLNS}\Delta T}\right) \qquad \text{[Equation 3]}$$

Where T is the block duration in seconds, N_{PLNS} is the number of non-discarded data blocks, and 3600 is the number of seconds in an hour.

2) Continuous Data Collection

A) Adjust the measuring instrument to continuously measure sound pressure and accumulate L_{eq} for each block of time. For convenience, the hour may be split into several smaller blocks such as 10, 6-minute blocks or 4, 15-minute blocks, etc.

B) A switch on the measuring instrument must be available to inhibit data collection whenever a short-term background transient sound occurs. Use this switch to prevent short-term background ambient sounds from corrupting the data.

C) Data collection must proceed for one hour. The energy average of the several measured L_{eqij} each weighted by the number of seconds actually accumulated during the i^{th} block results in the raw, 1-hour L_{eq} in each frequency band given by:

$$L_{eqj} = 10\log\left(\frac{1}{T_{PLNS}}\sum_{i=1}^{N_{PLNS}} T_i 10^{\left(\frac{L_{eqij}}{10}\right)}\right) \qquad \text{[Equation 4]}$$

Where L_{eqij} is the L_{eq} in the j^{th} frequency band for the i^{th} large block. T_i is the actual number of seconds of "good" data accumulated in the i^{th} block of time (e.g., 6 to 15 minutes); and

$$T_{PLNS} = \sum_{i=1}^{N_{PLNS}} T_i \qquad \text{[Equation 5]}$$

3) Minimum Data Collection Requirements

A) Initial Measurement Duration. Measure the property-line noise source initially for one hour. Because of correction for short-term background transient sounds, actual reported data collection time T, in seconds, may be less than 3600 seconds (one hour).

i) If small blocks of data are used for data collection, then the total measurement duration in seconds, T_{PLNS}, is given by N_{PLNS} T, where T is the length of each block in seconds and N_{PLNS} is the number of non-discarded blocks. If data inhibition is used for data collection, then T_{PLNS} is the number of non-inhibited seconds during the measurement hour. In either case, T_{PLNS} must be at least 900 seconds.

ii) If very few blocks were used for data collection, then the duration of each block, T, may be too long and must be reduced.

iii) For either data collection method, sounds considered to be short-term transient may actually be part of the long-term background ambient and must be so redefined.

B) Extended Measurement Duration. If T_{PLNS} is less than 900 seconds during the first hour of measurements, modify the raw data collection procedures appropriately and take new measurements for an additional hour. If T_{PLNS} after combining the first and the second hour of measurements is also less than 900 seconds, then collect additional raw data using the data inhibition method or method employed during the second hour until T_{PLNS} is greater than or equal to 900 seconds.

4) Correction for Long-Term Background Ambient Sound

A) The raw 1-hour L_{eq} must be corrected for long-term background ambient sound. Subsection (b) describes methods to obtain the long-term background ambient sound level in the j^{th} frequency band. The correction is dependent on the difference (in decibels) between the raw, 1-hour, j^{th} band property-line noise source (L_{eqj}) and corresponding j^{th} band long-term background ambient sound level. The correction to be applied is as follows:

i) If the difference between the raw 1-hour L_{eq} and the long-term background ambient sound is larger than 10 decibels, then the correction is set to 0.

ii) If the difference between the raw 1-hour L_{eq} and the long-term background ambient sound difference is less than 3 decibels, then the j^{th} frequency-band level, L_{eqj}, is set to 0.

iii) If the difference between the raw 1-hour L_{eq} and the long-term background ambient sound is between 3 and 10 decibels, then the correction given in Table 1 is subtracted from the raw, 1-hour property-line noise source L_{eqj}.

Table 1
Corrections in dB for long-term background ambient sound

Difference (dB)	Correction (dB)
3	3
4	2.3
5	1.7
6	1.3
7	1.0
8	0.7
9	0.6
10	0.5

B) The long-term background ambient corrected level is the property-line noise source L_{eqj} reported for the j^{th} frequency band.

b) Obtaining the Background Ambient Sound Level

1) Measure the background ambient during a 10-minute interval.

2) Long-term background ambient measurement procedures are similar to procedures to measure the property-line noise source itself. Eliminating short-term background ambient transient sounds from the measurement of

average long-term background ambient sound level, proceeds in a manner similar to the measurement of the property-line noise source emissions themselves. The two methods for measurement are:

A) to divide the 10-minute measurement into short blocks of data; or

B) inhibit data collection when short-term background transient sounds occur. The same method must be used for gathering both the property-line noise source data and the corresponding long-term background ambient data. The measurement procedures for each method are given in subsections (b)(3), (b)(4) and (b)(5).

3) Using Small Blocks of Data

A) Divide the 10-minute measurement of long-term background ambient into short measurement blocks. The duration of these blocks in seconds (T) must:

i) remain constant during the entire measurement, both when measuring the long-term background ambient and when measuring the property-line noise source; and

ii) divide exactly (without remainder) into 600 and must be neither greater than 100 seconds nor less than 10 seconds.

B) Discard data for any measurement block corrupted by one or more short-term ambient transient sounds. The number of remaining, non-discarded measurement blocks is designated N_{BA}, where *BA* stands for background ambient.

C) The L_{eq} for each octave-band (or ⅓ octave-band) are time-averaged on an energy basis over the N_{BA} remaining measurement blocks to obtain average long-term background ambient L_{eq} per band. Equation 1 (see subsection (a)(1)(E)) is used for this calculation with N_{BA} replacing N_{PLNS} as the number of elemental blocks to be summed. The total duration of the measurement in seconds, T_{BA}, is given by N_{BA} multiplied by T.

4) Continuous Data Collection

A) Adjust the measuring instrument according to manufacturer's instructions to continuously measure sound pressure and accumulate (i.e. record) L_{eq}. A switch must be available to inhibit data collection whenever a short-term background transient sound occurs, (and on some instruments, a button may be available to delete the most recent, previous data).

B) Use the switches or buttons to prevent short-term background ambient sounds from corrupting the data.

C) Data collection must proceed for 10 minutes. The result is the 10-minute, long-term background ambient L_{eq} in each band.

D) T_{BA} is the number of non-inhibited measurement seconds during the 10-minute measurement period.

5) The minimum duration, for either method, T_{BA} must be at least 150 seconds. If T_{BA} is less than 150 seconds, then continue to measure the long-term background ambient beyond the original 10 minutes and until T_{BA} for the total long-term background ambient measurement is greater than or equal to 150 seconds.

6) Measurement Alternatives. The long-term background ambient noise should ideally be measured at the potential violation site just before measurement of the property-line noise source emissions. However, turning off the property-line noise source may not always be possible. The following are a hierarchical order of five procedures for obtaining the long-term background ambient noise. The first four procedures involve direct measurement; the fifth procedure provides for use of tables of values obtained from extensive measurements. These are not equivalent procedures but are ordered from what is considered to be the most accurate to what is considered to be the least accurate procedure.

A) Direct Measurement Procedure-1: With the property-line noise source (PLNS) turned off, measure the long-term background ambient noise within the hour before or within the hour after measurement of the PLNS emissions at the location where the PLNS measurements are being taken and with the measurement equipment used for the PLNS measurements.

B) Direct Measurement Procedure-2: With the PLNS turned off, measure the long-term background ambient noise during a similar time period in terms of background ambient sound level, within one to 24 hours before, or within one to 24 hours after measurement of the PLNS emissions at the location where the PLNS measurements are being taken and with the measurement equipment used for the PLNS.

C) Direct Measurement Procedure-3: With the PLNS turned off, measure the long-term background ambient during some other acoustically similar period within one to 30 days before, or within one to 30 days after measurement of the PLNS emissions. This alternate long-term background ambient measurement time might

be a Saturday night or anytime during a Sunday or holiday. The measurements would be made at the location where the PLNS measurements are being taken and with the measurement equipment (or like equipment) used for the PLNS measurement.

D) Direct Measurement Procedure-4: With the PLNS turned off, measure the long-term background ambient noise during some other acoustically similar period within 30 to 90 days before, or within 30 to 90 days after measurement of the PLNS emissions. These measurements would be made at the location where the PLNS measurements are being taken and with the measurement equipment (or like equipment) used for the property-line noise source measurements.

E) Measurement Procedure-5: Tables of Long-Term Background Ambient Noise. If none of the alternatives can be used, use the applicable long-term background ambient data taken from Tables A through D in Appendix A. These tables are organized by predominant land use and time of day (daytime or nighttime). There are separate tables for octave- and ⅓ octave-bands. The background environments presented in the table are based on extensive measurements conducted in the Chicago area and are divided into the five categories listed in this subsection (b)(6) compliant with G.L. Bonvallet, "Levels and Spectra of Traffic, Industrial, and Residential Area Noise", Journal of the Acoustical Society of America, 23 (4), pp 435-439, July 1951; and Dwight E. Bishop and Paul D. Schomer, Handbook of Acoustical Measurements and Noise Control, Chapter 50, Community Noise Measurements, 3rd Edition, Cyril M Harris, Editor, McGraw-Hill Book Co., New York (1991).

i) Category 1: Noisy Commercial and Industrial Areas. Very heavy traffic conditions, such as in busy downtown commercial areas, at intersections of mass transportation and other vehicles, including the Chicago Transit Authority trains, heavy motor trucks and other heavy traffic, and street corners where motor buses and heavy trucks accelerate.

ii) Category 2: Moderate Commercial and Industrial Areas, and Noisy Residential Areas. Heavy traffic areas with conditions similar to Category 1 but with somewhat less traffic, routes of relatively heavy or fast automobile traffic but where heavy truck traffic is not extremely dense, and motor bus routes.

iii) Category 3: Quiet Commercial and Industrial Areas, and Moderate Residential Areas. Light traffic conditions where no mass transportation vehicles and relatively few automobiles and trucks pass, and where these vehicles generally travel at low speeds. Residential areas and commercial streets and intersections with little traffic comprise this category.

iv) Category 4: Quiet Residential Areas. These areas are similar to Category 3 but, for this group, the background is either distant traffic or is unidentifiable.

v) Category 5: Very Quiet, Sparse Suburban or Rural Areas. These areas are similar to Category 4 but are usually in unincorporated areas and, for this group, there are few if any near neighbors.

(Source: Amended at 42 Ill. Reg. _____, effective November 1, 2018)

a) Measurement of highly impulsive sound under 35 Ill. Adm. Code 901.104 can be made using two distinct and equally valid ways specified in subsections (b) and (c), namely the general method and the controlled test method.

b) General Method: The general method is to measure the 1-hour, A-weighted L_{eq} (not the octave-band or ⅓ octave-band levels) using essentially one of the two procedures described in Sections 910.105 and 910.106.

1) The procedure using small blocks of time to collect data is as follows:

A) Divide the hour interval into small blocks of time and measure the A-weighted L_{eq} for each of these blocks. L_{eq} is measured for the entire hour but data collection is inhibited whenever a short-term background transient sound occurs.

B) The duration of each block is held constant during the hour. This duration in seconds divides exactly into 900 and is neither greater than 100 seconds nor less than 10 seconds.

C) Discard the data for any block corrupted by one or more short-term background ambient sounds.

2) Correction for the Long-Term Background Ambient Sound. Correct the raw 1-hour L_{eq} for long-term ambient sound using the procedures of Sections 910.105 and 910.106 to determine an A-weighted, 1-hour, background-ambient-corrected L_{eq} for the highly impulsive property-line noise source under study.

c) Controlled Test Method

1) General Measurement Description

A) The sound exposure per impulse from each separate individual impulsive source is measured.

B) The total sound exposure per hour from each source is the sound exposure per event multiplied by the number of events per hour.

C) The grand total sound exposure (SE) per hour is the sum of the sound exposures per hour from each of the separate individual sources.

D) The reported SEL is obtained from the grand total sound exposure (SE) per hour using the following:

$$SEL = 10 \log (SE) + 94 \qquad \text{[Equation 7]}$$

E) The equivalent level, L_{eq}, corresponding to a SEL measured or predicted for one hour (3600 seconds) is given by:

$$L_{eq} = SEL - 10 \log (3600) \qquad \text{[Equation 8]}$$

2) Determination of Sound Exposure Per Event

A) Determine the sound exposure per event from each, separate, individual source by measuring the total A-weighted sound exposure for about 10 repetitions of the source. This set of about 10 measurements may be performed continuously over a short period of time, or over a discontinuous set of measurement periods. In either case, the total measurement duration must be less than 100 seconds.

B) The separate, individual property-line noise source measurements collected under subsection (a) must be free of any short-term ambient sounds. If any short-term background transient sounds occur during these measurements, repeat the measurements until data, free of any corrupting short-term background ambient sounds, are obtained.

C) Correct the total measured A-weighted sound exposure for the group of about 10 repetitions for long-term background ambient by subtracting the A-weighted long-term background ambient sound exposure, which is the long-term A-weighted background

ambient sound exposure per second multiplied by the number of seconds used to measure the several source repetitions.

D) A-weighted sound exposure per event is the total corrected sound exposure divided by the number of source repetitions measured.

E) Measure the long-term background ambient for a short time, at least 30 seconds, as near in time to the source measurements as possible, but within ½ hour. The total A-weighted long-term background ambient sound exposure per second is the total measured long-term background ambient sound exposure divided by the number of seconds of background ambient measurement.

F) There must be no short-term background ambient sounds present during the measurement of the long-term background ambient. If any short-term background transient sounds occur during these measurements, repeat the measurements until long-term background ambient measurement data, free of any corrupting short-term background ambient sound, are obtained.

(Source: Amended at 42 Ill. Reg. _____, effective November 1, 2018)

910.APPENDIX A Tables of Long-Term Background Ambient Noise

910.TABLE A. Daytime long-term background ambient L_{eq} levels in decibels by land use categories and 1/3 octave-band level

Octave-Band Center Frequency (Hz)	Background Category				
	1	2	3	4	5
20	63	56	48	42	36
25	64	57	49	43	37
31	65	58	50	44	38
40	65	58	51	44	38
50	66	59	51	45	39
63	66	59	52	46	40
80	67	60	52	46	40
100	68	60	53	47	41
125	67	59	52	46	40
160	66	59	52	46	40
200	66	58	51	45	39
250	65	58	50	44	38

315	64	57	49	43	37
400	63	55	48	42	36
500	62	54	46	40	34
630	61	53	44	38	32
800	60	51	42	36	30
1000	58	49	40	34	28
1250	56	47	38	32	26
1600	54	45	36	30	24
2000	52	43	33	28	21
2500	50	41	30	25	19
3150	49	39	28	23	17
4000	48	37	25	20	15
5000	46	35	23	18	13
6300	44	33	21	16	10
8000	43	31	19	14	8
10,000	41	29	17	12	6
12,500	39	27	15	10	4

910. APPENDIX A Tables of Long-Term Background Ambient Noise

910.TABLE B**.** Nighttime long-term background ambient L_{eq} levels in decibels by land use categories and 1/3 octave-band level

Octave-Band Center Frequency (Hz)	Background Category				
	1	2	3	4	5
20	53	48	43	37	31
25	54	49	44	38	32
31	55	50	45	39	33
40	55	50	46	39	33
50	56	51	46	40	34
63	56	51	47	41	35
80	57	52	47	41	35
100	58	52	48	42	36
125	57	51	47	41	35
160	56	51	47	41	35
200	56	50	46	40	34
250	55	50	45	39	33

315	54	49	44	38	32
400	53	47	43	37	31
500	52	46	41	35	29
630	51	45	39	33	27
800	50	43	37	31	25
1000	48	41	35	29	23
1250	46	39	33	27	21
1600	44	37	31	25	19
2000	42	35	28	23	16
2500	40	33	25	20	14
3150	39	31	23	18	12
4000	38	29	20	15	10
5000	36	27	18	13	8
6300	34	25	16	11	5
8000	33	23	14	9	3
10,000	31	21	12	7	1
12,500	29	19	10	2	

910. APPENDIX A Tables of Long-Term Background Ambient Noise

910.TABLE C**.** Daytime long-term background ambient L_{eq} levels in decibels by land use categories and octave-band level

Octave-Band Center Frequency (Hz)	Background Category				
	1	2	3	4	5
31	70	63	55	49	43
63	71	64	57	51	45
125	72	64	57	51	45
250	70	63	55	49	43
500	67	59	51	45	39
1000	63	54	45	39	33
2000	57	48	38	33	26
4000	53	42	30	25	20
8000	48	36	24	19	13

910. APPENDIX A Tables of Long-term Background Ambient Noise

910.TABLE D**.** Nighttime long-term background ambient L_{eq} levels in decibels by land use categories and octave-band level

Octave-Band Center Frequency (Hz)	Background Category				
	1	2	3	4	5
31	60	55	50	44	38
63	61	56	52	46	40
125	62	56	52	46	40
250	60	55	50	44	38
500	57	51	46	40	34
1000	53	46	40	34	28
2000	47	40	33	28	21
4000	43	34	25	20	15
8000	38	28	19	14	8