

Acoustic Associates, Ltd.

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Specialists in Hearing and Acoustics

STATE OF ILLINOIS
Pollution Control Board

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February 7, 2003

Illinois Pollution Control Board
J.R. Thompson Center – Suite 11-500
100 West Randolph
Chicago, Illinois 60601

P.C.#4

RE: Comments on the first-notice of the Noise Rule Update
Proposed Amendments to 35 ILL. ADM CODE 900 and 903
R03-8 NOISE RULEMAKING

Dear Board Members:

I appreciate the opportunity to comment on the subject rulemaking. Here are my comments:

1. Add a definition for "reference time."

I suggest the following definition: **"the time period over which the Leq average is measured or determined."** In 1987, the Board amended 900.103 to require that noise measurements be based on Leq averaging and that the reference time for this averaging be 1-hour. If the Board intended this to be a 1-hour measurement time, then with some sound level meters, measurements for all nine octave bands could take nine hours. By defining reference time as suggested here, the 1-hour Leq could be projected based on shorter measurement periods which would greatly reduce the time required for the vast majority of situations.

For example, if the noise were **steady** (as defined in the regulation), there would be no need to measure for a full hour. In such cases, a 1-minute Leq would yield the same results as a 1-hour Leq. If the noise were **intermittent**, then a measurement taken while the source was on would be sufficient to project a 1-hour Leq when the on/off proportion (duty cycle) is known or assumed. Only in cases where the noise were **non-steady** or the source had no repetitive cycle, such as loading dock operations, would a full 1-hour measurement be required.

Finally, if a complainant was willing to assume no contribution from the noise source for the unmeasured duration of the 1-hour reference time, the Board should not insist on a full 60 minutes of measurement to support a numerical violation of the regulation. For example, if 30 minutes of representative sampling was all that a complainant could obtain, for whatever reason, then the projected 1-hour Leq with no assumed contribution from the source for the remaining 30 minutes might still exceed the State's limits. In this regard, the definition suggested above for "reference time" should be amended with: **"For purposes of showing noncompliance with these regulations, 0 dB of contribution can be assumed for the unmeasured portion of the reference time."**

2. **The American National Standard ANSI S12.9-1993/Part 3, “Short-Term Measurements with an Observer Present” should be added as a reference standard under Section 900.101.**

ANSI S12.9-1993/Part 1 has already been added in the Notice. However, since this standard only deals with definitions for standard quantities, I recommend its companion standard, Part 3, also be added since this is the most relevant American National Standard dealing with the type of measurements and procedures related to this Regulation.

3. **In the definition for “Background Sound Level” – delete “A-weighted sound.”**

The regulation is written to measure the octave band Leq, not the A-weighted Leq. Better yet, the definition should be made congruent with the definition under ANSI S12.9. Specifically I recommend the following language: “all-encompassing sound associated with a given environment without contributions from the source or sources of interest. When the background noise consists of discrete, intrusive events (e.g., dog barking, car horns, train horns, etc.), then either: 1) the data from these events must be subtracted from the sample, or 2) a statistical analysis must be performed to determine the level exceeded 90% of the time.” The Board should note that ANSI S12.9/Part 3, as referenced in item #2, describes the actual task required to correct for the background noise. It may, therefore, wish to refer to this standard to address the issue of background noise corrections.

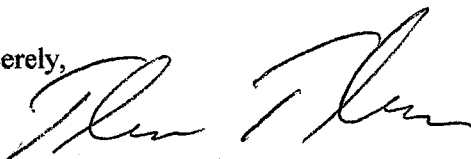
4. **In the definition of Leq, add “...the measure is a time-averaged sound level during a stated time-interval, T.”**

This addition is necessary to be consistent with current ANSI terminology per ANSI S1.1.

5. **The definition “Period of observation” should be replaced with “Measurement period.”**

This change is consistent with current ANSI terminology per ANSI S12.9. An observation period would be the time a field person observed source operations and background noise conditions. But the measurement period refers to the actual sampling duration. Furthermore, I recommend a minimum measurement period of 10 minutes. As explained above, the 1-hour Leq could be reliably projected from a 10-minute measurement if the sound was steady and continuous. And if the sound was intermittent, but steady when the source was operating during the 10-minute measurement, the 1-hour Leq could still be projected with a known or assumed on/off proportion. Only for fluctuating sound would a full 60-minute measurement period be needed. In any case, a complainant ought to be able to assume 0 dB contribution for the remaining 50 minutes of the reference time to show noncompliance with the numerical portions of the State’s limits. Of course, for a respondent to show compliance for a non-steady noise, a full 60-minute measurement duration would be required.

Sincerely,



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Licensed Audiologist – State of Illinois
Board Certified - Institute of Noise Control Engineering

cc: Howard Chinn

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