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Noise Nuisance vs Noise Compliance

Complexities in Assessing Adverse Impact

AWMA-OS Nuisance Conference

June 21, 2017

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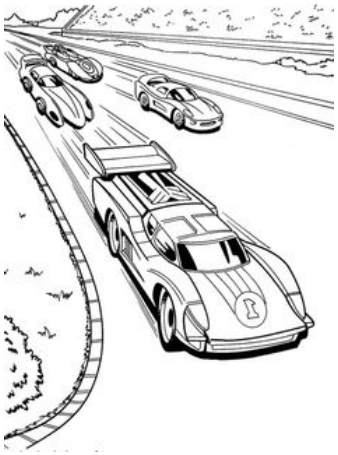
What is a Nuisance Noise?

For the purpose of this presentation, we'll define "nuisance noises" as:



<u>Unwanted sounds for which there is no quantitative regulatory limit...</u>

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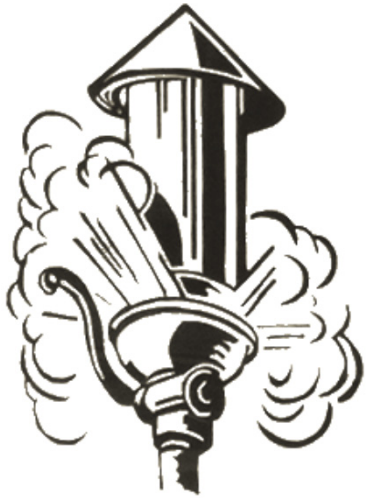
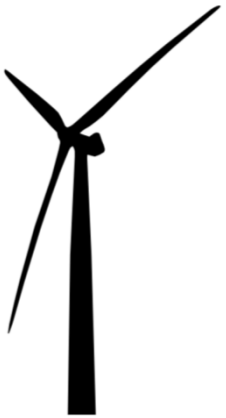
What is a Nuisance Noise?



Perhaps also:

Distinctive sounds for which the regulatory limits are seemingly inadequate to prevent disturbance (adverse effect).



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Most Common (Serious) Nuisance Noises

- Music venues (usually bass beats)
- Barking dogs – kennels, dog parks
- Wind Turbines – especially “throbbing”
- Tonal Industrial Sources (hum/whine)
- Low Frequency Industrial Sources (rumble)

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Not talking about...

Noises readily managed administratively via municipal enforcement:

- **Raised voices (boisterous/disputes)**
- **Construction noise**
- **Hot-rodded or poorly maintained vehicles**
- **Pets at residences**

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"Nuisance" Does NOT Mean Trivial

Section 14 of the E.P.A.:

"a person shall not discharge a contaminant or cause or permit the discharge of a contaminant into the natural environment, if the discharge causes or may cause an adverse effect."

[Emphasis added.]

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"Nuisance" Does NOT Mean Trivial

Section 1 of the E.P.A.:

"'contaminant' means any solid, liquid, gas, odour, heat, sound, vibration, radiation or combination of any of them resulting directly or indirectly from human activities that causes or may cause an adverse effect;

[Emphasis added.]

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“Nuisance” Does NOT Mean Trivial

Section 1 of the E.P.A.:

“‘adverse effect’ means one or more of,

...c) harm or material discomfort to any person,

...g) loss of enjoyment of normal use of property...”

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“Nuisance” Does NOT Mean Trivial

Most municipal bylaws state something like:

“No person shall make, cause or permit noise or vibration, at any time, which is likely to disturb the quiet, peace, rest, enjoyment, comfort or convenience of the inhabitants of the City.”

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When *Is* a Noise Likely to Disturb

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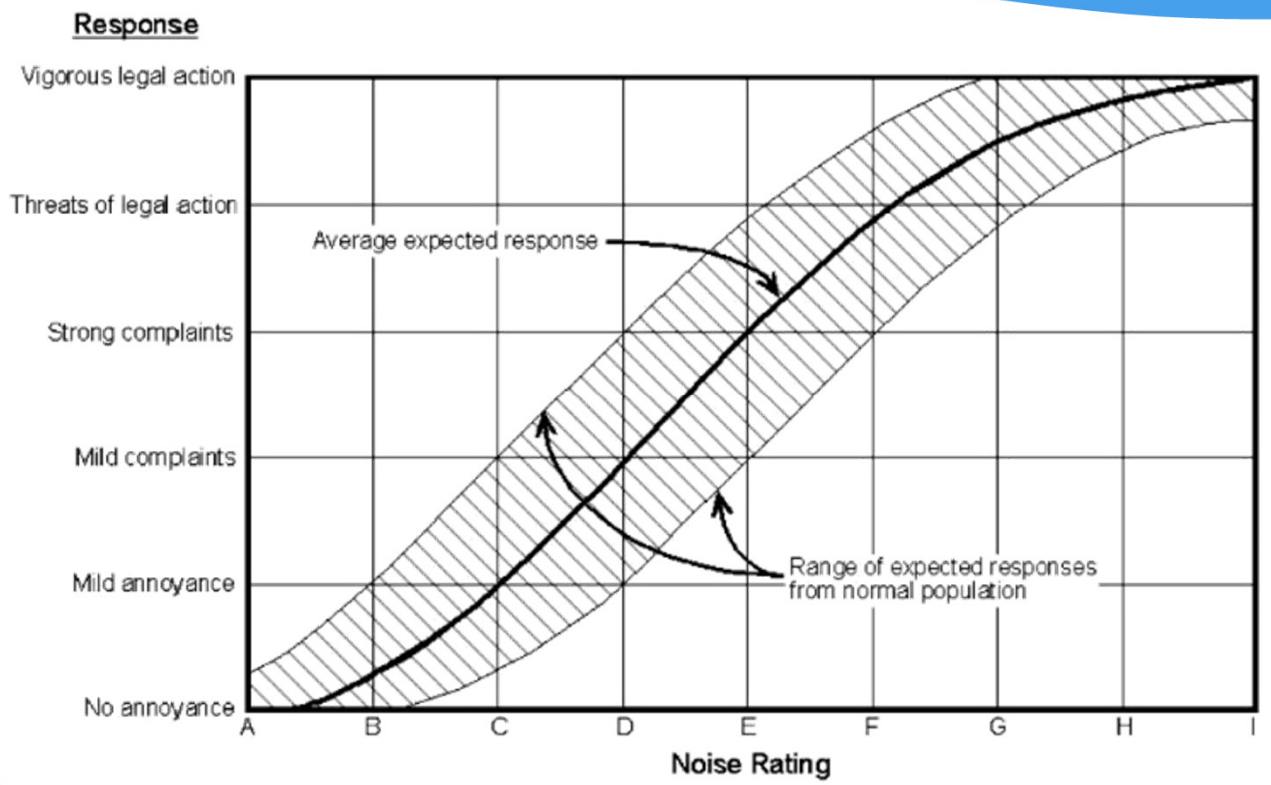
Schultz Curve (1978): Nice, but not really applicable



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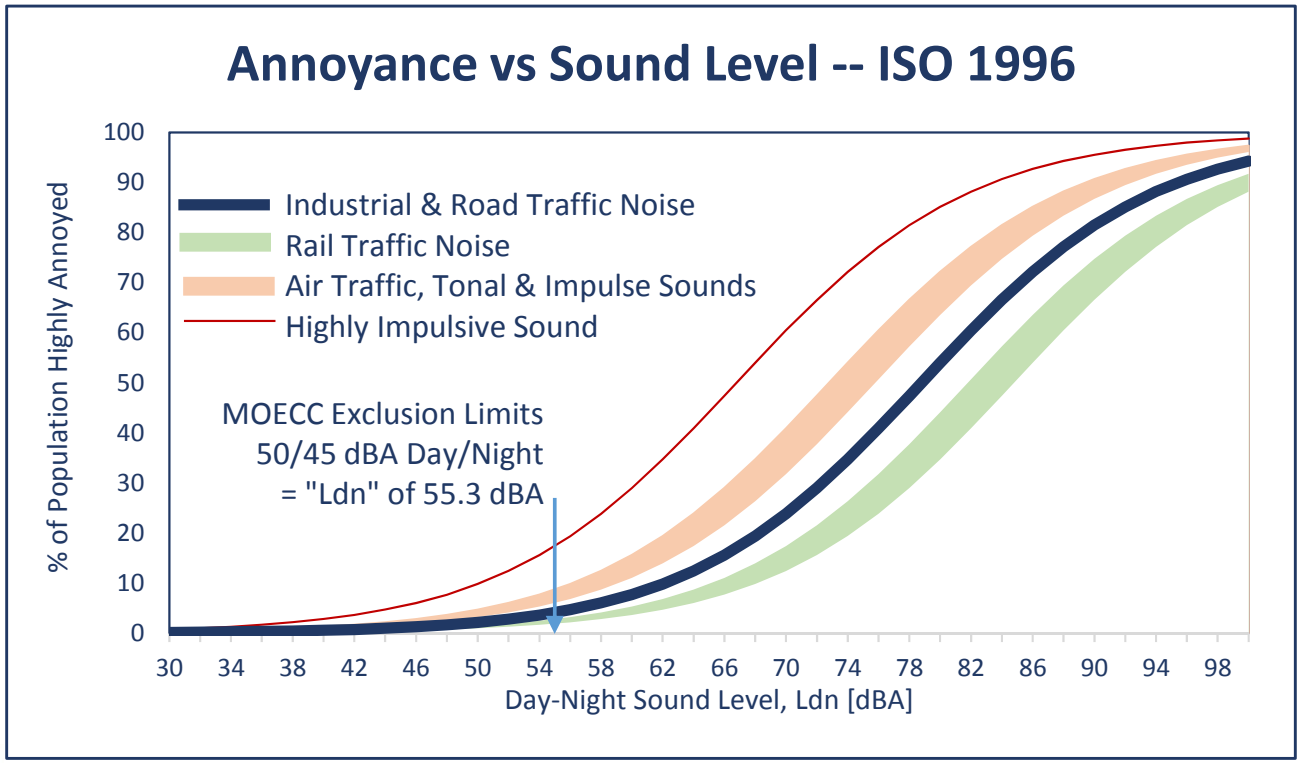
Fancified Schultz Curve: ISO Standard 1996 (Still Not Really Applicable/Adequate)



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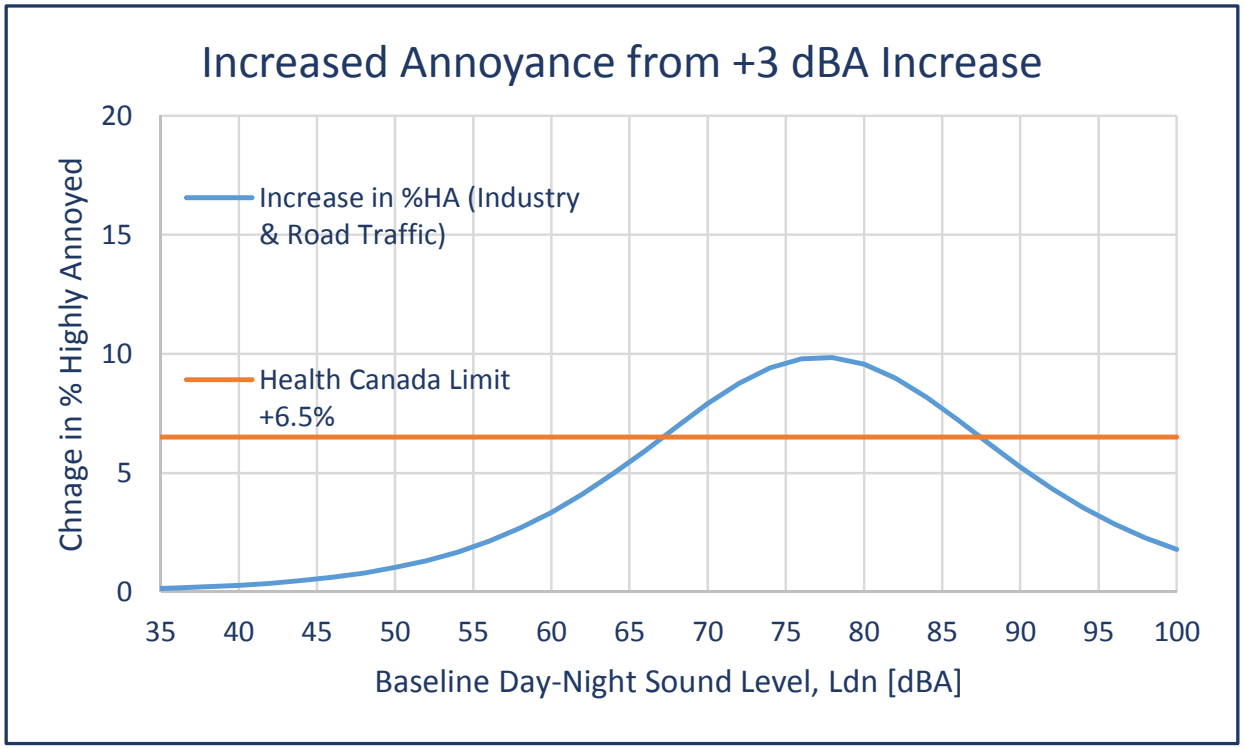
Difference Between Schultz, Health Canada & MOECC



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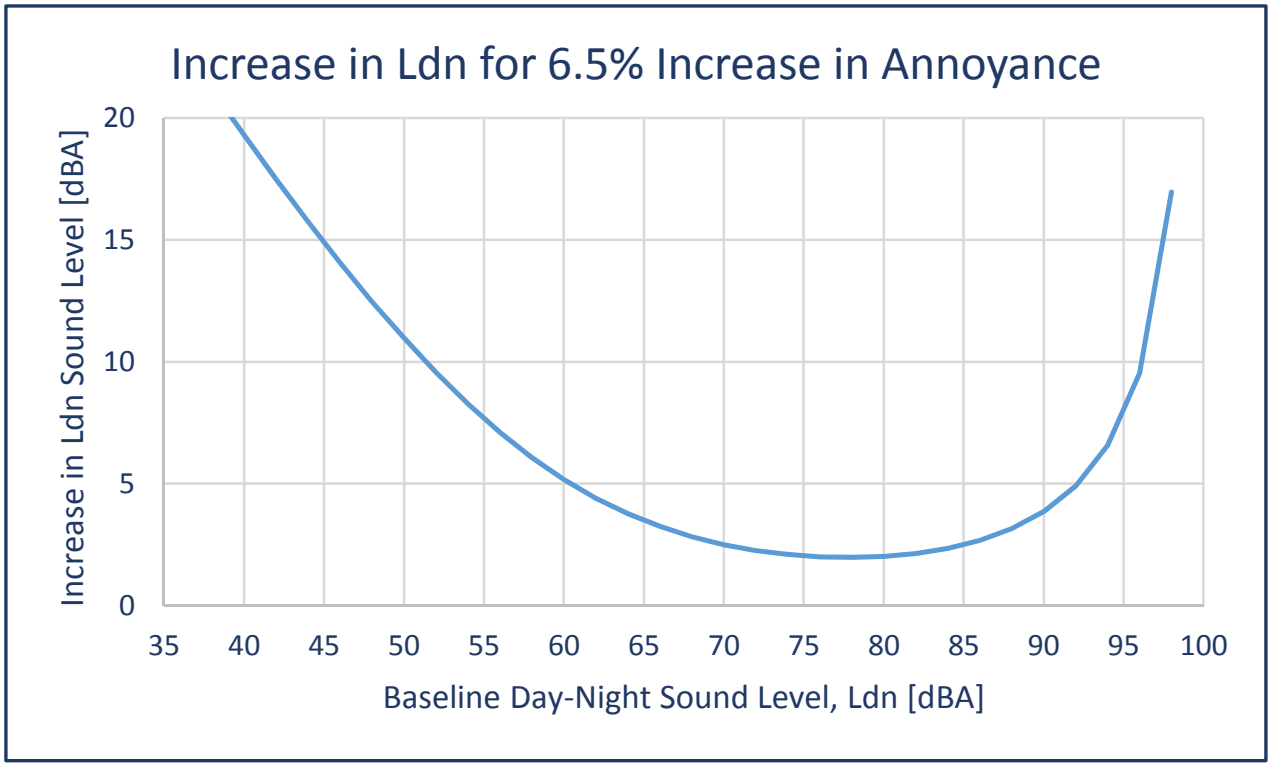
Curious Implications of the Schultz Curve vs Health Canada Criterion



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The MOECC Noise Limits Have Two Aspects Recall in Principal the *Relative* Aspect

NPC-300, Section B4: "The sound level limit at a point of reception is... the minimum background sound level that occurs... during the period..." [Emphasis added]

I.e., The noise being assessed meets the criterion if it has the same level as the background sound

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We Find That this *Relative* Criterion Holds True Universally – If Applied Carefully

If a noise has a sound level less than that of the steady background sound, then it will tend to be "masked" by the background sound and be inaudible, or minimally audible.

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Conversely...

- A noise whose sound level exceeds that of the steady background sound, will not be "masked"
- Those that exceed the background by a significant margin (e.g., 5 to 10 dB or more) have a high potential to be audible and cause disturbance or disruption.

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BUT, We Need to Apply this Criterion Carefully

- Need to compare noise to background on a per-frequency basis – 1/1 Octave, 1/3-Octave, or narrowband... Overall dBA does not suffice
- For transient noises, we cannot use a long-time-averaged metric such as L_{EQ}(1 hr), or perhaps not even L_{EQ}(1 min)

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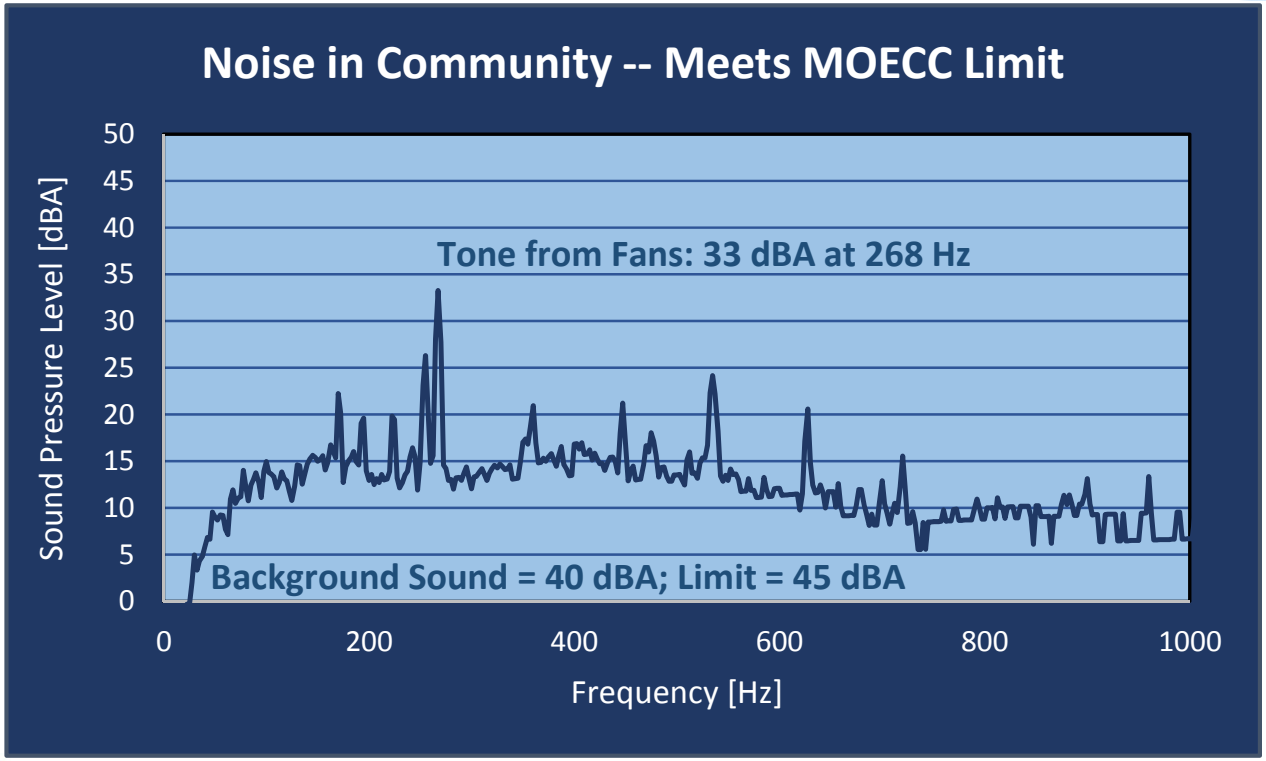
Case Example #1: Industry in GTA
Tonal Fans Causing Multiple Complaints



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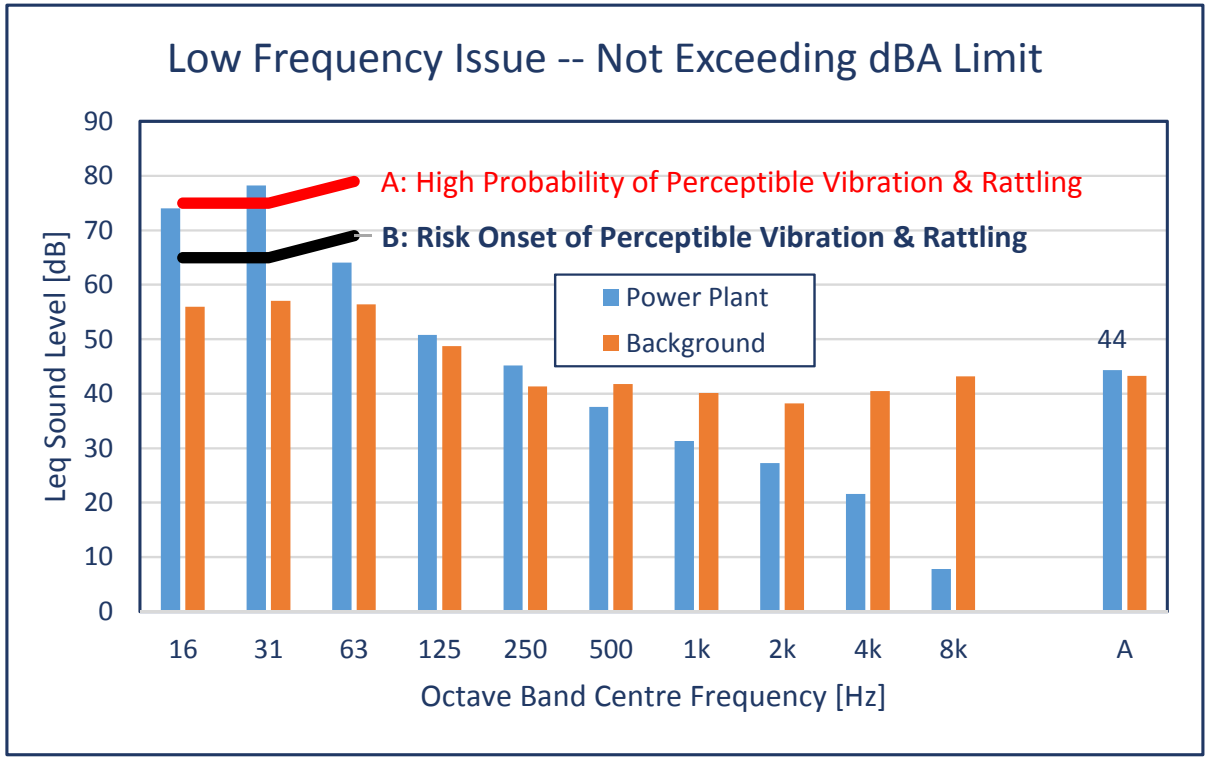
Case Example #2: Proposed Power Plant in Ontario < 45 dBA Limit but with an Issue!



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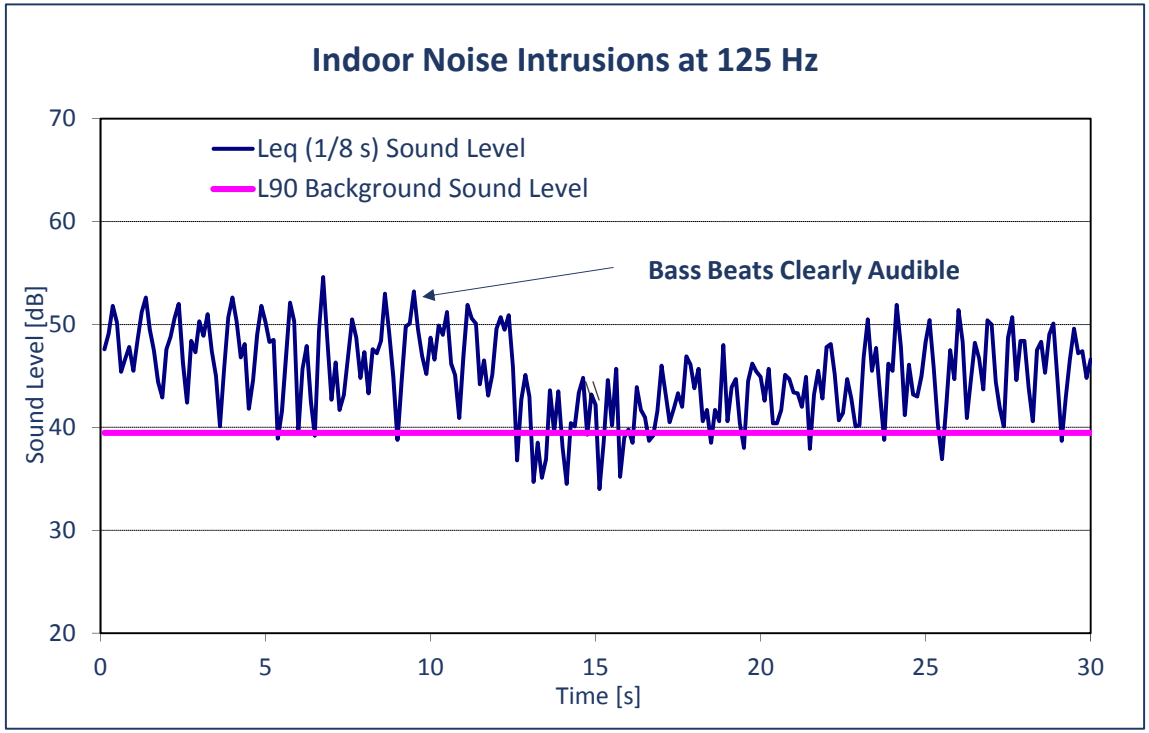
Case Example #3: Music from Club Intruding thru Facade into Boutique Hotel



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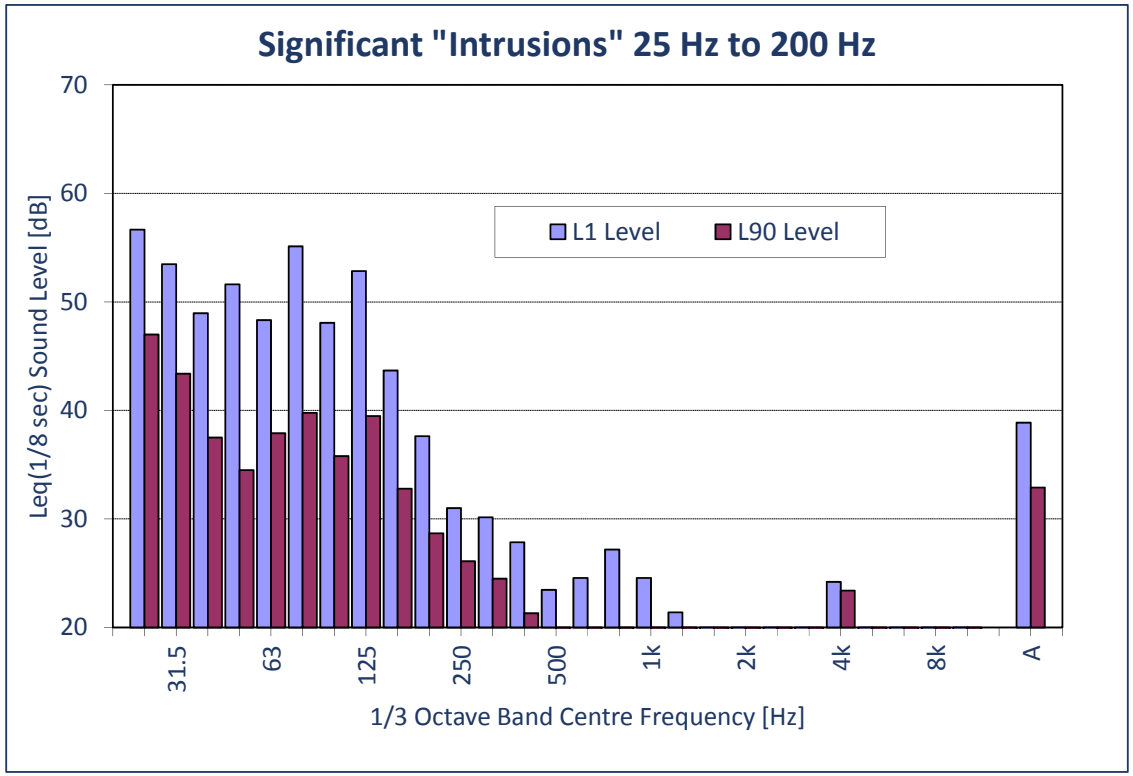

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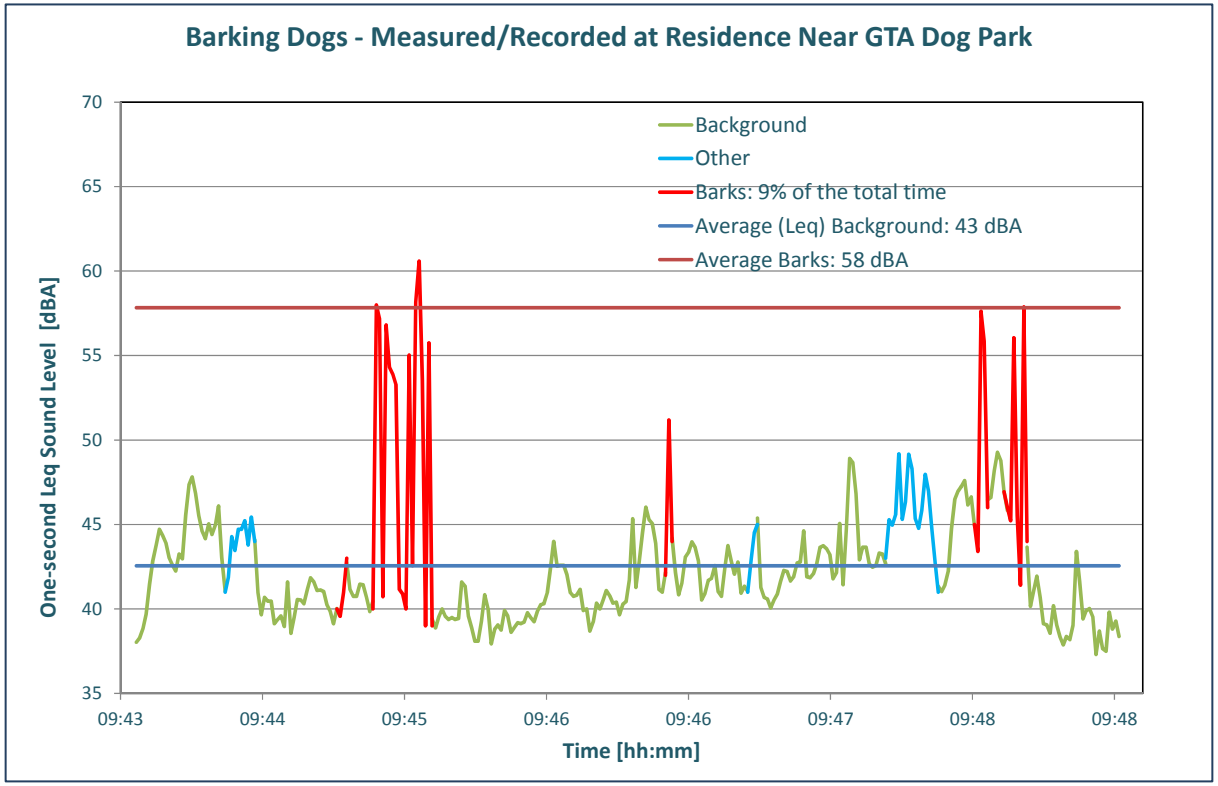
Case Example #4: Barking Dogs at a Municipal Dog Park



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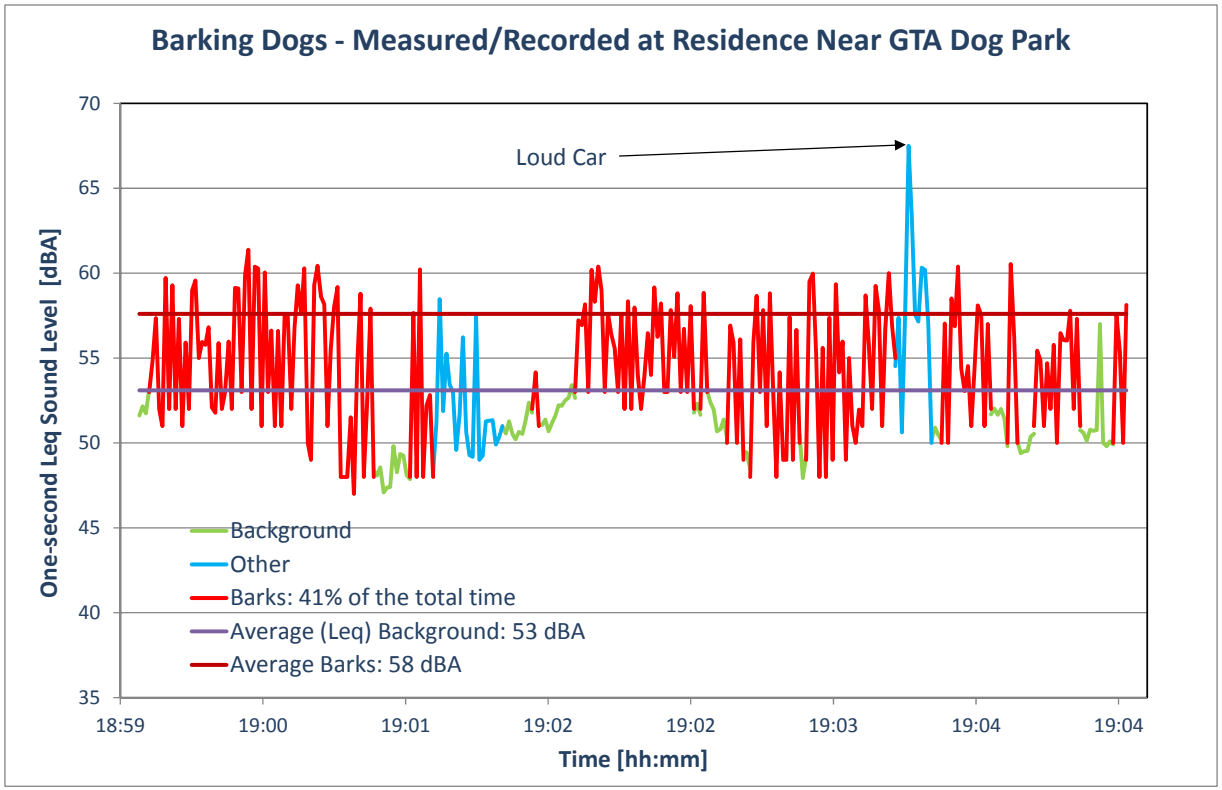

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Closing Thoughts

- Best to solicit information from complainant
- Often need audio recording if complaints
- Usually need to use short/fast time averaging
- Always need to consider frequency content
- Must separate noise from background to determine audibility and potential to disturb

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Thank-You!
Any Questions?

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