quiet communities

DATA CENTER NOISE

It's More than A-weighted Decibels

https://datacenternoise.org/a-source-class-your-standard-methods-werent-built-for/

Pathway from problem to solution:

As an acoustical professional, you are unlikely to read anything here that you do not already know; these pages are intended to serve primarily as a reminder. However, we also wanted you to know about the information community members and public officials are reading about data center noise so you won't be surprised by their requests for various data and/or analyses based on what they've learned.

Key points

A shared technical foundation

As you know, data center noise can present a particular challenge if not adequately designed and/or equipped.

Typically, data centers' cooling systems and on-site power generation produce continuous, tonal, low-frequency sound — around the clock, every day of the year at levels that shift with load and ambient conditions. There is no quiet period to average against, and the controlling condition is usually considered to be nighttime, when background levels fall but the facility continues to operate.

dBA metrics do not provide the full picture

The measurement challenge, of course, is that A-weighted decibel (dBA) metrics do not provide the full picture of these sounds.

A-weighting discounts roughly 26 decibels at 63 Hz, and one-third-octave analysis is not well suited to resolving tones within a band, let alone the very common series of tones from one or more noise sources.

Continue to the health evidence

Furthermore, it is important to recognize that average metrics are not going to capture fluctuations in the noise that may be causing sleep disruptions and distress.

What the evidence tells us

The next page reviews what the current evidence base says about the health effects of this kind of exposure. Then we will turn to the actual measurement challenges.